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Editor's Note



In the month of Margashir (Nov.-Dec.), the people of Odisha led by their women perform Lakshmi Puja with utmost devotion. The entrance of the house is decorated with artistic Odia Chitta and a pot made of bamboo-canes known as 'Mana' is filled up to the brink with freshly harvested paddy and worshipped. The priests do not play a part in this Oshas which are usually celebrated under the supervision of women which testifies to the simplicity, easy-belief and tenderness characterizing the communal spirit. Like 'Mana Osha Gurubar', we celebrate Janhi Osha, Khudurukuni Osha, Shasthi Osha and also Prathamastami. The 'Mana Osha' is celebrated in every Odia family in the month of Margashir (which comes after Karttika and before Pousha). The women folk perform the rituals and recite the sacred verse tale connected with the occasion, usually elaborating the benefits accruing from the observance of the rites and punishment from failure to do so. They recite 'Lakshmi Brata Katha' written by Balaram Das.

Once Lakshmi went out of the Jagannath temple of Puri to observe devotees worshipping Her. Finding one untouchable woman worshipping Her, She went to her house and granted a number of boons. On returning back She was rebuked by Lord Jagannath being motivated by His brother and asked to leave the temple as She had become an outcaste. She was shocked and cursed the brothers to be deprived of food until She fed them. She saw to it that the brothers went hungry. She resorted to this punishing act to teach the men of the mortal world to respect their women. Deprived of food the brothers roamed and finally landed up at the doorstep where Lakshmi resided. Lakshmi fed them declaring Herself as untouchable. Lord Jagannath realized His fault and allowed Lakshmi to move freely amongst Her devotees without caste barriers. Jagannath still accepts offerings without stigmatization. Goddess Lakshmi not only asserted Her freedom but also challenged caste discriminations.

Most of the observances are celebrated by the women folk for the welfare of their near and dear ones wishing long life of their children and obtaining salvation. Celebration of festivals also creates an occasion for a get together along with a motto therein. It also recognizes the economy value of women's contributions to the production processes and household works. On a mass scale today it has laid the foundation for a relatively more egalitarian and gender-just society. The thing that fascinates me most is the way the 'Mana Osha Gurubar' is celebrated. Rich or poor, urban or rural, modern or traditional on this particular day our State looks like a newly wedded bride. As is our custom the 'Osha' outgrows petty barriers created by human beings. It is celebrated in the same spirit in a high rise as it is celebrated in a tiny village. At least for a day we feel Odisha is one where intentionally the forefathers celebrated 13 festivals in 12 months and each adding to the glory of us being simple cultured Odias.



(Lenin Mohanty)
Editor, Orissa Review



GOOD GOVERNANCE



SUCCESSFUL LEADERSHIP ODISHA LEADS FROM THE FRONT

At the onset of the new millennium when Odisha was reeling under acute financial crisis, the Government under the leadership of Shri Naveen Patnaik, Hon'ble Chief Minister came to power with a huge mandate. The financial resources of the Government was too meagre to meet the expenses towards salary of employees; least to speak of plans and programmes.

In the meantime, through a stable, transparent, accountable and people-oriented governance, the fiscal health of the State has improved substantially and it has registered an unprecedented economic growth ensuring progress in all spheres.

The limitation of funds under centrally sponsored schemes and inadequacy of the prescribed guidelines of the schemes to serve the interests of the poor, urged the State to launch and implement a number of development and welfare schemes out of its own resources in the interest of the poor and the needy with the objective of achieving equitable and inclusive growth.

Perceptible improvements have been noticed in the living conditions of the people of Odisha, the State is on the path of rapid development.

Today, Odisha has been the leader in the field of good governance, self-reliance, alleviation of poverty with its own schemes and resources for ensuring an equitable social justice.

All these historic steps taken by the Government of Odisha are rededicated to the people of Odisha for their information.

FOOD SECURITY

The BPL Families of the State and all the families belonging to KBK districts have been covered under this historic food security scheme since August 2008 at a cost of about Rupees 1000 crores per annum. By this, 55 lakh families have been supplied with 25 kg of rice @ Rupees 2.00 a kilo. 24,000 riot-affected APL families of Kondhmal district have been covered under the scheme from 2010. Recently, 1 lakh 10 thousand differently abled beneficiaries covered under this Scheme.

To ensure transparency in the supply of essential commodities under PDS, Biometric Card System has been introduced on pilot basis in Rayagada district covering about 1 lakh 90 thousand beneficiaries.



ROADS FOR EVERY VILLAGE

Provision for construction of 5,000 kms village cement concrete roads with an investment of Rupees one thousand crores has been made by the end of March, 2012 out of which 2500 kms cement concrete roads have been completed. 400 Bridges proposed under 'Biju Setu Yojana' at a cost of Rupees one thousand crores within a period of 3 years.



PROGRESSIVE AGRICULTURE - PROSPEROUS FARMER

Enhancement in the irrigation potential of the State by 1.2 lakh hectares through 3900 L.I. Points under "Biju Krushak Vikas Yojana". Over 1 lakh 17 thousand farmers and marginal farmers have been able to develop their socio-economic status.

Landless persons and marginal farmers residing within the Watershed areas, and excluded from different watershed programmes included under a new initiative 'Jeebika' started with an allocation over Rupees 47 crores from State Plan. Over 28 thousand families with an expenditure of more than Rupees 32 crores benefited so far.

IRRIGATION FOR AGRICULTURE

Irrigation facilities provided to 24 lakh 87 thousand 165 ha. of land during 2000 has been enhanced to 30 lakh 15 thousand 20 hectares by the end of March 2011 thereby creating additional 5 lakh 27 thousand 855 ha. of irrigation potential for the farmers.

Out of 4000 deep bore wells to be dug in 17 hard rock districts 2548 bore wells have already been dug and 52 bore wells operationalised. By the end of this Rabi Season another 2000 borewells to be made functional.



To create additional irrigation potential in 67,000 hectares of land administrative approval accorded for construction of more than 4,500 check-dams with an expenditure of Rupees 447 crores.

Identification of 282 Mega L.I. Projects with the potential to irrigate 3 lakh 33 thousand 700 hectares in different river basins of the State. 1 lakh hectares of land out of the above to be irrigated within the

next 3 years. Target fixed to provide irrigation facilities to 500 – 2000 hectares of private land through individual L.I. Points.

ELECTRICITY FOR ALL

More than 9 thousand hamlets provided with electricity connection under “Biju Grama Jyoti” scheme

More than one lakh 13 thousand BPL families provided with free electricity connection.

Electricity connection provided to 1145 L.I. Points.

Electrification of un-electrified villages/wards/slums in urban areas of the State being accelerated under “Biju Saharanchal Vidyutikaran Yojana”.

To strengthen infrastructure in energy sector of the State CAPEX programme being implemented with an investment of Rupees 2400 crores.

Around 200 crores allotted through different development programmes to districts for replacement of defunct transformers, conductors etc.

Women Self Help Groups engaged for simple assignments like meter reading, electricity tariff collection as well as grievance redressal through an innovative scheme ‘SEFA’.

To achieve self reliance in thermal power production, 1320 MW thermal power to be generated by OPGC and 2000 MW by OPTCL.

SOCIAL SECURITY

More than 16 lakh destitute old men and women, widows, differentially abled persons, AIDS patients and cured leprosy patients assisted under Madhubabu Pension Yojana.

Rupees 40 crores allotted by State Government to organize “Bhima Bhoi Samarthyasibir” in all blocks to provide all certificates, aids, medical treatment and pension to persons with disabilities from a single window. Till date 282 camps organized, more than 1 lakh 49 thousand persons with disabilities identified, 76 thousand certificates issued and 3860 loan applications received.

ENRICHING HUMAN RESOURCES

Girl students of Class-X in Government and Government aided High Schools provided with Rupees 2600 each through Bank account to purchase bicycles of ISI standard. The same amount provided through Bank Account to all Class-X Scheduled Caste and Scheduled Tribe male students of Government and Government aided High Schools in 118 tribal blocks of the state. More than 2 lakh 70 thousand students to be covered under this scheme by 2011-12.

Provision for school uniforms @ 4 pairs for each student to all students from class-I to Class-VIII of Government and Government aided schools of the State to benefit more than 51 lakh students.

Students of Class-IX and Class-X of all Government and Government aided schools of the State to be provided with caste, income and residence certificate in their school campus without paying Court fee charges. More than 10 lakh students of the State to benefit under this programme.

'Pathani Samanta Scholarship Scheme' for excellence in mathematics instituted for Class-VI, Class-IX and +2 students of all Odiya medium schools of the State. 7500 meritorious students to be selected for this in three phases.

111 Model Schools to be established and provisions made for construction of 300 new school buildings for development of educational infrastructure of the State.

Number of scholarships in Primary & Upper primary levels enhanced from 5,000 to 10,000 and allocations increased from 12 lakh to 90 lakh Rupees.



By adopting an innovative approach, during 2011 academic year more than 2 lakh 47 thousand students in 1307 Junior Colleges and more than 51 thousand students in 62 Degree Colleges have been admitted in the most efficient and transparent manner through online registration and filling up of forms.

Number of scholarships increased from 16,500 to 24,500 from academic year 2011-12 in Junior, Senior, Post Graduate, Technical and Professional Education and funds to the tune of Rupees 16 crores provided for this purpose.

WOMEN EMPOWERMENT

Representation of women in 3-tier Panchayat Election enhanced from 33% to 50%.

Through 'Mission Shakti', 170 Block Level Women Federations provided with Rupees 25 lakh each as Revolving Fund.



More than 2 lakh 62 thousand women SHGs included in Mission Shakti provided with Rupees 5,000 each as seed money.

Rupees 25 lakhs allotted from Special Problem Fund to each District Mission Shakti Federation for construction of its own office building at district headquarters

WOMEN AND CHILD WELFARE

State Government's own initiative 'Mamata' implemented to provide partial wage compensation for pregnant and nursing mothers and to provide adequate rest during their pregnancy and post delivery period. All rural pregnant women (except all Government / Public Sector Undertaking and Bank employees) to be provided Rupees 5000 in 4 phases for the first two live births. 3 lakh rural women to benefit by March 2012.



All Children within 3 - 6 age-group and attending Anganwadi centres of the State provided with dress and work-book under State's own programme 'Arunima-2'.

'Tripti' scheme implemented in 38 blocks of 10 coastal districts of the State for economic and over all social development of rural women members of Self Help Groups.

HEALTHY ODISHA - VIBRANT ODISHA

Odisha Treatment Fund constituted with Rupees 10 crore assistance from Chief Minister's Relief Fund. Health assistance cover to BPL families upto Rupees 3 lakh, APL families living in rural areas with annual income upto Rupees 40,000 and families with annual income upto Rupees 60,000 in urban areas, Registered Mentally Challenged Rehabilitation Centres, Orphanages, people living in destitute homes, unidentified injured persons will be eligible for health assistance from this fund.

'Biju Gramina Swasthya Seba Sibir' organized successfully at 100 places in all Assembly Constituencies and health assistance provided to 2 lakh patients living in rural areas.

Health assistance provided to 32 thousand patients living in remote and inaccessible areas by activating 101 mobile health units through 'Swasthya Sanyog' Abhijan.

SHELTER FOR HOMELESS

For providing dwelling houses to homeless families not included in BPL list and victims of natural calamities and other tragedies "Mo Kudia" has been introduced out of states own resources. 50,000 houses so far provided with financial expenditure of Rupees 212.30 crores.

LAND FOR LANDLESS

Family Annual income eligibility limit enhanced to Rupees 24,000 for getting homestead land and agricultural land under Basundhara Scheme. Till now 9997 acres homestead land distributed to 2,76,000

families having no homestead land and 19,000 acres of agricultural land provided to more than 21,000 landless families.

Gramakantha Parambok, Abadi, Khas Mahal and Nazul lands settled with permanent and heritable rights in favour of 2 lakh 75 thousand families.

To make the land registration process easy and transparent, an e-project 'e-dhaRani' launched successfully in all 177 registration offices.

WELFARE OF FISHERMEN AND DEVELOPMENT OF ANIMAL RESOURCES

Meritorious Students of fishermen families securing more than 50% mark in HSC examination to get one time financial assistance of 3000 to 7500 Rupees for higher studies.

Maximum financial assistance of 50,000 Rupees for fishermen suffering from different critical ailments.

Financial assistance of 5000 Rupees to marine fishermen affected in ophthalmic diseases under 'Netrajyoti' Scheme.

Rupee 2 per kg rice for 7 months to fishermen affected by Olive Ridley Turtle conservation programme.

Allotment of homestead to fishermen families under 'Basundhara' scheme with a minimum of 4 decimals.

Under 'Mo Kudia' scheme dwelling houses for marine and inland fishermen. Revolving fund upto Rupees 10,000 for women Self Help Groups engaged in pisciculture.

For proper treatment of animal resources, mobile animal health camps organized in 41 blocks of KBK districts. To be extended to the balance 105 blocks of KBK districts. Odisha is the first State in organizing animal health camps in the whole country.

WELFARE OF ST & SC

Odisha is the number one State in the country in the successful implementation of Forest Rights Act.

Forest Rights title over 4.73 lakh hectares already distributed to 2,92,500 ST families including 17,145 PVTG families of the State. Steps taken to make the lands arable and cover more than 69 thousand families under "Mo Kudia", "Madhubabu Pension Scheme" and other schemes.

794 Community claims settled and Community Rights conferred over more than 54,000 acres of forest land.

Construction work of 1400 hundred seated hostel buildings completed out of 2820 hostels proposed for both tribal boys and girls.



22 ST High schools upgraded to +2 level in the pattern of Ekalabya Model Schools for strengthening Higher Education the State.

Hostel facility for 2000 poor SC/ST students from the remote tribal areas of the State established in the urban areas of Bhubaneswar, Berhampur, Rourkela, Malkangiri & Baripada for facilitating their access to English Medium Education.

Steps taken to ensure Food Security to 56,000 families in 358 Micro Water-shed Project areas of 7 backward districts under Odisha Tribal Empowerment and Livelihood Project. Approximately 12,000 hectares of farm lands irrigated with significant enhancement in the agricultural productivity of more than 12,000 families.

77 % families provided with safe drinking water within 100 meters distance from their own house under this scheme.



Pre-Matric scholarship of Rupees 200 crores awarded annually to more than 12 lakh SC/ST students.

An innovative Scheme introduced by the Government for online Direct deposit of the post Matric scholarship amount in the Savings Bank Account of the students.

GREENING ODISHA

Odisha Forestry Sector Development Project functioning in 10 districts of Angul, Balasore, Bhadrak, Deogarh, Gajapati, Kandhamal, Keonjhar, Koraput, Rayagada and Sundargarh.

A 7 year (2006-07 TO 2012-13) programme being implemented in 14 Forest and Wild Life Divisions.

More than 1,83,500 hectares of depleted forest revived.

More than 2600 hectares coastal afforestation carried out in Bhadrak and Balasore Wild-Life Division.

More than 3900 SHGs provided with 5755 loans under Vana Saramkshana Samiti Revolving Fund.

1383 Forest Conservation Societies constituted for ensuring better livelihood.

The purchase rate of Kendu Leaf bundle (20 leaves) enhanced from 35 to 40 paise and bundle containing 40 leaves increased from 70 to 80 paise to benefit approximately 8 lakh Kendu Leaf workers. The rate of Kendu Leaf produce from private land enhanced from Rupees 1900 to 2170 per quintal and multiple

benefits like Social Security, Life Insurance, Accident Insurance Coverage, Scholarships etc. provided to all.

INCENTIVE TO ARTISTS, YOUTH AND FREEDOM FIGHTERS

Due to sincere and incessant efforts of the State, the name of the State written in English as “Orissa” has been changed to “Odisha” and the language from “Oriya” to “Odia”.

The amount of pension for all categories of freedom fighters doubled.

As many as 320 folk arts on the verge of extinction identified. Steps taken to constitute 30 Zilla Kala Sanskruti Sanghas, (ZKSS) 314 Block Kala Sanskruti Sanghas (BKSS) by organising artists to revive these folk arts and ensure the welfare of the artists. To duly advertise different schemes and programmes of the Government through these art forms, Rupees five lakh per each district level sangha and Rupees two lakh for each block level sangha totalling Rupees 7.78 crore as Revolving fund released.

The number of beneficiaries enhanced from 1,500 to 3,000 under Indigent Artist Pension. The Government have included 1,500 more artists as beneficiaries since April, 2011. Government will spend Rupees 3.6 crore per annum towards payment of this pension.

To encourage the youth mass, about 10,000 youth clubs provided with financial assistance of Rupees 5,000 each.

KBK VIKASH YOJANA

Rupees 368 crores already spent so far and 120 crores distributed to KBK districts for the year 2011-12 under “Biju KBK Yojana” launched by State Government to provide basic amenities like Biji, Sadak & Pani to the people of KBK districts.

Rupees 39 crores spent in the districts of Kandhamal & Gajapati to accelerate the pace of development and to eradicate poverty with removal of regional imbalances under Special Area Development Programme “Biju Kandhamal and Gajapati Yojana” launched by State Government. Rupees 28.50 crores allocated in the year 2011-12 for 724 important projects of both the districts.

WESTERN ODISHA DEVELOPMENT

Rupees 703 crores provided through Western Orissa Development Council for all round development of the western districts without any regional bias. More than 9700 projects fulfilling basic needs of people completed with an expenditure of Rupees 517 crores so far.

CORRUPTION-FREE GOVERNANCE

To make the administration transparent and corruption free, Odisha is the first State in the country for making an enactment to confiscate disproportionate assets of corrupt employees.



Maharaja Shrirama Chandra Bhanjadeo: The Profile of an Enlightened Ruler

Dr. Atul Chandra Pradhan

Maharaja Shrirama Chandra Bhanjadeo (1871-1912) who ruled the princely state of Mayurbhanja from 1892 to 1912 is well-known for his integrity of character, enlightened administration and benevolence. Within the framework of colonial administration the Rajas and Zamindars of Orissa as elsewhere in India acted as the tools of the paramount power and instead of working for the welfare of the people exploited them. But there were some exceptions who worked for the welfare of their subjects and tenants and also for that of the Oriya-speaking tracts as a whole. It will be no exaggeration to say that Shrirama Chandra tops the list of such well-meaning rulers and Zamindars.

After the famine of 1866 attempts were made to promote the development of Oriya language and culture which resulted in the germination and growth of Oriya consciousness. After passing from the Baripada Anglo-Vernacular school Shrirama Chandra studied at Cuttack, first in the Ravenshaw Collegiate School, and then in the Ravenshaw College. Hence from his student days he was aware of the process of evolution of consciousness among the Oriyas. To look after the affairs of the state he discontinued his studies while reading B.A. and returned to Baripada in 1891. The same year through his patronage, the Oriya journal Utkal Prabha was brought out, which

gave scope to the budding Oriya poets and writers to develop their creative faculty and thereby contribute to the development of modern Oriya literature. In December 1903 Shrirama Chandra presided over the first session of Utkal Sammilani, held at Cuttack. His presidential speech in this conference shows his vision and progressive outlook; he laid stress on fraternity among the Oriyas, development of education, Industry and agriculture in Orissa, spread of female education development of Oriya language and literature and social reforms; he also advised the people of Orissa to give up fatalistic outlook and inculcate the spirit of self confidence. In his speech, referred to above, he stressed the role of education in the development of character and spirit of self reliance; "One should not think that the purpose of education is to look after loaves and fishes or join government service.... Education in true sense brings out manliness." At the beginning of twentieth century, the English-educated people of Orissa, microscopic in number, could be classified into bureaucrats in lower grade, teachers, lawyers and physicians. Specialists in such fields as agriculture, industry and science were very rare. There was very limited scope of recruitment for the educated people in government services; consequently there was the problem of educated unemployment. To solve this problem, Shri Rama Chandra felt, it was necessary to develop

agriculture and industries like lac and tusser and utilize minerals.

In his address to the Utkal Sammilani he advised the Rajas and zamindars to be well educated and properly discharge their social responsibility. "The Rajas and Zamindars are the natural leaders of society. Great responsibility devolves on them. They can do good or harm to the people as per their inclination. Hence they should be educated in such a manner that they can promote the welfare of their states or estates and subjects and properly solve all problems related to matters for which they are accountable."

As a ruler Shrirama Chandra combined progressive programme of action with liberal outlook which was rarely seen in the princes in his time. To democratize the management of the State he established State Council which was even vested with powers to make appeal against the ruler's order. He protected the rights of peasants, particularly tribal peasants by conferring occupancy rights on them. He created reservoirs at Balidiha, Haladia and Olmara) and dug canals from them to provide irrigation facilities to the cultivators. In Baripada, the capital of his state he established a High English school, a hospital, a library and a park. He got his capital telegraphically linked with important places of India. He constructed light railways from Baripada to Rupsa and got it linked with B.N.R. railways.

During his regime, Shrirama Chandra took steps for the proper utilization of iron ores available in his state; P.N. Bose conducted the geological survey and on the basis of iron ore resource of Mayurbhanja Jamsedji started his iron factory.

Shrirama Chandra created three new departments in his administration, as Agriculture, Forest and Excise.

Shrirama Chandra was not only concerned with the material well-being of his state but also with the preservation of its cultural heritage. In 1904 he established the first museum of Orissa in Baripada. He established the physics laboratory in the Ravenshaw college of Cuttack. He considered it a princely duty to extend patronage to scholarly and cultural pursuits. He took steps to make the Chhau Dance of Mayurbhanja internationally popular. After a lot of rehearsal under his supervision, the Chhau dancers gave a performance at Calcutta on 12 December 1911 before the English king George V and queen Mary. This performance got wide applause from the audience. The Statesman, the English Daily of Calcutta observed, "The dance drew universal appreciation. The Oriya Paik dance was a great spectacle."

In spite of remaining under the umbrella of imperial protection Shrirama Chandra rose above the narrow self interest of the princely order and devoted himself to the welfare of his subjects. While giving them an enlightened and benevolent administration he associated himself with evolution of modern Orissa, Oriya movement, development of Oriya language and culture and progress of education in Orissa. He was a man of broad outlook. In order to gain the first hand knowledge about the world outside, in 1910 he undertook an overseas trip to China, Japan, England and USA. It is a pity not only for Mayurbhanja but also for Orissa that such a ruler who could have done many things more died at the age of 42 because of accidental shooting during hunting.

Dr. Atul Chandra Pradhan, MIG – 68, Baramunda Housing Board Colony, Bhubaneswar-751003.

Administrative Measures of Maharaja Sri Ramchandra Bhanj Deo – A Critical Analysis

Harapriya Das Swain

The present humble attempt is to illustrate one of the distinguished kings of Orissa of the Colonial Rule in India. He is Sri Ramchandra Bhanja Deo the King of the State of Mayurbhanj, a man of unique character, unparalleled personality to whom the history of Orissa owes a lot. It is also a sincere effort to describe Maharaja Sri Ramchandra Bhanja's Administrative measures with a critical evaluation. I feel dignified to analyse such a personality having immense contribution to, specially, the people of Mayurbhanj and generally to the people of Orissa.

Born on 17th December 1871 from Maharaja Krushna Chandra Bhanj Deo and Maharani Sucharu Devi, Maharaja Sri Ramchandra Bhanj Deo was a Ruler of practical wisdom. Like the enlightened King Ramchandra of Ramayan, he was also carrying the passion for utmost benevolence in his heart. One must be astonished to know that he was only receiving a meager allowance of three thousand rupees only for his personal maintenance. Considering himself as the greatest servant of his subjects he installed an emergency fund to meet unforeseen situations and also allowed the poor subjects to meet him to get their grievance redressed. During his regime the state witnessed many fold development.¹

Being an enlightened Administrator, he associates himself in number of innovative and multifarious projects for the development of his subjects and the State. As a true enlightened Ruler, he established the State Council to meet the requirements of Democratic Government, Criminal, Civil and Revenue Laws and Regulations, including Land Revenue Settlement, Forest, Excise and Land Acquisition Laws and Rules, granting ownership of land to the people, Conducting the Survey, Setting up of Irrigational facilities, Judicial Reforms, Police Administration, Adoption of Scientific methods in Agriculture, facilitation of Mining and Archaeology, Spread of Education so on and so forth.

Establishment of State Council :

As the ruler of the largest Princely State of Orissa, during his reign period he brought his State to the highest pinnacle of development. After taking the charge of the Mayurbhanj State in 1892 he constituted the State Council. The Council had powers to hear appeals even against the orders of the Maharaja.² Maharaja was presiding over the Council. Mayurbhanj Civil and Criminal Court also framed and put into practice by the Maharaja after bringing substantial changes in prevailing British Civil and Criminal Code. The State was divided into four Sub-divisions and Sub-

Collectors are appointed in these Sub-divisions for the better Administration. In the Revenue matter the king was being by the Dewan.³

Judicial Reforms :

When Maharaja Sri Ramchandra assumed the charge of his State he exercised all the judicial powers. The State could only exercise the powers of the third class Magistrate and all Criminal cases falling beyond those restricted powers were tried by the District Magistrate of Balasore or the District Judge of Cuttack.⁴ The Judicial Department was separated from Administrative Department. The State Judge was appointed and assisted by a host of Sub - Judges and Munsifs for the Judicial Administration. In the lines of the High Courts of Judicature established in British India, he set up a tribunal called the Judicial Committee of the State Council.⁵

Police Administration :

A regular System of Thanas and Out-posts was introduced as well as Chowkidari system for the interior parts of the State with assessment of Chowkidari tax by the village panchayats.⁶ The Thanas and Out-posts were headed by Sub-Inspectors and Habildars respectively. According to the Administrative report of 1911 there were 13 Thanas, 10 Out-Posts and 272 Policemen besides the Chowkidars.⁷ The overall charge for the maintenance of Law and Order was given to the Police Superintendent.

Land Settlement :

Right of Occupancy : The tenancy system was reorganised by Survey and Land Revenue settlement and the tenants were allowed for the first time occupancy rights over their holdings.⁸ In the year of 1892, Maharaja Sri Ramchandra

Bhanj Deo, declared all his subjects to be possessing the right to own, claim and inherit their land and against of this the king was supposed to receive revenue earmarked from the respective plots of land.

Land Survey and Settlement and Fixation of Land Revenue :

The king was practical enough to use the modern methods of Surveying Land for the settlement of the Land. The area of the every plot of Land was properly demarked. Steps were taken to increase the fertility of the Land by means of irrigation projects which cost more than six Lakhs of rupees and also by leasing out suitable jungle lands under small or big Amolnamas.⁹ Revenue was collected from the people according to the productivity of their Land. The revenue collectors were strictly ordered not to impose or collect any other kind of tax from the people.

Cottage Industries :

Maharaja paid full attention for the upliftment of the Cottage Industries of his State. He encouraged his weavers to adopt new types of weaving like Silk and Matha. The stone workers and carpenters were also encouraged. For the development of the Cottage Industry, the technical school along with the teacher's training school was set up at Baripada. With the special interest of the king the weavers of Mayurbhanj exhibited their weaving materials in the Calcutta Cloth Exhibition in 1906 and in Jajpur Cloth Exhibition in 1910.

Spread of Education :

For the development of education, Aided Primary Schools were opened throughout the State with Middle Schools at Sub-Divisional headquarters under a Superintendent of

Education. M.K.C.M.E. School established by the late king Maharaja Krushna Chandra Bhanj Deo was upgraded to the status of High School in 1892 and named as Mayurbhanj Zilla School. By the time when his father died, the total number of schools in the State was 41 but by the year 1910 the number of School was increased to 410.¹⁰ Trained teachers were appointed for the qualitative teaching at the Schools. As a man of Knowledge Maharaja established a Library at Baripada named as Victoria Jubilee Library.

Health Department :

According to the Annual report of the year 1882-83 published by Mr. Walley, there was only one dispensary in a very dilapidated condition in the State of Mayurbhanj. Maharaja after coming to the throne the number of dispensaries increased to 8 with all type of Medical facilities. Special care was taken by these dispensaries for eradicating the contagious diseases like Smallpox and Cholera. In 1905 the Baripada Municipality was formed with a special task of taking proper care of the health standard of the people.

Emphasis on PWD, Mining and Archaeology :

As a benevolent and farsighted ruler Maharaja appointed the British Architect J. Arnold for the construction of railway lines. During the 1st phase the railway line was set up between Bangriposi and Rupsa and latter it was expanded to 502 miles and connected Baripada to Rupsa.

Maharaja appointed the eminent geologist Sri Pramath Nath Bose to survey the iron-ore deposits at Gurumahisani, Badampahad and Suleipat. After the proper survey the Maharaja leased all those mines to the TATA. For the Hydroelectric Project at Barhaipani Waterfall, Maharaja also made a proposal but this project

was not implemented due to the immature death of Maharaja.

Another most notable deeds of Maharaja was the establishment of the Archaeological Department. Notable excavations were done in Khiching and Haripur by this department. Padmashree Acharya was sent to London to write about the further history of Bhanja dynasty based on the official records kept on London museum. And the two centurian volume of books were published by the State.

Forest Department :

During the year 1894 the Forest Department was formed by the Maharaja. Foresters and guards were appointed for the safeguard of the forest and its products. A wood cutter factory was also established at Bangirposi for the proper maintenance the wood market. During the reign period of Maharaja the Forest Revenue alone rose from Rs.30,000 to Rs.1,50,000 per annum.

Besides these Maharaja started a regular graded service system having benefit of pension. All Abwats were also abolished and special protection was given to the rights of Adivasis. Jail reform was also taken over under which the Prisoners were engaged in productive works like the manufacturing of house hold articles with adequate market value.

Maharaja Sri Ramchandra Bhanj Deo cherished the virtue of Democracy in his heart and his reign always looked after the welfare of his subjects. His welfare activities were not limited to the state at Mayurbhanj but extended to the whole of Orissa. Some of his most memorable contributions are establishment of Ravenshaw College, Ramachandra Bhavan, Utkal Sahitya Samaj, S.C.B. Medical College. He also

established the Ramachandra Sanskrit School and Laxmi Narayan Temple at Balasore. The Literary Journals like Monorama and Utkal Prava were also patronised by the king. Under the inspiration of the Maharaja Chhau Dance a native dance of Mayurbhanj could reach the apex of its development and attained the International recognition. As a man of patriotic character he joined his hands with Madhusudan Das and other leaders to build up a separate Utkal Province and in the year 1903 he presided over the first session of the Utkal Sammilani.

Mayurbhanj as well as the state of Orissa intensely feel proud to have given birth to such a talented and multi faceted king for whom the state marches towards the pinnacle of glory. According to S.N. Sarkar "By his death, Mayurbhanj lost her most brilliant ruler, Orissa her brightest jewel and India one of her worthy sons."

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Paramananda Acharya - The Pioneering Archaeologist of Odisha

Jayanti Rath

“I have devoted my life to the study of Odishan Archaeology, History and Archives both in the field and literature. My memory takes me back to the period of my boyhood when I was interested in collecting ‘Chakada Pathara’ in my birth place at Baidyapur. I did not know why I read with care with the History of Mayurbhanj, when I was a lower primary student. I practically got the whole book into my memory including the Genealogical table of 44 generations of the rulers of Mayurbhanj”¹. This was the statement of Paramananda Acharya who was considered to be the pioneering Archaeologist of Odisha. Few men of letters in the first half of the 20th century have laboured hard to bring out the latent facets of the hoary past of Odisha into light. Paramananda acclaims a distinct place among them. By his close observations and scientific judgment he opened up certain new facts on History of Odisha which are at once inspiring and surprising.

Born in Baidyapur village in 1893, Paramananda started his school career in Amarda M.E School. After passing the M.E examination in 1911 he joined as a student of Baripada High School. He graduated from Kolkata University in 1923 having Botany Honours. Desired by Maharaja Purna Chandra Bhanjadeo he gave up his Post Graduate study and joined the excavation work at Khiching to assist Ray Bahadur Ram

Prasad Chand in 1924. It was his inclination and will-power that prompted him to take up his painstaking responsibility. He had no formal training in Archaeology. The department of Archaeology of Mayurbhanj state was established in 1924-25. On 1st, April, 1924, Paramananda joined the state service as the Archaeological scholar.²

After his appointment he took necessary steps for the protection of Archaeological remains of the temples and sites at Khiching. Next year (1925-26) he was sent for a month for training in the Government archaeological excavation at Paharpur in the district of Rajasahi of undivided Bengal (now new Bangladesh). In order to assign the real archaeological position of Khiching together with History, he focussed his attention to the neighboring states and other parts of Odisha.

In 1927-28, Paramananda visited Jajpur, Cuttack, Choudwar, Puri, Lalitgiri, Udayagiri, Ratnagiri and Kendrapara with R.P Chanda, Superintendent, Archaeological Section, Indian Museum, Kolkata. The explorations and excavations at Khiching led to the collection of antiquities and sculptures of the medieval period. Those objects needed to be housed somewhere and to be examined and views formulated on them from time to time. Thus the Khiching temple premises, where these finds were lying scattered

was considered as an ideal place to keep these objects in a house. This was how Khiching Museum came into being. Paramananda took great care for the construction of the building of the Khiching museum to store the antiquities and sculptures of the temples and other sites around Khiching³. The museum building was completed in 1928, and the sculptures were arranged in the museum.

In 1928-29 Paramananda Acharya was designated as the Senior Archaeologist. From the month of May 1929 to the middle of January, 1930 he remained busy in inspecting the records at the Bengal Historical Record Room at Calcutta and also in the Record Room of the Political Agent and Commissioner of Odisha States at Sambalpur. On being suggested by the Superintendent, Archaeological Section, Indian Museum, Calcutta, the Maharaja of Mayurbhanj decided for the excavation of the old palace at Hariharpur. The excavation work was conducted by Paramananda Acharya, the senior Archeologist who was assisted by Sailendra Prasad Bose, the Supervisor⁴.

R.P. Chanda, visited Khiching in 1930 and he submitted a report on Museum of Khiching to the Director General of Archaeology of India. While the explorations were going on it was observed that unless the temples standing in a dilapidated condition, were protected, they would collapse. Paramananda dismantled the temples of Chandra Sekhar and *Kutei-Tundi* and restored them from bottom to top⁵. By 1934-35, Khiching became the centre of activities of the Archaeological Department of Mayurbhanj and the Ruler gave direction for construction of the new temple at *Khiching*. It was decided to restore the broken temple of *Hara* for the use of the *Thakurani*. The broken temple was so badly damaged that even its ground plan was disturbed. Paramananda and his Assistant S.P. Bose were able to find out the ground plans by piecing

together the original stones and then reconstruction became easy⁶.

The year 1934 provided him a rare opportunity to visit abroad. During this year he attended the International Congress of the Anthropological and Ethnological Sciences held at London⁷.

During his stay in London he inspected records relating to the history of Mayurbhanj in the Indian Office from 1800 A.D. to 1825 A.D and brought some copies of the selected records. He also located the existence of the original inscription of Ananta Vasudev Temple of Bhubaneswar in the premises of the Royal Asiatic Society of Great Britain and managed to bring photograph of the inscription for his study. Subsequently a plaster cast copy of the inscription was brought from London to Odisha State Museum.⁸

In 1938-39, he was on deputation to Keonjhar at the request of the ruling chief of that state and visited several archaeological sites there. During the year under report R.P. Chanda compiled the history of Mayurbhanj with the assistance of Paramananda Acharya.

In March 1939, Paramananda Acharya and E.C. Worman (Jr.) the research fellow of Havard University visited Kuliana area Paleolithic site in Mayurbhanj. He himself had said "I think I am the first discoverer of the pre-historic sites not only in Mayurbhanj but also in Odisha¹⁰.

It is evident that Paramananda Acharya was an able field worker, who had visited the sites and materials. He was deeply engaged in this type of research when the concept of pre-historic Archaeology was not properly outlined in India¹¹. He however was convinced that the basic backdrop of the prehistoric past is greatly essential to propose the sequence of development of human culture¹². The palaeo-cultures provide the stratifications of the human society.

In the month of May, 1941, Paramananda Acharya was deputed to see the monuments and materials at Khandapara State. At the request of the rulers of Baramba and Narasinghpur he visited *Banesvaranasi*, Champesvar, Bhattarika, Simhanath and Ramchandi. During this visit he discovered a temple of unique style of architecture at *Ramachandi* near Baidyesvar situated on the south of Simhanath. He also visited Ghumsar in the Ganjam district during the same year.

Under his supervision, the reconstruction of the Khichingesvari temple was completed in the early part of 1942 and after consecration of the temple, by the ruler of Mayurbhanj, the *Thakurani* was enshrined there¹⁴. The deity was installed on 14th March 1942 amidst pomp and ceremony¹⁵.

As he was the State Archaeologist of Mayurbhanj, he had several occasion to explore the antiquities scattered all over the princely states of Odisha. He discovered the biggest Hindu images of Anantasayi Vishnu at Saranga and Bhimkund in the old Talcher State. His survey of the Archaeological relics in the valleys of the Vaitarani, the Brahmani, and the Mahanadi had brought to light the archaeological wealth of Odisha¹⁶.

Post- Merger Engagement

On 1 January, 1949, the Mayurbhanj State merged with the province of Odisha. After merger of the States, the employers of the ex-royal houses were brought under the government of Odisha. Paramananda Acharya joined as the Superintendent of Archaeology. Museum and Research, Government of Odisha then housed at the Ravenshaw College, Cuttack. In view of his drive measures as an archaeologist and a successful organizer of the Museum at Khiching and Baripada, his services were placed at the disposal of the Education Department of Odisha.

The Research and Museum Section of the Ravenshaw College was established by two young research scholars i.e. Prof Nirmal Kumar Banerjee and Prof. Ghanshyam Dash in the year 1932. The aim of this institute was to collect archeological objects and to study the history, features of iconography and carry a research on river valleys. Paramananda's presence at the apex of the research and museum section gave a new dimension to the working pattern and introduction of the archaeology and paleographic basis to the research in history. He nevertheless accelerated the enthusiastic crave for revival of Odishan history and culture from a new angle, which was to reconstruct the history of Odisha on fact finding basis¹⁷. Subsequently in the year 1949 the institution was taken out of the Ravenshaw College to function as the museum of Odisha under the D.P.I of Odisha at Cuttack¹⁸. Yet in the same year the office was shifted to Bhubaneswar due to its rapid expansion of work and growth by the dynamic efforts of Paramananda Acharya¹⁹. This became a blessing in disguise because of the large number of monuments available at Bhubaneswar ranging from the early centuries to the late mediaeval period owing to the large number of acquisitions made in a short period. The collections were to be shifted from place to place and finally a building was to be constructed to house the findings. Paramananda Acharya was main driving spirit behind this. At last the foundation for the Museum building was laid on 29.12.1957 by Rajendra Prasad, the President of India.

After merger of the princely states with the province of Odisha, the employees of the ex-states were brought under the government of Odisha. The scholars like K.N. Mahapatra and Satya Narayan Rajguru then serving in Archaeology Department of Kalahandi were brought to Bhubaneswar and given position in the Museum. Krushna Chandra Panigrahi was then

assisted with the museum and was working on the projects of 'Archaeological Remains at Bhubaneswar'. Susil Chandra De joined the museum and he had knowledge on archaeology, manuscripts as well as records. Later each one of them became expert on specialized topics due to the efforts of Paramananda Acharya. The acquisition of sculptures and art pieces by Paramananda Acharya and K.C. Panigrahi and their study enriched the antiquity collections of the museum caused to lay the foundation of three institutions i.e. Archaeology, Museum and Archives and Paramananda Acharya remained the pioneer of all these branches.

In 1950 Paramananda Acharya retired from Govt. service. In view of the recognition of his work, the Government re-employed him as the Superintendent of Museum till 1954 providing extension to him for one year at time²⁰. He was again re-employed as the Superintendent of Archaeology on 07.07.1955 and he held the post till 1962.²¹

After retirement Paramananda Acharya devoted his time and energy for the study of the palm leaf and Vedic manuscript of Odisha. In recognition of his dedicated service to the cause of Odishan culture, the President of India conferred upon him 'Padmashree' in 1964.

On 11th April 1971, Paramananda Acharya breathed his last in his residence at Baripada, Mayurbhanj. Thus came to an end the life of a titan, who contributed immensely to the scientific writing of Odishan history.

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Socio - Emotional Problems of Unwed Mothers

Dr. Pragyam Das

There are two sides to every coin, likewise the status of women has two sides one of empowerment, success and development and the other of misconceptions, vulnerability and violence. Violence has always been used as a means to suppress women in any given society. Unwed motherhood is at many times the outcome of violence. Even though false promise to marry is usually the cause behind it and is equally an act of violence as a woman in this situation is cheated and abused. A problem such as unwed motherhood seems almost unreal in our society, but it is very real and is alarmingly on the rise. The problem of unwed mothers it seems is always the outcome of some kind of a disastrous circumstance. Our society being very male dominated; the woman in this type of situation is always blamed and is termed as characterless and irresponsible. The woman in this type of situation is completely helpless and is faced with the burden of a child. And as our society is intolerant of such women, the women mostly commit suicide the ones who don't lead a very shameful life.

In order to curb such a problem and safeguard our female populace it is necessary to interact with the women who have

unfortunately become unwed mothers and are leading a very secluded and harassed life. To safeguard our future generations it is imperative that certain measures need to be attained so as to avoid this type of problems. The younger generations need to be aware of this issue so that they not only avoid this type of situation but also make others aware of this outrageous issue. The society needs to be sensitized about unwed motherhood that will lead to acceptance of those unfortunate women who are already leading a miserable life with small children or in a pregnant condition without any support or help from their families or the society. And in order to achieve these benefits one has to undergo an ordeal. Thus, the quest to find answers began in earnest in an extremely sensitive issue. And answers could only be found by conversations with the unwed mothers which was proving to be a very difficult task as these women were very harassed and not willing to admit any thing. And unfortunately some of them were very good at lying about their real story. But nevertheless this is an effort to bring out the socio-emotional problems the unwed mothers face through these harrowing interviews.

RESPONDENT NO: 1**CASE HISTORY:**

This case study is about the treachery of an educated army man.

This young woman of 21 years of age (let us call her Purnima) met a man from another village who works in the Army who was on a vacation. They had an affair and Purnima conceived his child. After hearing this he assured her of marriage and left for his job. But gradually as her pregnancy developed he dumped her, she desperately called him and wrote to him to accept her and tell her family about their relationship as they were unaware of it.

As he dodged the issue the girl's pregnancy was revealed which left the girl's parents very shocked and her vengeful brothers beat her up and threw her out of the house.

Finally she was brought to a shelter in the nearby town by her friends. The secretary of this shelter was a bold young lady who took it as a challenge. She fought for her by writing to Army and even took police assistance to bring the evader to her responsibility. The man was arrested and put behind bars. Eventually he agreed to marry the girl he had dumped but by that time the girl had delivered the man's child.

He promised to marry her and convinced her to drop the charges against him and took her out of the shelter. He married her in a temple and convinced her that they would start a normal life. He asked his wife to drop the charges against him which she obliged. But soon after that he started his revenge mission. He would assault her in the night and never allowed her to meet her parents. He went to report to his duty and snapped all relationship. All communication between the couple stopped and he never gave money for

maintenance. The misery of the mother and son got compounded and again she came to the shelter. The secretary again wrote to Army but this time the culprit fled the Army and till date he remains a renegade. Before he vanished he maintained that he was not legally married to Purnima and was not responsible to her. Deeply burdened with financial problems she had to work as a domestic help to maintain her son. Purnima feels extremely embarrassed being cheated out of marriage like this but is still willing to forgive him at least for the sake of their child but she is chasing a mirage. The only person who stood with Purnima in her distress is the Secretary of shelter who has extended a hand of support like an angel.

This is a painful case where the lady thought that the son was the proof of their relationship but eventually he became an albatross around her neck.

This case was quite unique for us as it involved an army man who was supposed to be the defender of the nation but who turned out to be her worst perpetrator. Purnima also shows how gullible women are when it comes to emotion. Had she not withdrawn the case the man would have remained behind bars. By withdrawing charges she cleared his path for an escape.

RESPONDENT NO: 2**Case History:**

This case study is the victimization of a mentally - challenged girl.

This fifteen year old girl (Let us call her Kusum) was a little unstable from birth; she belonged to a small community in a small rural area. Every one in her village was aware of her mental state and she used to roam freely in the village as a child. Her parents and other siblings were unable to restrain her in the house. Being mentally unstable she was gullible and very

innocent. Her mental conditions deteriorated and everyone observed that she became more aggressive and intolerant especially with male persons and gradually lost her mental capabilities completely.

She behaved very aggressively especially with the male members in her family and didn't even spare her younger brothers. Her mother was the only person who could control her. This sudden behavioural change and her increasing mental dementia was very shocking to her parents as well as the villagers who remembered her as a very sweet-natured girl. Whenever she was asked any question why she was so angry she even turned more hostile. No one knew the cause of her aggression and violence. To everyone's dismay it was found that she was pregnant. This was the cause of her changed behaviour.

After a lot of questioning it was found that she was a victim of mass rape on the outskirts of the village close to the pond which contributed to her unwanted pregnancy as well as her mental instability. It was a shame for the girl and her family. They were too scared as there could be social boycott. They lived under stigma. But eventually their worst fear came true and she was treated like an untouchable once the villagers came to know the matter.

There was no sympathy for her from the society. Thus, with ever increasing pressure from the villagers her family took her to the police station and lodged a complaint. The police were not able to identify the culprits as the girl was abnormal and couldn't identify her rapists. The villagers believed that the rapists might be from neighbouring villages but nothing certain or conclusive could be found. Thus the rapists went scot free.

In a case like this, it is impossible for the victim to protect herself against such assaults as

she is unable to function like the rest of us owing to her disability. Her mental status could not fathom the crime committed against her and the outcome of such a crime. She was unable to terminate the pregnancy as she was not aware of what happened to her. She was even incapable of telling her parents about the crime. The shock of the mass rape was responsible for the loss of her mental balance.

The girl's parents as well as the villagers did not want to keep the girl in the village. The parents were forced to take this decision as they had been warned by the villagers to either send their daughter somewhere or leave the village altogether. The stain of having an unmarried pregnant daughter even if she was unstable was too much of a burden for them, and they had other children too to raise in the village. Thus, they claimed to have no option about their daughter's welfare. The police having been put in the charge of the girl brought her to this shelter for destitute women in a city.

The shelter took care of her and she was given medical attention for both her pregnancy and her mental condition and after a few months she delivered a baby girl. The baby was placed in an adoptive agency while the mother remained in the shelter. When her parents were asked to take her back, her parents refused to accept her and did not even come to see her once.

When the baby was just a few days old, the mother knew which room her baby was in and used to stand outside the room for hours as she was not allowed with the baby being mentally unstable and a threat to the baby. So, she refused to leave the corridor of the place where her baby girl was kept until the baby was taken to the adoptive agency. This truly shows a maternal love for her child even though the mother is abnormal.

She at times searched for her baby and cried hysterically when she could not find her child. This fifteen year old mother's story is heart-rending as it is soaked in tragedy. This type of crime against the mentally unstable and vulnerable shakes the very core of humanity. It is indeed up to fate whether this girl would be cured of her mental disease and whether she would lead a normal life.

In this case study, we explore the presence of unwed mothers within the mentally challenged group of women as they are the most vulnerable. The seriousness of such a crime against mentally-challenged woman has been recognized in our society.

RESPONDENT NO: 3

CASE HISTORY:

This case study is about Domestic Violence and Incest.

This most distressing case study is about a sixteen year old the only daughter of the family (let us call her Lalita). She belonged to a joint family where her father along with his brothers lived together. She was always surrounded by male members of her family. During the day time her mother used to go to the nearby forest to collect fire wood and worked in the land nearby. Thus she was left alone at home for doing household chores and taking care of the siblings. There were no other female members at home to share her burdens. Poor girl neither she had education; nor friends.

She was regularly molested by her own uncles. Initially she didn't comprehend what was happening to her, thinking that her uncles might be affectionate towards her. But gradually as the abuse became more physical in nature she got scared and tried to confide in her mother. But her mother was always busy in her work and did not

even believe her. When she became pregnant she was thoroughly confused what was happening and whose child she was carrying because she was being raped by three of her uncles at regular interval. When her mother came to know that Lalita is two- months pregnant she along with her husband tortured her. But, when Lalita told them that, her own uncles were responsible for this no one believed her. On the contrary, those uncles, who were the real perpetrators of this crime, accused her of bad character loose morals and humiliated her by physical assault.

The villagers heard about it and instead of giving justice to the victim added to her misery by putting her to exile. She literally lived in the village as an outcaste and outlaw for days together. Her ordeal never ended as she was again subjected to sexual assault by the few villagers. Her father came to know about this and convinced the village panchayat to take her to the nearby city and leave her in a shelter for her delivery. The villagers agreed and so the girl was taken to the shelter by her family members.

The girl is at present eight months pregnant and is staying in the shelter. She had been badly beaten and abused even while she was pregnant and the attending doctor was amazed how the baby was alive after so much of assault which was physical as well as mental.

Deep down her, she was scared and broke down and confessed that she didn't want to go back home. She blamed her fate of being born a girl child. According to her 'women are put on earth to be beaten and to work like beasts of burden and to be abused.' She was quite comfortable in the shelter as it was a real home away from home free from torture, abuse and rape.

In this case the aspect that is most disturbing is the 'lack of safety of a girl child' even

within the four walls of her own home. Ironically family is supposed to be the best environment for a girl child but in this case it was breeding nightmare for her.

This case is a glaring example of domestic violence which is in rise in our society that is dissuading women to realize their full potential. While probing this case study it was found that domestic violence is rampant in our society especially in joint families thanks to dire poverty which forces the mothers to go for collecting firewood while their vulnerable daughters are sexually violated by their kith and kin. Such predators also escape the dragnet of law as no case is registered against them for the fear of social stigma.

RESPONDENT NO: 4

CASE HISTORY:

This case study is about the victimization of a domestic help

Poverty has many ways to destroy a woman. (Let us call her Sabita) Sabita was left in the house of a rich person to work in a town near her village. Her parents and siblings were in the village. Her parents worked as the agricultural labourer which was insufficient for their sustenance. Thus for more income they sent Sabita to work in this house. These days' rich people are keeping young girls as domestic help.

Sabita was harassed there by the gardener and the office peon of the owner. She used to complain this to the owners but no one pay attention to her and this harassment continued.

As both the owner and his wife were working and their sons were going to school, Sabita was left alone in the house thus was an easy target to these men. They continuously raped her, when she became pregnant the owners took her to the hospital and got her an abortion.

When Sabita wanted to leave that job they threatened her of revealing about her pregnancy to her parents. This way she got pregnant four times within a span of two years and was always taken for abortion. On the fifth time the doctor refused to do the procedure as it was dangerous for her life. So the owner left her in her village because they wanted to stay away of all these responsibilities.

When Sabita's parents questioned the owner, they blamed that there daughter was characterless and they did not want her services any more. Her family was shocked and didn't know what to do with her. The villagers wanted this girl out of the village. So the parents with the help of a social worker brought her to this shelter.

Sabita stayed in the shelter and gave birth to a girl child and the child was placed for adoption. This young girl is at present staying in the shelter and working in the shelter as a guard.

These type cases are rampant in our society. The cases of the owner, their relatives and the son of the owner abusing the domestic help are very common, by which most of the time poor girl get pregnant and deserted like unused commodity. The sense of irresponsibility of these types of people who used to keep poor girls as domestic help in their house astounds the researcher.

It is a disturbing fact that the offenders who committed the crime were neither punished by the owner nor the owners lodged any complaint in the police station. Sabita's parents even did not want to press charges against them despite the advice of the social worker.

We identified the instinct of survival to be very strong in this girl as she successfully tries to live her life and work as a watch guard for this shelter. As the shelter tries to rehabilitate these

women especially make provisions for them in or near the shelters hence ensuring their safety.

RESPONDENT NO: 5

CASE HISTORY:

This case study is an outcome of caste based violence.

Whenever there is a caste war the women are held hostage. The case of Basanti is an example (Let us call her Basanti).

Actually there was a battle between two groups of boys belonging to two different castes. It took a bloody turn and violence ensued. The upper caste boys wanted to teach a lesson to the lower caste boys. Some boys spotted Basanti who belonged to the lower caste group in the village, going to the pond for washing clothes. One day around noon she was dragged by some boys into a forsaken area and brutally raped. Then she was dumped there in a wretched condition. Poor girl dragged herself to her home and narrated her story. Her family members were scared about this issue creating uproar in the society and in turn were afraid of their daughter's reputation. They were also extremely worried about the marriage perspective of the other two daughters. So they decided to hush up the matter in fear of public disgrace.

The boys who were responsible for this crime got afraid and left the village for fear of being arrested by the police as this girl could easily identify them. They told no one about this issue and left quietly.

The girl was left to silently bear the sufferings and mental anguish. She became quiet ill but was taken care of at home, and was kept at home constantly. But after two months she was discovered to be pregnant, the whole family was completely broken by this news and didn't know how to deal with it quietly.

Thus, they kept her in the house for three months on the pretext of illness and then by the help of a social activist brought her to this shelter. They decided that the girl stay in the shelter until child birth and then return home, they decided to sell the child to some couple or put it up for adoption. The villagers were made to believe that she is in this town as she is sick with water retention in her stomach and has been admitted in the hospital and will come back upon recovery.

This girl is now seven months pregnant and living in this shelter. She is completely shocked and didn't use to talk at all. Gradually she started to respond, as the environment in the shelter was quiet friendly and soothing after the harrowing experience she was condemned to.

She confides that she has a great fear of men now and becomes very hysterical if she sees a man. Her mental peace is completely destroyed and she has recurrent nightmares. She being quiet young is missing her mother and is desperate now to leave despite her apprehensions. She considers her pregnancy a curse and treats it like a disease. The baby has no appeal to her and she wants it out of her and keeps on asking the caretakers of the shelter to take the baby away from her. Being so young her body is not fit to deal with this horror.

Her whole life is changed as she will never be the same again physically or psychologically as this issue will haunt her for the rest of her life. Fortunately Basanti is picking up the pieces of her life by learning sewing, a skill that greatly interests her, she wants to earn a living with this as she doesn't want to be a daily wagger like her father or work in the fields like her mother and brother. We are aware that as soon as an atrocity against a dalit or lower caste person occurs, judicial remedies and even financial redress through the SC/ST (POA) Act lies open for the victim. But rarely any case reaches this stage.

These data actually relate to the cases that have come to the trial level. When compounded with the fact that less than 5% of the crimes reach the court, the conviction rate is less than 1 percent. (Source-The Seventh NCSC/ST Report (2001-2002))

As the above mentioned data is associated with the present case, that does not show any measures to get justice from the remedies provided to safeguard their interest, but instead the suppression of this crime is seen by the parents who didn't even inform any one of such a horrible crime let alone report it. Due to the stigma associated with rape and the family and future of younger siblings were considered but above all no attempt was made to bring justice because of the fear of the spread of violence between the two castes in the village, that may destroy the family and ruin the girl. So silence was considered to be the best remedy and as the culprits were no longer in the village the problem of threat from any of them was not a present issue.

This is a humble attempt to perceive and understand the Socio-emotional problems of Unwed Mothers. This problem is magnified by poverty, ignorance, social stigma which forces these women towards humiliation which act as a hindrance on the path of their development. The futures of those children who remain with the unwed mothers are a source of primary concern, and attention needs to be given towards their welfare. Domestic violence is becoming a matter of great concern. Work place violence is also causing serious concern. All efforts should be made to identify and get the accused, stringent laws should be made and strict punishment along with financial penalty should be made for the accused. Awareness campaign regarding welfare measure and legal issues and there should be women police station or Mahila desk in all the

villages, adult education system should be made functional, political rights and financial literacy campaign should also be organized in all the remote rural areas. Awareness regarding safety measures like use of contraception, regarding risks factors like unsafe pregnancy leading to HIV/AIDS, and Sexually transmitted diseases etc should be imparted.

The society needs to be more sensitized about the problem of unwed mothers. The society should adopt measures to avoid domestic violence, mothers of the young girl along with their daughter should be made aware of the problems and how to protect themselves from such type of crime, mother and daughter's relationship should be a friendly one where she tells all her problems without fear and favour.

A major problem that cannot be ignored is poverty, thus more number of SHGs and microfinance scheme should be made available to rural women to empower them economically. Land rights to women should be given so that they could have a share on the labour they put in.

The welfare schemes like Short Stay Homes and Swadhar Shelter Homes for destitute should be available in rural and tribal areas so as to give these victims immediate relief instead of only being available at urban areas. A committee should diligently monitor the lives of the destitute women once they are in the Short Stay Homes and Swadhar Shelter Homes. Special attention needs to be given to rehabilitate them within the time span allotted to these homes. And special attention also needs to be given to the children who live with these unwed mothers.

Print and electronic media should be active in the rural and tribal areas to spread the message of safe sex and knowledge regarding the risks involved in unprotected sex through

pamphlets, showing documentaries on the life of unwed mothers and the life of their innocent children in schools and colleges. These measures will instill in the youth greater awareness and responsibility. As false promise to marry is one of the most common causes of unwed motherhood women must be educated against this act. The severe laws and punishments for this crime should be highlighted. And most importantly the DNA test should be made available for such victims.

NGOs and voluntary organizations should actively spread the awareness regarding different welfare schemes and developmental programme in the rural areas. They should also identify unwed mothers and try to give them justice with the help of the police. They should provide training programmes to make these women economically independent.

Government hospitals, bus stands and railway stations are the areas where the unwed mothers are generally found. Thus “help desk” should be established in these areas.

All efforts should be made to make right the wrongs and make this earth a beautiful place for women to live where women will not feel vulnerable or misused but be the epitome of power. Women have the most powerful and unique ability that is the ability to give life, lets not tarnish that one accept that makes her unique by abusing her integrity but lets try to cherish, uphold and celebrate this life giving phenomena—a woman.

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Iconography of Surya in the Temple Art of Odisha

Rusav Kumar Sahu

Surya, the visible celestial luminary was being worshipped in two important forms i.e. abstract and figurative since time immemorial. The abstract form of Sun is evident from the prehistoric rock art, Harappan and Chalcolithic pottery paintings, Punch-marked and Cast coins in the early historic period of India followed by the Hero stones and royal charters of medieval period of South India. The earliest figurative representation of the Sun-god is gradually influenced by the Iranian-Mithra particularly in northern and eastern India.

The description of *Matsya Purana* regarding the iconography of Surya is very noteworthy which throw light on the iconographic features of the Sun-god. It states that the image of the Sun-god (who causes the lotus to bud) should be made as seated on a lotus with two hands holding two lotus flowers¹. "The image of the Sun should be made with beautiful eyes, seated in a chariot and holding a lotus. There should be seven horses and one Chakra (wheel) in the chariot of the Sun and decorated well with ornaments. His body should sometimes be shown covered with a bodice and two pieces of cloth. The feet should be made brilliant and two other figures, named Dandi and Pingala, should be placed as guards with a sword in their hands.

Near the image of the Sun, should be an image of Brahma holding a pen and the image should be surrounded by a number of *Devas*.

Aruna, the charioteer of the Surya, is resplendent like the lotus leaves and on both his sides are high spirited horses with long necks and well-bedecked. They should be shown as properly held by reins of snakes. The seven horses yoked to the chariot of the Sun should be tied together with the string of the serpent. The images of the Sun should be thus made either seated in the chariot or on the lotus and holding a lotus.²"

The artistic expression of Sun motif in Odisha is found in the prehistoric period as evident from the rock art panel of Gostimoda-I in Sundergarh district. The Chalcolithic pottery of Nuagada in the upper Mahanadi valley and Manamunda in Western Odisha also yielded the Sun motifs i.e. a circle with radiant rays from all sides³. We find solar symbols like the rays and the lotus, etc. in the silver and copper punch-marked coins discovered from Sonepur, Khandagiri, Jharpada, Baripada, Chatrapur, Asurgarh, Salipur, Dhauli, Sisupalgarh etc⁴. After that the rock-cut monuments and a series of Hindu temples of Odisha depicts the figure of Surya throughout the length and breadth of the State.

One of the earliest figurative representations of Surya in Odisha has been carved in Anantagumpha⁵ (Cave No-3, Khandagiri, A.S.I) in the Khandagiri Udayagiri hillock located in the western outskirts of Bhubaneswar, dating back to 1st Century B.C



Surya in Ananta Gumpha and Parasuramesvara Temple

Here Surya is depicted as a turbaned royal personage wearing heavy *kundalas*, a necklace and bangles. He is seated under an umbrella, with a female figure holding a flywhisk on either side and driving a chariot drawn by four spirited horses. Above them are representation of moon surrounded by stars and the Sun which symbolize the stellar world. The left hand of the figure is placed on the waist and the right hand on the chest. A demonic pot-bellied dwarf holding a spouted water pot in his left hand and a banner in his right hand stand at the right end of the relief near the right wheel of the chariot. Another Sun-image is carved in the middle of the back wall of Tattvagumpha cave, lower down the Khandagiri hill which is not clearly visible. The twin hill is a holy place of Jainism right from the 1st Century B.C. to the present day. So the Saura cult was popular here along with this faith in this early age.

In general the Surya images of Odisha can be divided into three broad categories⁶ i.e. (i) standing or seated images without a chariot, (ii) riding in a chariot, (iii) riding on his horse. In the first category the earliest surviving images of Surya generally represented him in a simple standing or seated pose without any suggestion

of a chariot or attendant figures. He holds the stalk of full blown lotus in each hand and assume a right frontal pose, either *samabhanga* or *padmasana*. He is usually dressed in a heavy, northern type garment and wears a truncated crown. A scarf frequently hangs from his shoulders and his feet are covered with boots. Standing images of this simple form exists at Chhatrapada, on the Lakshmanesvara, Parasuramesvara, Paschimesvara (Khanderpur) and Madhukesvara temple, with four

such images appearing on the latter. Except for one example on the Madhukesvara, which has four arms they are all two-armed. In this lone exception the lower hands hold the loose ends of the waist cloth⁷. Similar standing images of Surya are also included in the frieze motifs of the marriage of Siva on the Svarnajalesvara and Parasuramesvara and on the later detached panel at Visnupur. A rare later example of this simple form of standing Surya appears on the south *raha* niche of the Mahagayatri temple at Konark. In this example he is flanked by a warrior on either side standing in front of a *khakharamundi*. All three figures stand on a *Visvapadma* cushion.

Simple seated images of Surya appear on the small niches on the *gandi* of the Satrugnesvara, Svarnajalesvara, Parasuramesvara and in the compound of the Siva temple at Bankada. A late example, the *beki-bhairava* images inserted into the *beki* of late temples are sometimes of Hara-Surya. On the Surya *deul* at Konark a seated Surya was inserted into the *beki* above each *raha*. Surya (Ravi) is also depicted seated in *padmasana* when carved on *navagraha* slabs over the door lintel. In a few cases a chariot is added on the pedestal of Ravi.

In the second category the more complex images of Surya riding in a chariot can be divided into several modes depending on his pose. Surya is depicted from the hips up with his legs disappearing into the chariot. He holds a full blown lotus in each hand and charioteer Aruna seated on the front edge of the chariot. Except for a lone example at Shergarh where he is seated in *bhadrasana*, or a few examples where he is seated on the centre horse, Aruna is always seated in *padmasana*.

He usually holds the reins in his left hand while his uplifted right hand holds a lash. The front edge of the chariot is generally straight and the seven horses are carved in a continuous row with the centre one facing forward and those on the sides facing away from the centre. They stand on their hind legs with their front paws uplifted and curled in towards the chest. In several examples, the centre horse is awkwardly rendered and appears to be squatting. In the two late examples at Kaupur the chariot has a *triratha* plan with the horses being divided into three groups. In an example inserted into a niche of the Kapilesvara compound the chariot has a *saptaratha* plan. In the earliest images of this mode, Surya is generally flanked by small images of Usa and Pratyusa dispensing arrows from a stringed-bow. On later images he is usually flanked by the standing figures of Dandi (Skanda) and Pingala (Agni), the upholder of justice and recorder of merits and sins, though their attributes are not standardized. In a few examples all four figures are present. Images in this mode appear on the Vaital Deul, Madhukesvara and Simhanatha temple as well as at Suklesvara, Paikpada, Shergarh, Kaupur, Gandharadi, Lataharana, Mukhalingam



Surya in Parasuramesvara and Vaital Temple

(Somesvara temple), Ghoradia, Kundesvara, Tirthamatha and in the Kapilesvara compound.

In the less popular second mode, of which a few 10th century examples exist, Surya is seated in *padmasana* on the chariot. In examples at Khiching⁸ and Chaurasi, Surya is seated in *Viswapadma* cushion with Aruna carved on its face. The seven horses are depicted standing on their hind legs beneath the cushion. At Chaurasi, the charioteer is represented down to his waist only while at Khiching and on a small image on the compound wall of the Muktesvara he is seated in *padmasana*. On the more elaborate sculpture at Chaurasi Surya is flanked on the right and left by Dandi and Pingala respectively. If the palm-leaf drawing produced by Boner is correct, then the *puja* image from the Sun temple of Konark was seated in *padmasana* on a chariot⁹.

In the third mode of this class, particularly popular from the 11th century through the 13th centuries, Surya is depicted in full length standing in his chariot. He is in the *samabhanga* pose and holds a full blown lotus in each hand as in the other modes. The northern dress is abandoned except for the boots and in some examples even

these are discarded. Aruna is placed at his feet, seated in *padmasana* on early images while depicted down to the waist on later works, with the seven horses carved on the face of the pedestal. Surya is flanked at the base by Dandi and Pingala with Usa and Pratyusa also included in some of the works. In many images from Konark, a warrior representing time, is added on either side and in some cases replaces other figures. The black-slab becomes increasingly elaborate, as on other cult images, with a trefoil *torana* framing the head of Surya. Attendant female figures are added above the *mundis* on either side of the base and, on the *parsvadevatas* of the Surya *deul*, a small image of Brahma is added at the base of the *torana* on the right and one of Siva or Vishnu, are added on the left to form a trinity with Surya. King Narasimha and his Guru are added by the feet of Surya while dancing musicians are inserted above the horses and pedestal and around the *torana* borders. Images in this mode appear in the Lingaraja temple compound, on the Valukesvara and at Khiching, Paikapada, Shergarh, Champesvara and Konark.

In another variation, in the Konark museum, Surya is combined with Siva to form a composite form of Hara-Surya. At Champesvara, housed in a small pavilion next to Surya, is a standing female who possibly represents Chaya, one of the consorts of Surya. She stands in a *tribhanga* pose holding a dart in her right hand and a mirror in the left hand.

In the third group of images, Surya riding on his horse, only two examples are now available. They are both at Konark and serve as *parsvadevatas* in the north *raha* niches of the Mahagayatri and Surya temple. They are two-armed and most likely hold a full blown lotus in each hand though the hands are now broken off. Surya is flanked by a warrior on either side while in the more elaborate image from the Surya *deul*

the image of Dandi, Pingala, king Narasimha and his guru, four consorts are added.

In addition to these conventional images of Surya, there is *Caturmukha* image of Surya in the sanctum of the Biranchi Narayana temple at Palia, a reconstructed temple with its *deul* pierced by four doors. The image is crudely carved, however, in much later in date than the other sculptures at the site. There are also two bronze *Utsava murtis* of Surya preserved in the Jagannatha temple at Puri. They are standing images with Surya holding a lotus in each hand¹⁰.

Composite forms of Surya:

The worship of divinities in individual or composite forms had been prevalent in India, from the early times in various forms and shapes side by side. The earliest archaeological evidence of the cult objects comes from Harappan culture. The genesis of the syncretistic divinities could be traced back to these sites, which produced numerous examples of composite *Linga-yoni* motifs. These objects are believed to be the combined form of Siva and Shakti. The availability of the female figurines representing the mother-Goddess and the Harappan seal in which Siva is shown seated in the form of Pasupati, leads one to believe that both were under worship individually as well as in composite form of *linga* and *yoni*. The syncretism became popular after Gupta period due to the Tantric influence in which the multiplication of deities both in Buddhism and Hinduism started. Within the Hinduism multiplication among the various Gods and Goddesses were also started¹¹. In Odisha the following composite figures of Surya are displayed in various museums.

Hara-Surya:

A chlorite image of Hara-Surya displayed in the Konark museum is notable for its

iconography¹². Another beautiful sculpture having the images of Jagannatha, goddess Durga and Sivalinga are on one platform to which the King who is the builder of the Sun temple paying homage to the deities shows the religious assimilation of Odisha in 13th Century A.D. This image is also displayed in the same museum.

The image of Hara-Surya stands in *samapada* position on a *triratha* chariot drawn by seven horses. Aruna, the charioteer sits in front of the feet of the deity and drives the chariot. The God has four hands, the upper two hands are missing but they evidently carried two lotus flowers which can be seen above his shoulders. He holds a trident in his lower right hand while the lower left hand is in the *varada* pose. The god wears boots, girdle, high crown necklace and other ornaments. He is flanked on either side by an attendant holding sword and shield. At his back there is an elaborate trefoil arch, on the sides of which are four female figures holding garlands and *chamaras*. At the top of the arch, there is a *kirtimukha* flanked by two *gandharvas* bearing conch shells. At the top corner of the slab are two *vidyadharas* flying with garlands.

The image in question definitely syncretistic image of Siva-Surya as Surya is often identified with Siva. The Ekamra-Purana identifies Siva with Surya while prescribing prayer to Bhaskaresvara Siva of Bhubaneswar. The Adityahridaya declares that there is no difference between Aditya and Siva. From the passage of

Ekamra-Purana, the identification of Siva with Surya is evident and the same notion may have been at work in carving this sculpture of Konark.

The Gayatri Mantra itself is conceived as Brahma, Vishnu and Siva in the morning, midday and evening respectively each of the deity shines resplendent within the solar orb. The clear connection of Surya with Vishnu as Narayana hailing from different parts of India is well known but the composite figure of Surya and Shiva are very few. One such figure noticed by Hiralal, which



Hara-Surya, Konark Museum

is a six armed composite image found at Madhia in Bundelkhand region. The figure holds in two of his left hand a trident and a lotus, the third in *varada* pose and other one holding a lotus. Its legs are clad with shoes; the boot and lotus is solar feature while the trident indicates the Saivite feature¹³.

Another very interesting composite sculpture from Bihar now on exhibit in Gupta gallery of archaeological section of Indian museum Kolkata shows the four armed Harihara in the centre, the back hands carrying a trident and a conch shell and front hand skull cap and discus. But what is unique in this sculpture is the presence of standing Buddha and image of Surya in the right and left side of Harihara. The halos round the head of Buddha and Surya, the former stands on a double – petalled lotus and the latter on his seven horsed chariot driven by Aruna. The separate sections of pedestal allotted to them prove that they are no more attendants here but are cult objects of worship¹⁴.

Surya-Narayana:

Surya has been variously described in the *Rig Vedic* hymns. Sometimes he was called as the beautiful celestial bird “Garutman” or a “white brilliant steed brought by “Ushas”. From these descriptions of the concepts of Garuda – the vehicle of Vishnu and Tarakshya - the horse mount of the Sun-god originated. This further led to the development of the idea of the Sun-god moving on a chariot driven by seven horses so frequently found in the post *Vedic* texts and projected in the early reliefs and described in the *Rig Vedic* hymns¹⁵.

Vishnu on the other hand enjoyed a prominent position in the *Vedic* literature. There is a school of thought which believed that Vishnu who became popular in the Brahmanical cults in vogue during the period contemporary to the beginning of Christian era was different from *Vedic* Vishnu¹⁶. The feet associated with him in *Vedic* literature relates to his having traversed the whole universe in three strides. These three steps in course of time developed in to myths on the dwarf incarnation of *Puranic* Vishnu. Sakapuni, one of the *Vedic* commentators, interpreted these three steps as a course of solar deity, through the three divisions of the universe, the god being manifest in three fold forms, as Agni on earth, Indra or Vayu in atmosphere and Surya in the sky. Both the deities namely, Surya and Vishnu are very much inter-connected and there should be no surprise if both of them are projected in composite form of iconoplastic art.

According to Arunabha another commentator of *Vedic* literature the three steps of Vishnu indicate the different positions of the Sun at its rising, culminating and setting. The idea underlying this solar explanation is evidently incorporated in a *dhyana* wherein Vishnu as Narayana is described residing in the orb of the Sun. Thus the idea that Vishnu in the Sun appears to have been maintained in the worship of Surya-Narayana.

Gopinath Rao, speaks of a bronze of Surya - Narayana from Belur, which is preserved in Madras museum. The image belongs to Hoysala period and has four hands, two of which carry a conch and a chakra. The Hoysalesvara temple at Halebidu and



Surya-Narasimha

Chanakesava temple at Belur carved with this composite figure. Similar types of images are carved on the exterior wall on the later temples of Odisha. Besides there is a bronze image of Surya-Narayana seated over a horse displayed in the Orissa State Museum located in Bhubaneswar and in the Nrusimhanatha temple on the foot of Gandhamardana hills at Paikmal and at Kotakolla in Ganjam district. In the Viranchi-Narayana temple of Buguda of Ganjam district Surya and Narayana are worshipped together.

Surya-Narasimha:

To the north of Nrusimhanath temple, on the foot of Gandhamardan hills at Paikmal in the undivided district of Sambalpur, there is a modern structure which enshrines the figure of Surya-Narasimha¹⁷, one of the unique of its kind Carved in high relief in grey sandstone, it depicts Narasimha as standing on a *triratha* (three projections) pedestal in *samapadaasthanaka* (erect) posture, flanked by two female attendants, one to the right holding a lotus and the other to

the left a flywhisk. The four armed lion- faced god exhibits in his upper right and left hands a lotus and a conch and in the lower right and left hands a *gada* and the *varada* pose. He is sparsely ornamented in addition to his usual *vanamala* (prominent garland), wears armlets, bangles and necklaces of simple designs and a short dhoti (cloth) reaching up to the knee. But what is most striking is the pair of gumboots the ends of which reach up to the knee and their ends are conical at the centre. This particular feature makes this image unique, because among the Brahmanical deities, it is only the Sun-god who wears boots and that too only in the north Indian art¹⁸.

The other image, also of Narasimha, can be seen on the lintel of the entrance doorway of the Gangadharaesvara at Kotakola near the Buguda town in the district of Ganjam¹⁹. And like the previous one this is also unique. This is high relief, made of stone, the god is seen engaged in killing Hiranyakasipu by his normal pair of hands standing on a platform of a *ratha* drawn by seven horses, by his left leg, which is slightly bent, trampling another demon, apparently the demon of darkness, the emblems in the upper hands are not clear, but the one in the left may be a lotus. Here again the solar element is articulated in the seven horsed chariot, a never failing feature of the iconography of Surya in north- Indian art.

Both the images represent a blending of two divinities Vishnu and Surya and thus belong to the class of syncretistic image like Harihara, Ardhanarisvara and Martanda Bhairava. These two images of Surya-Narasimha have made significant contribution to our knowledge of Brahmanical iconography. Aesthetically both the examples are of different workmanship. The pillar like legs, stylized manes and moustaches and the rigid stance of the god in the first instance and almost similar features together with his lifeless, almost petrified, posture of killing the demon in the second tend to assign them to the folk-tribal

tradition which was, and still is, relatively predominant in the area they belong to on the basis of associated temples.

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Gajapati – An Economic Profile

Dr. Sadananda Nayak

Gajapati district is situated in the southern part of Odisha and lies between 18°46' N and 19°39' Northern latitudes and 83°48' E and 84°27' East longitudes, covering a geographical area of 3,850 sq. kms. The district is surrounded by four districts; Ganjam in north-east, Kandhamal in north, Rayagada in the west and Srikakulam district of Andhra Pradesh in the south. It comprises of one Sub-division, three Tahasils, seven C.D. Blocks, two Towns, one Municipality, one N.A.C., ten Police Stations, 129 Gram Panchayats, four Fire Stations and three Assembly Constituencies.

The economic condition of Gajapati is as old as the primitive tribals who make their mark in the inaccessible hill ranges for their sustenance. The royal dynasties paved a new look in the field of economic growth. However, the district lags behind from the point of view of industrial growth and per capita income.

The economic condition of a region can be determined by using three important indicators - proportion of agricultural sector to the concerned economy, role of industrial sector in the economy and the degree of development of tertiary sector of the concerned economy. Hence any study related to economic condition necessitates the study of above three conditions.

The basic objectives of the present paper entitled 'Gajapati – An Economic Profile' is to find out the economic condition of the district of Gajapati. For the study, data have been collected from both organized and unorganized sector. Various government departments in the District Headquarters, Paralakhemundi and the state capital, Bhubaneswar along with some voluntary organizations have been consulted for the study. The paper is analyzed in the context of economy of Gajapati district based on the performances of these three basic indicators – agricultural sector, industrial sector and tertiary sector.

1. Agricultural Sector:

Odisha is of an agrarian economy. About 75 per cent of its population depends on agriculture and allied activities as the main source of their livelihood. Gajapati, like that of other districts of Odisha state is also showing same trend of agricultural dominance in the economy.

On the basis of occupational pattern of the Gajapati district, 50.2 percent of its people are occupied in the pursuit of agriculture. A total of 95731 are cultivators while 67481 persons are among agricultural labourers. Similarly, 7432 persons are engaged in trade and commerce related activity which is 3.9 per cent to the total main workers population in the district. Hence

there are 180000 numbers of main workers in the district where as the number of marginal workers being 13173 (according to 2001 census). The Table-1 derived below shows that the district has a total of 276000 numbers of workers as per 2001 census which is 1.93 percent to the total workers population of the State. The decennial growth rate between 1991 and 2001 is 14.10. The main workers as those who had worked for the major part of the year preceding to the date of enumeration i.e. who engaged in any economically productive activity for 183 days (or 6 months) or more. Thus from the facts, it can be said that increase in total workers where as there is reduce in main workers between the two census is not at all a positive indicator as it may create either marginal workers (who do not work for a major part of the year) or non-workers (who do not work any time at all in the year).

The condition of agriculture can be well examined by analyzing the net area covered for different crop categorized, with their yield rate and quantity produced. Table 2 derived below shows the area covered for cultivation, yield rate and quantity produced in the year 2001-2002 for different categories of crops in the district.

I. Cereals

Among the cereals produced in the district like rice, wheat, maize and ragi, rice is the major produce. Rice is cultivated in 41.03 thousand hectares in winter, in autumn and also in summer seasons with a yield rate of 1937 kg/ha. with total production of 79.46 thousand mts. Among other cereals, ragis constitute the second produce with a total of 9.04 thousand mts in 2001-02. From the table we can find that a total of 61.03 thousand hectares are covered for cereals production with an average of yield rate of 1588 kg/ha. and a total of 96.89 thousand mts of cereals are produced in the said year in the Gajapati district.

II. Pulses

In the Gajapati district the pulses like mung, biri, kulthi, cowpea, arhar, gram and field pea are the cultivable items. From the table, we can find that in 2001-2002 biri is the largest cultivable produce among the other pulses which is cultivated in 7.37 thousand hectares with an yield rate of 680 kg/ha. and a total of 5.01 thousand mts. of biris produced during the same year. Kulthi places the second place followed by mung next to biri in area covered and production.

III. Til and Oil seeds

Til is the highest produced agricultural produce in the district. Til is cultivated in 6.11 thousand hectares with an yield rate of 506 kg/ha. and a total of 3.09 thousand mts. of til produced during the period followed by niger, groundnut, castor and sunflower respectively. A total of 14.88 thousand hectares are covered for til and oil seed production in the district with an yield rate of 596 kg/ha. producing a total of 8.37 thousand mts. in both the season.

IV. Vegetables

In the year 2001-2002, a total of 15.05 thousand hectares are covered for vegetables with a production of 178.2 thousand mts of quantity are produced. Among vegetables, sweet potato is the largest cultivable produce among the other vegetables which is cultivated in 0.76 thousand hectares with an yield rate of 8237 kg/ha. and a total of 6.26 thousand mts. of sweet potato produced during the year 2001-02.

V. Fibres

Mesta is cultivated in 0.50 thousand hectares with an yield rate of 750 kg/ha. and a total of 2.08 thousand mts. of Mesta produced followed by Sunhemp and Cotton during the year 2001-02 in the district.

VI. Condiments and spices

Condiments and spices are given little attention in the district. Only 4.82 thousand hectares of land are covered with a total production of 8.29 thousand mts of quantity produced in the year 2001-02. Among the net condiments and spices produced, turmeric is produced in major places of the district.

VII. Commercial crops

In this category, a total of 54.27 thousand mts. with an yield rate of 81000/acres covering 0.67 thousand hectares followed by tobacco in 0.11 thousand hectares with a production of 0.08 thousand mts. are produced in the district in the year 2001-02

Thus by summing up, we can say that, the economy of Gajapati is influenced by the production of rice, which is a major economically viable product in the district.

2. Industrial Sector

There is no large or medium scale industries present in the district. Only the small scale industries can be seen spread throughout the district. During the year 2001-02, Orissa State Financial Corporation (OSFC) has disbursed 30.35 lakhs of rupees for the development of small scale industries in the district. During this year, 50 small scale industry units are established and 95.30 lakhs of rupees invested in this sector and 232 number of employment was generated.

There were 50 number of small-scale industries established in the year 2001-02 and the number is increased to 81 in 2002-03 and 87 in the year 2003-04, which is a good growth as comparison to previous records. Similarly there were 38 cottage industries set up during 2001-02 and 380 and 576 cottage industries were set

up during the years 2002-03 and 2003-04 respectively (Table-3).

The structure of small scale, cottage and handloom industries is derived in table 4 for two successive years 1997-98 and 1998-99. From the table, we will find that the district is having only 55 small scale industries, 383 cottage industries in 1997-98 which further reduced to 51 small scale industries and 228 cottage industries in 1998-99. The table also reveals clear cut picture of employment i.e. worker position, capital investment with the industrial structure in two successive years for small scale, cottage and handloom industries.

The horn works of Paralakhemundi (district headquarters of Gajapati) is one of the important products of cottage industry. The horn works of Paralakhemundi got a special place. The Medari caste of Paralakhemundi used to prepare finest articles like bag, flower pots, etc., out of Jaeekhadi (sticks obtained from a kind of wild plants). The Jaeekhadi plants were found in the slopes of Mahendragiri.

From the annual survey of industries we find that, the net value added by the manufacturer in the district is Rs. 7.6 lakh in 1996-97 and Rs.9 lakhs in 1997-98. Value capital for the district is Rs.69 lakh and Rs. 50 lakh in 1996-97 and 1997-98 respectively with an input value of Rs.50 lakh and Rs. 41 lakh during the said years. The district is having only 3 number of reporting units whereas productive capital is estimated at Rs.11 lakh and Rs 12 lakh respectively in 1996-97 and 1997-98. It has fixed capital of Rs.4 lakh and Rs.6 lakh and working capital of Rs.8 lakh and Rs.6 lakh respectively in 1996-97 and 1997-98. Thus it can be said that the performance of industrial sector to the State's economy is very low.

3. Tertiary Sector

Tertiary sector plays important role in the economic development of a country/state/district. Hence it is one of the important stimulants of economic growth. The tertiary sector includes development in transport and communication, power, telephone, post offices etc. And all these alternatively reveals for a sound infrastructure.

Transport and communication is a basic infrastructural prerequisite for all-round development of a region in general and economic development in particular. It is crucial for attracting investment. Thus, the ongoing economic reforms give high priority for the development of transport and communication. In absence of adequate rail linkages, roads are major means of transportation in the district. Except the irrigation roads and GRIDCO roads, the total road length in the district was 5639 kms as on 31.03.2002. There is no National Highway and Express Highway. The State Highway in the district is of 250 km long whereas only 66 km of major district road, 39 other district roads, 301 P.S. roads, 4253 kms of Gram Panchayat roads and only 479 kms of village road are recorded in 2003-04.

Recently, i.e. during the month of January 2010, the East-Coast Railway has started functioning of the single lined broad gauge communication in the district. There is only seven railway stations which is 18.2 percent to the total 260 stations of the state position in 2003-2004. Previously there was a narrow gauge railway communication from Nowpada to Gunupur covering 49.366 Kms. of the district. Now this narrow gauge converted into broad gauge by the East Coast Railway.

The district has one head post office, 18 sub-post offices, 130 branch offices. Electricity

consumption for commercial activities in the district is estimated 16.420 million units in the year 2003-04 which is very less in comparison to other districts of Odisha. Similarly, Small Scale Industries and Medium Scale Industries of the district were consuming only 3.337 and 6.008 million units in 2003-04 respectively. Only 50.4 percent of the villages are electrified upto 2003-04 as against the state average of 77 percent. By the end of 2004-05 there are 2552 number of motor vehicles registered in the district, out of which 2229 are two wheelers.

Conclusion

To sum up the study, we can say that, the overall economics of Gajapati has almost all the characteristic of a backward economy. The agricultural sector plays a vital role in stimulating the economic development of the district. It employs more than 50 percent of workforce of the district and more than 75 percent of district population are dependent on agriculture and related activity. The contribution of industrial sector is not impressive. Hence, there is the potentialities to develop the industrial sector in the district, but the present rate of growth is to some extent is said to be stagnant. Performance of the tertiary sector in the district is not attractive either for investment or for tourism. However, in order to counteract these existing hurdles, it requires encouraging involvement of financial institutions, voluntary organizations, investment personnel with a spirit of dedication to help the rural folk of the backward areas along with the village poor. Strengthening of agricultural sector should be given top priority. For this, the Integrated Cereals Development Programme – Rice, Oilseed Production Programme (OPP), Sugarcane Development Programme of state plan and Sustainable Development of Sugar Based Cropping System of Central Plan etc should be

encouraged along with expanding various employment generation programmes in priority basis.

Table 1**Occupational pattern in Gajapati district**

Category of workers	No. of workers	% to total main workers
Cultivators	95731	50.2
Agricultural labourers	67481	35.39
Livestock, forestry, fisheries etc.	2672	1.40
Mining	13	0.007
Household Industries	2399	1.26
Other than household industries	1995	1.05
Construction	905	0.474
Trade and Commerce	7432	3.9
Transport, storage and communication	1237	0.649
Other services	10839	5.68
Total main workers	190704	100
Non-workers	33432	
Total workers	224136	

Source : Fact Book on man power, Series-V, Directorate of Economics and Statistics, Orissa, Bhubaneswar

As per 2001 Census

Total main workers as per 2001 census	180000
Total marginal workers as per 2001 census	96000
Total cultivators as per 2001 census	90000

Total Agricultural Labourers as per 2001 census	125000
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Total workers as per 2001 provisional	276000
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Table 2**Estimation of area, yield rate and production of different crops of Gajapati District in the year 2001-02**

Crops	Area (000' hect.)	Yield rate (kg/hect.)	Production (000'mts)
CEREALS			
(a) Rice	41.03	1937	79.46
(b) Wheat	0.02	1800	0.04
(c) Maize	5.77	1101	6.35
(d) Ragi	9.85	918	9.04
(e) Jowar	2.07	450	0.93
(f) Bajra	1.17	480	0.56
(g) Small millets	1.12	455	0.51
Total Kharif	59.75	1596	95.35
Total Rabi	1.28	1203	1.54
Total Cereals	61.03	1588	96.89
PULSES			
(a) Mung	4.37	588	2.57
(b) Biri	7.37	680	5.01
(c) Kulthi	7.05	410	2.89
(d) Cowpea	1.80	511	0.92
(e) Arhar	4.37	710	3.10
(f) Gram	0.09	635	0.06
(f) Field Pea	0.18	615	0.11
Total Kharif	8.57	655	5.61
Total Rabi	16.66	543	9.05
Total Pulses	25.23	581	14.66
TIL & OIL SEEDS			
(a) Groundnut	1.46	114	1.67
(b) Sesamun (til)	6.11	506	3.09
(c) Castor	0.94	585	0.55

(d) Sunflower	0.37	480	0.18
(e) Niger	3.55	489	1.74
(f) Mustard	2.95	670	1.64
Total Kharif	2.13	657	1.40
Total Rabi	1.75	586	7.47
Total Til & Oil Seeds	14.88	596	8.87

VEGETABLES

(a) Sweet potato	0.76	8237	6.26
(b) Potato	0.01	9405	0.11
(c) Onion	0.28	10288	2.88
(d) Other vegetables	14.00	12068	168.95
Total Kharif	7.82	9644	75.41
Total Rabi	7.23	14217	102.74
Total Vegetables	15.05	11891	178.2

FIBRE

(a) Mesta	0.50	750	2.08
(b) Sunhemp	0.07	520	0.20
(c) Cotton	0.45	334	0.88
Total fibre products	1.02	559	3.17

CONDIMENTS & SPICES

(a) Chilies	1.86	590	1.47
(b) Corriender	0.06	500	0.03
(c) Garlic (Rabi)	0.07	3143	0.22
(d) Turmeric (Kharif)	2.19	2402	5.26
(e) Ginger (Kharif)	0.69	2047	1.31
Total Kharif	3.11	2197	6.84
Total Rabi	1.71	850	1.45
Total Condiments and Spices	4.82	1720	8.29

COMMERCIAL CROPS

(a) Sugarcane*	0.67	81000	54.27
(b) Tobacco	0.11	750	0.08

Total Kharif 82.40

Total Rabi 40.41

Gross copped area 122.80 (excluding fruits)

Note : *Yield rate in cane.

Source : Orissa Agricultural Statistics 2001-02, Directorate of Agriculture and Food Production, Orissa, Bhubaneswar.

Table 3
Details of Industry and Mining in Gajapati district

Items	Magnitude		
	2001-02	2002-03	2003-04
A. Small Scale industries			
No. of S.S.I. units established.	50	81	87
Total capital investment (Rs. in lakhs)	95.30	159.27	264.42
Employment generated (Nos.)	232	480	630
B. Cottage Industries			
No. of cottage industries set up	38	380	576
Total capital investment (Rs. in lakhs)	58.52	78.54	144.74
Employment generated (Nos.)	425	651	1125

Source : District Statistical Handbook, Gajapati, 2005.

Table - 4

Structure of Small Scale, Cottage & Handloom industries in Gajapati district

Industries	Magnitude	
	1997-98	1998-99
Small Scale Industries		
No. of S.S.I. units established	55	51
Total capital investment (in lakh)	693.82	151.53
Employment generated (in numbers)	436	382

Cottage Industries

No of Cottage industries generated	383	228
Total capital investment (in lakh)	29.7	12.41
Employment generated (in numbers)	644	456

Handloom Industries*

No. of looms	3976	3798
Total capital investment (in lakh)	947.6	1137.14
Production (in sq. mt)	25.44	17.6
Employment generated (in numbers)	7952	7596

* Includes some figures from Ganjam district

Source: District Statistical Handbook, Gajapati – 1999
(Compiled)

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Monumental Neglect: Need for Awakening

Dr. Pratima Kumari Devi

“A thing of beauty is joy for ever”, sang the poet in a moment of exuberance. All the world, or at least a greater part of it, loves beautiful objects, whether to look at and admire, pay for and possess, or even fight wars over. Yet, unfortunately, in our very own territory things of beauty, though admired, are often sadly neglected, and allowed to die a slow death.

As residents of Bhubaneswar, the Capital City of Odisha, we have the rare privilege of inheriting a rich legacy of art and architecture. Orissa or Utkal, famous for excellence in art, is the home of innumerable ancient monuments including places of worship, flung far and wide over the state. There is a fair concentration of such sites in and around the city of Bhubaneswar. Among them Lingaraj Temple, Rajarani Temple, the ruins of Sisupal Garh, the caves and inscriptions of Khandagiri, Udayagiri and Dhauligiri, to name only a few. Different religions have come together here and added to the glory of the place. Only a few kilometres beyond the city limits, we have the Jagannath Temple in Puri, the Sun Temple in Konark and the historic Barabati Fort in Cuttack. These structures, spanning centuries in the history of Orissa, stand as silent symbols of our glorious past.

The presence of a large number of temples has earned Bhubaneswar the title of

Temple City. In the older section, known as Old Town, one virtually stumbles across a temple at every turn. While a few of these no longer have deities inside, most regularly draw devotees, more so on festival days. Within the Lingaraj Temple Complex itself, apart from the central shrine of Lord Shiva, there are numerous smaller temples dedicated to various gods and goddesses, each one full of intricate designs and figures carved out in minute detail. Stepping into the premises, one is filled with awe and wonder at the superb workmanship as also with pride in our cultural heritage. But, mere inheritance is not enough. We have to strive hard to preserve our riches in our own time and for future generations. These beautiful creations, important in themselves and for their contribution to the evolution of dance, music, art and sculpture in Orissa, did not come up in a day. Rather, they bear testimony to months and years of artistic toil, dedication and sacrifice that finally gave them their shape and breathed life into the stones. So, it is for us to treat them with reverence and to protect them with all our means.

Reality, however seems to be completely different. From a quiet, little town Bhubaneswar has grown by leaps and bounds into an overcrowded city, and is still expanding at a rapid pace. Wide roads, even highways, now run close

to temples and hills alike. Pollution due to dust, vehicular emission, and noise, along with exposure to elements over the years has taken a steady toll on the monuments. Above all, there is the human factor. Attitudes ranging from sheer apathy to intense greed have not helped the situation in any manner. Burgeoning population, a mad race for acquisition of real estate, and relatively slack laws have resulted in buildings coming up close to heritage sites, even abating on to the existing structures. The tranquil atmosphere of Khandagiri and Udayagiri is under serious threat from the increasing number of housing projects in the vicinity. Careless construction of this kind has already affected the evaluation of local sites by international agencies.

While tourism as an industry is much favoured because of its contribution to the public exchequer, no particular care is taken to streamline the throngs of people descending on the various heritage sites or to provide adequate security measures. The more insensitive among the visitors cause wanton disfigurement or damage to the monuments and littering of the premises; anti-social elements indulge in theft of precious art objects and other offences as well. Under such circumstances, preservation or protection of monuments becomes a tough task indeed.

Despite periodic measures by agencies like ASI, INTACH and UNESCO, along with the State Government, not much has been achieved in this direction. Successive plans for preservation and protection are experimented with and discarded in favour of new ones. While endless debates on technical points go on, the objects of study suffer in silence, losing their strength and beauty. The stitch in time that would save nine is seldom put in place. Archaeological excavation of sites like Sisupal Garh or Barabati Fort is haphazard and terribly slow, often

discontinued for long periods of time, allowing in the process of rampant theft and encroachment. Dug up portions also get buried in course of time so that the work has to be done afresh. The issue of protection of monuments, sometimes highlighted in the mass media, manages to kindle no more than a brief spark of response. Only when a situation gets out of hand, as in case of prolonged water logging of the Sun Temple or the Sisireswar Temple, eventually leading to partial collapse of the structure, there is a loud hue and cry; banners and slogans are raised, political groups step in; noble sentiments and resolves are aired over a multitude of news channels, with mutual recriminations flying thick and fast. The problem, then, has to be tackled with emergency measures. As the water recedes, so does public concern, going into cold storage till the next such occasion.

As conscientious citizens, it is our duty to preserve the beauty and grandeur of our ancient monuments, to pass on our priceless endowment to posterity, not to fritter it away with gross negligence or allow it to slide into oblivion. With good care, these structures that have withstood the ravages of time for centuries can continue to do so for a long period. As a first step, we have to promote public awareness regarding the importance of our monuments. It is regrettable that living in the midst of such artistic abundance, more often than not we tend to ignore it. Facts and legends about the places as well as their historical significance should be widely publicized. Regular tours with well-trained guides can also help in familiarizing local people with these details and inculcating in them a sense of joyous participation. Students and young volunteers can be involved in the drive.

The present lack of co-ordination among the different bodies entrusted with the maintenance

of monuments results in chaos. While much time and energy is spent in passing the buck, the monuments fall into disrepair, slowly but surely being reduced to ruins. To prevent further confusion, a clear policy regarding monuments is to be framed, and responsibility in respect of individual units assigned. Instead of available hired labour, personnel with necessary training should be engaged in the actual work of cleaning and restoration. Extensive research on temple architecture of Odisha should be undertaken for a better understanding of material, art form, and type of care required. Eminent scholars and master craftsmen of the state can help in the endeavour with their wide knowledge and experience.

Stringent laws pertaining to maintenance of monuments or heritage sites have to be enacted and enforced. A strong presence of security officers is necessary to act as a deterrent against vandalism and pilferage, as also against threats of terrorism. Visitors, in turn, should learn to move about in an orderly manner and keep the premises

clean and safe. Further construction near such sites should be stopped. Organisations using ancient monuments for promotional or commercial programmes like Music and Dance festivals, shooting of films etc. should be made to contribute significantly towards the maintenance of the same. The support of prominent industrial or business concerns operating in the State may also be enlisted for the purpose.

It is our collective responsibility to look after these magnificent embodiments of artistic inspiration that have been bequeathed to us. Before it gets too late, we have to shake off our apathy and work in right earnest towards saving them from degeneration. Otherwise, there will be no heritage to boast of. From a symphony in stones to a heap of rubble is but a short step.

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Devi Kantabaunsuni - A Sacred Groves of Koraput

Paresh Rath

Koraput in Odisha is associated with the epic fame of *Ramayana* and *Mahabharata*.

Dandakaranya, one of the seven great forests (*Sapta Maharanyas*) that guarded the eco diversity of ancient India, immortalized as lord Rama's heritage for fourteen years, is a living heritage of this region, though thanks to the limitless greed of so called civilized men, it has lost its pristine sanctity and primordial glory. The local inhabitants still preserve the memory of the Lord's association with their habitat in the form of 'Ramgiri', 'Balimela', 'Sitakund', river Sabari, and other places.

Four major religious waves seem to have swept this hilly region at different times. Buddhism, Jainism, Saivism in ascending order of intensity and finally, in more recent historical times, Vaisnavism, in the form of the cult of Lord Jagannath.

Tribals are the aboriginal inhabitants of Koraput. They are possessive about their unique ethnic identity. Koraput is home for a number of tribal communities and all have their own culture, customs, traditions and practices in connection with the rituals of their life cycle.

The religious beliefs of the tribals are specific to each group. Among most of the tribes,

the deities are believed to reside in sacred groves and even the village goddesses are worshipped under a tree at the outskirts of the village. They show utmost respect to these places and preserve them like precious treasure.

The abode of *Kanta Baunsuni* in Sindhipar village near Damanjodi in Koraput district is one of such sacred groves that gratify the delight of anthropologists and social scientists. The abode is rich in rain forests of bamboo plants uncut for hundreds of years. The bamboo plants are believed to be the shrine of goddess Kanta Baunsuni. This is one of the indigenous practices of ancient India which is preserved by the tribals of Koraput. More than three decades ago the exploration of the huge stock of bauxite mines in the Panchapat Mali mines of Damanjodi in Koraput district where Asia's largest Aluminium exploration plant was set up and the forest of bamboos with the presiding deity goddess Kantabaunsuni's shrine adjacent to it was preserved from the modern structures. National Aluminium Company Ltd. NALCO acquired the whole area for the project leaving a large size of bamboo forest untouched as the revenue and project officials were restricted by the locals who are prime dwellers and the members of Gouda, Kondha, Dombo, Paiko, Gadaba, Paraja and Mali communities. This indigenous practice that

involved protection of the forest for religious reasons has saved the forest. The main shrine has a number of bunches of bamboos standing tall up to 200 feet high. There are two more different patches worshipped atop the hills. The exploration of mines which would have disturbed the ecology is in a way protected by the communities. The forest on which depends the entire ecology of the land is strongly protected as the very survival of the people and their land. People from the nearby villages of Sukriguda, Sindhipar, Amlabadi, Gadipabli, Kantaguda, Damanjodi, Barangaput, Madisahi and other places throng to the shrine everyday. More rush of devotees and visitors are seen on the weekdays of Tuesdays and Saturdays. Pus Parab is the main festival of the goddess observed by the tribals. During Dasahara Festival a new red clothe is tied at the root of the main plant believed to be the *Asthana*. A large number of *Ghantis* (metallic bells) are found offered by the devotees on the fulfillment of their desires. During Dasahara fowls, goats and sheep are sacrificed. It is believed that one *patakhanda* (sword) is guarding the forest and anyone trying to damage the plant

will have to suffer. The plants after getting older are falling on the ground left to natural decay. The grove also has a pond to cater to the water requirements inside the forest.

The priests family engaged in worshipping the goddess have continued the tradition from their forefathers and the most important thing one would observe is that there is no restriction on the entry to the temple in respect of caste, creed or sex.

Though enough research is not made on the sacred groves of Kantabaunsuni, today the conservatory ritual of the tribals in Koraput has played an important role as valuable storehouse of biodiversity containing innumerable kinds of endemic and endangered plants and animals that have become rare and extinct in other forests.

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The Cultural History of the Tribals of the Koraput Region

Dr. Debashis Patra

Introduction :

The culture of any community is closely associated and assimilated with its history since time immemorial. Further the existence of culture is the base of history. Therefore, the craze to know the way of life of any community requires study and analysis of cultural history of that tribe deeply. If one thinks of cultural history of primitive tribes one must turn towards South Odisha, the hub of tribals. So, this Koraput region, the domain of tribals has become centre of study and research.

Although the tribal population in Odisha has around 25%; their contribution in the development process of the state is outstanding. Their tradition and culture is broad and uncommon. And the cultural history of tribals of this undivided Koraput have special importance all over India. The tribal population consists of 53.74% in the undivided Koraput (now divided into 4 districts Koraput, Rayagada, Nawarangpur and Malkangiri) as per 2001 census operation. The anthropologist study gives an account that there are 62 types of tribes in Odisha. They all live in the above district although their number is so small. As far as the population of a tribe is concerned the Bhumia, Bhatra, Gond, Koya, Paraja, Kondh constitute above one lakh each, while other 26 tribes population is around 1000.

The Bonda and Didayi are considered as rare tribes because of their greatness and typicality of culture. Their domain and sphere of activity is confined to the dense forests of Eastern Ghats and on the mountainous river. This aboriginal tribe is divided into three communities' viz. Munda. (Austro-Asiatic), Dravidian and Indo - Asian. They have their culture of own which is linked to their ambiance and language. Literarily the definition of their culture is so broad that we appreciate and accept every aspect of their life style which is associated with culture. Let us have a glance at their culture from different perspective such as social and religious milieu, village system, folk literature, dance and song, fairs and festivals, way of life and folk art.

Socio-cultural Life of the Tribals :

Normally the primitive tribes express the cultural identity through their custom, tradition, festivals, dress and ornaments. A certain name is coined especially for the identity of a tribe e.g. the Bonda, the Koya, the Didayi, the Paraja, the Kondh, the Saura etc. One can have a clear view from this name. Every tribe has a certain place of origin and its spreading they have their own oral and written language for interaction of each other. The matrimonial alliance of a tribe is arranged in its own community as they oppose inter

community marriage. Each tribe has its own social bond, administration, tradition and judicial system. All these play a key role in maintaining law, youth dormitory, worship and enchanting, economic policy, collection of food, hunting, shifting agriculture, and handicraft and so on for their lively subsistence. Indeed all these things are a case study of cultural history of tribes for the new generation of writer.

Salient Features of Tribal Socio-Cultural Life :

1. They live in relative isolation usually in hills and forests in interior area.
2. Their social identity is defined and redefined from time to time.
3. They constitute simple societies which are socio-culturally homogeneous.
4. They have their written and oral language or dialect for communication.
5. A particular tribal community is endogamous and is divided into a number of exogamous divisions.
6. They have low access to education and health care services.
7. They possess their own socio-cultural history which may be shallow and un-written.
8. They have their rich cultural tradition and heritage although their social organization is simple.

OTHER CULTURAL MILIEU

A. Traditional Village Council

The village council is considered to be the cultural centre of tribal village. It comprises various posts and their duties to perform. The head of the village council is the head of the village. The head of a village is normally selected as per seniority and talent. His commitment, love and

affection towards villagers are also taken into consideration for selection as head. Almost all the tribe calls the head as "NAIKO". Assistance is chosen to help the head is called as "CHALLAN". The duty of convening a meeting is rested on the shoulder of "BARIK". The priest of the village is regarded as "DEHURI". Apart from that the posts of the council of village of all the tribe is different from each other. For example the head of the Koya village is "WARDE", the Paraja's the "MUDULI", and the Sauras's the "GOMANGO" and so on. The religious head of the Kondh community is the "JANI" who is assisted by "BIS-MAJHI" during the time of meeting. These are the aspects which are the main source of cultural wave of tribes that provide a lot of account regarding their culture.

B. Youth Dormitories

The youth dormitories (Dhangda, Dhangdi Basa) play a major role for keeping the tribal culture and tradition afloat. And most of the tribe has such institution for unmarried youths. The boys and the girls spend nights there in separate room in the dormitories. An open space is there opposite to the dormitory which is meant for practising dance. It would not be wrong to say it as school for improvement of dance. This dormitory has another importance particularly choosing of life partner by the youth. It is indeed a democratic institution for promotion and carrying culture of tribes and we have to recognize the role of dormitory in this regard is uncommon.

C. Ceremony of Tribals :

Ceremonies are inseparable part of the way of life of tribals. There are two types of ceremony so far as the observation at family level and community level is concerned. The family level ceremonies mainly include Newly Born Babies, Marriage and Death. These ceremonies have specific custom and convention, for instance the

Naming Ceremony of the newly born baby which is taken place on 21st day after birth. There is also provision of prayer and worship to the forefather for blessings. This ceremony also includes the drawing of ‘Muruja’ and ‘Jhoti’ in tantric design. Similarly during the time of death rites there is also the rule of drawing tantric design and offering of non steam rice, wine, cocks etc. for pleasing the spirits of the deads. These ceremonies are conducted in the presence and guidance of Jani, Sisa and Gurumai.

D. Culture Associated with Religion :

All tribes are the worshipper of nature as they felt the presence of divinity in nature. Indeed, this is important from religious ground. They give more emphasis on three elements of nature. They worship the soil as mother earth, sun as religious god and water as the life giver. But the head decides the observation of different festivals on considering the religious culture. So it is noticed that there is some uniformity and diversity of observing festivals. The aim and objective of religious objects are as follow: (a) prayer for blessing (b) system of improved bread earning (c) worshipping and remembering of forefathers (d) welfare of world (e) recreation (f) environment protection and (g) integration among communities.

The religious practices go on in tribal culture all over the year, e.g. construction of home, shifting cultivation, sowing of seeds, setting of wooden pole in the ground, hunting and worshipping. These practices are the main perspectives that keep alive the religious culture till now.

E. Song, Dance and Festivals :

Other aspects that associate with tribal culture are folk song, folk dance, fairs and festivals which cannot be ignored or side- tracked. Although these are source of pomp and gaiety,

still these are collectively reflecting tribal culture. They prefer to perform song and dance in group rather than pairs or single. They play traditional tribal musical instruments such as drum, horn, tamak, Dungdunga etc. The expression of the parts of the body like eye, head, waist and hand attract others and especially at the time of dance which is parallel to the tune of musical instruments. Usually these types of song and dance are organized at the time of fair and festivals. The main festivals include Chaiti Parab, Pus Parab, Sim (bean) Parab, Aam (mango) Parab, Bhairabi Jatra and marriage ceremony. They put on their traditional dresses and ornaments well on these occasions so as to sing and dance in groups. The Pus Parab and Chaiti Parab of almost all tribes of Koraput region is recognized as main festivals and Dhemsa, the popular dance is regarded as the best in the country. Their important festivals and dance are discussed below.

1.Chaiti Parab

The whole month of Chaitra is celebrated as a holiday by the tribals of this region. The month is spent in feasting, nightlong dancing and singing and in expeditions in to the forests together. Mohwa blossom during which it is said, free love is the rule among the unmarried. Men and boys go into the forest for hunting. With depletion of forest and restrictions imposed on it, the scope of hunting has declined in course of time.

2. Pus Parab

Pus Parab is observed in the month of Pausha in which men, women and children participate. After the rituals and sacrifices are made in front of a heap of wood is lit and people sing and dance encircling the fire. The Bonda, Koya, Paraja, Didayi, Bhatra, Matia etc. observe this festival with much pomp and ceremony.

3. Dhemsa Dance

A popular dance form like Dhemsa which is normally performed in every village of Koraput is really fascinating. This is such a group dance which consists both men and women of all ages. They perform the group dance knitting fingers of one another and with the tunes of the instrument. Although all tribes perform the Dhemsa only the Koya's style and expression is eye-catching. The Koya male put on the horns of the bison during the dance. The beautiful song, dance, musical instruments associated with these performances by the tribals and their colourful costumes and ornaments are the greatest attractions for the viewers.

4. Art and Crafts

The artistic skill of the tribal people is not only manifested in their dance and music, but also in their dress and ornaments, wall paintings, wood carving and toy making etc. But through art and craft their self image and aesthetic sensibility are visualized. The Sauras, the Koyas, the Kondhas decorate their houses with motifs of flowers, birds, and geometrical designs. The Saura paintings are intimately related to religious beliefs and drawn in order to appease demigods and spirits. The wood carving of Kondhas, metal work by Bathudis is really things of attraction to outsiders.

The Bonda and Gadaba have their own looms by which they weave cloth for their own use. The Bonda women though are considered to be very primitive, look majestic when they wear head bands of grass, necklace of coloured beads and girdles made of brass on their bodies. All these are expressions of their artistic quality and aesthetic sense.

Conclusion :

Literally, the tribal culture is so much liberal and simple. A deep observation, study and analysis regarding tribal culture will clarify our

understanding. On account of these above reasons the tribals of these parts are considered as simple, truthful and freedom-oriented. Although modernization and the process of globalization has already entered into the hills of Koraput region and changing their life style; yet their costumes, tradition associated with cultural history will remain evergreen in the world. Now it is the need of the hour to study and highlight the rich culture of these South Odishan tribals of Koraput region, though they are unaware of their contribution for widening and enriching the scope of global culture. In the words of Verrier Elwin, the notable scholar of tribal studies in India "Let us teach them that their (tribal's) own culture, their own arts are the precious things that we respect and need. When they feel that they can make a contribution to their country, they will feel part of it. It is therefore, an important aspect of their integration".

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Tribal Communication Technology: A case Study of Kondhs of Kandhamal of Odisha

Ramakanta Mahananda

Don't embrace technology for technology's sake. Use commonsense to determine when to use new media and when to use more traditional methods. It's great to have electronic relationships, but we always need old fashioned human contact.

-Moshe Triwaks.

Introduction:

Communication is universal to all human beings and is central to our lives. In fact, it regulates and shapes all human behaviour. Dreaming, talking with someone, arguing in a discussion, speaking in a public, participating in a traditional cultural function, escape from a beast, alert to the people at time of danger, reading of a newspaper, watching television, browsing internet etc are different kinds of communication that we are engaged in every day. It means we are constantly exchanging our thoughts, ideas and motions with someone or other either to satisfy our physical, emotional or other needs or to get work done. It is obvious that communication is an integral part of one's life. In fact, society cannot survive in the absence of communication.

Communication is more than mere transferring or transmission of ideas or thoughts. It is dynamic process of action and interaction towards a desired goal. Communication is, therefore, a process of sharing or exchange of

ideas, information, knowledge, attitude or feeling among two or more persons through certain signs and symbols. Communication is vital for human existence and for the progress of humanity. No person, group or society can exist without interaction with others. Being at the heart of all social action and interaction, communication functions as a relating tool that creates understanding, facilitates work and strengthens collective living among people. Rapidly, we approach the final phase of the extensions of man- the technological stimulations of consciousness, when the creative process of knowing will be collectively and corporately extended to the whole of human society. Human beings are engaged in a variety of communication process; intrapersonal, interpersonal, group and mass communication, the last one being unique in the sense that it differs somewhat from other forms of communication because of a mechanical device interposed between sender and receiver. One way to analyse communication is to present it in the form of a model. A model is nothing but the mechanistic

perspective of human communication that effectively tells at a glance how it works. In a communication process there has to be a sender whose main intention is to communicate a message; what to convey is his/her thinking process; how to communicate a message is his/her choice of right means or channel; and whom to convey the message is his/her job to decide. The sender also needs to know the receiver's response to the message, whether or not it is being received as intended. Then only can the sender proceed further with the next act of communication and in this way it goes on and on. In this interaction process, there is an interdependence of relationship among the various variables of human communication. Communication programme should always be planned and based on the needs of the target audience.

Primitive Tribes of Odisha :The Kondhs :

Orissa is one of the most fascinating ethnographic states of India. The Kondhs form numerically is the largest group among the 62 tribes of Orissa. Customarily they were once famous for their brutal acts of human sacrifice (Maria sacrifice) to achieve the end products of bumper crops and killing of infants for better yield of turmeric. There are various sections among the *Kondhs* or *Kandhas*. Each section is endogamous though originally they hail from the same *Kandha* community. The Dongria Kondh of Koraput district and *Kutia Kondh* of Belghar area of Kandhamal district represent the primitive section. The primitive sections are shifting cultivators. The *Dongria kondhs* are expert horticulturists. Tattoo faced and Desia Kondhs are settled agriculturists. Racially the Kondhs relate more closely to the proto-Austroloid stock with considerable Mongoloid admixture. They are divided into two logistic groups i.e. *Kui* and *Kuvi*.

However the primitive section of the *Kondhs* communities are found largely in the district of Kandhamal and Koraput districts. The dress worn by the *Kondhas* is not keeping with their environment. They use some covering on the body, of course, to withstand the cold, yet their way of life has made them conditioned to the local climate which indirectly help them maintain their traditional grab. The *Kondh* women wear two cloths, one around the waist up to the knees and another for the upper portion of the body. The *Kutia Kondhs* men wear only loin cloth. The *Dongria* men puts on a cloth called "KODI", 16 ft in length and one ft in width. The *Kondh* women are very fond of ornaments. Among the *Dongria* Kondhs, the women beautify themselves with hair pins, ear rings, nose rings, and head necklaces. Wrist-lets and ear rings are used by the males of the primitive section of the *Kondh* communities. The males too, like to grow long hair and tie this into a knot at their nape in a traditional fashion. The *Kutia Kondhs* tattoo their faces and hands, where as the *Dongrias* do not. They have well developed dormitories for boys and girls among the primitive sections.

They are very fond of drinking Salap palm juice and dead palm juice (Tadi). Local herbs and roots are added to the juice to increase its alcoholic contents. Sometimes *Mahua* flowers are collected and liquor is prepared to meet the requirement on special occasion. Liquor is considered as food and at the same time a ritualistic food to satisfy deities and spirits. It is considered as a social necessity by the Kondhs and therefore consumed by them irrespective of sex and age. The *Kondhs* are agriculturist. They generally produce cash crops like turmeric, ginger, mustard, niger, black gram, arrowroot etc. The *Dongria* section of the *Kondh* communities are expert horticulturist and produce fruits like bananas, pine apple, orange, jack fruits etc. The

primitive section keep buffaloes for sacrifice, but the Desia Kondhs mainly use the buffaloes for ploughing their field. Barter system is still the method of exchange among the *Kondhs*. The *Kondhs* believe in “*Dharani*” the earth goddess—the supreme being. She is all powerful and the highest of all deities. She is represented by a block of stone erected in a hut. She is responsible for the growth of vegetation and other produce of land. She used to be satisfied with human blood which was called “*Maria*” by the *Dongria* section and “*toki*” puja by the *Kutia* section of the *Kondh* community. This custom has been suppressed since long by the Britishers and in lieu of it buffalo is sacrificed at present. The *Kondh* worshippers of ancestors are called “*DUMBAS*”. These ancestor spirits appear in dreams when they desire to receive periodic worship. There are various deities and spirits who are different in different localities inhabited by the various sections of the *Kondh*. Apart from these spirits they believe in the existence of ghosts. They are controlled by *shamans*. They also believe in white and black magics. They are fatalists and believe in chance and luck. They celebrate various festivals round the year for better yield of crops. Two festivals such as Chaitra parab observed before sowing paddy and other millets and “*Meriah*” or “*Kedu*” festival in the month of February / March are the most important. The *Dongria* *Kondhs* exhibit their talents in their art and crafts.

The *Kondhs* are Dravidian People but no mythology as legend yet discovered which furnish due to their origin or place of descent. They believe themselves to have existed in Orissa from the beginning. Their forbears were probably driven from their homes or the richer lineal plains of eastern India during the Aryan advance, preferring hardship to loss of independence, it is through that they were forced up into the wild hill

tracts of the Eastern Ghats many centuries ago. Now the *Kondh* people are spread out through eastern region. Broadly, the *Kondhs* are divided into mainly three groups depending upon their habitat. The groups are *Kutia Kondhs*, *Dongria Kondh* and *Desia Kondh*. The *Kondh* people are simple in nature and very innocent. However, they are living very simple way of life. Although few *Kondhs* claim that they belong to *Dongria* section but most of the people identify themselves as ‘*Kondhs*’ irrespective of their section i.e. *Kutia* or *Desia*. Importance has been given in this paper to *Kutia* and *Desia* *Kondhs* of Kandhamals of Orissa. *The Kondh* (pronounced locally as *Kandha* and spelt earlier as *Khond*, *Kond*, etc) are a population of primitive tribe of Orissa. They occupy mountainous areas of Central-Southern part of the state. The *Desia* name is assumed by those who live in the plateau, in the neighbourhood of non-tribal people who improved their economy and living condition. The *Kutia* occupies the highland; practiced shifting or hill slope cultivation in primitive method and live in poor condition. The habitat of *Kondh* people is locally known as *Kandhamal*, meaning hills of the *Kondh*.

Area of Study:

The ancient history of Kandhamal district of Orissa may be traced back to the 3rd Century B.C. It finds mention as an unconquered *Atavika* country fields in the *Kalinga* Rock Edicts of the legendary Mauryan Emperor, Ashok. This mountainous *Atavika rajya* unquestionably encompassed the Kandhamal region. Some historians are of the view that Mahakantar subdued by the Gupta Emperor, Samudragupta, in the 4th century A.D., during his Dakshinapatha Campaign, included Kandhamal area and he led his victorious army to the south from *Kosala* and *Kural* through this district. He defeated some kings in Ganjam.

The present Kandhamal district is made up with some segments of three erstwhile principalities of Boudh, Ghumsar and Khemundi, reigned by the Bhanjas and the Gangas from ancient times. Their reign came to an end when the British came to this region in the nineteenth century.

G.Udayagiri constituted the northern fringe of Ghumusara kingdom of the Bhanjas. They occupied this state in the 9th Century and continued to rule over it till 1835. Ganjam came under the Britishers in 1765. The Bhanjas could not put up with their interference and aggressive attitude from the very beginning and they raised the banner of revolt frequently against the British. The *Kondhas* and the *Paikas* forming the Ghumusar army waged relentless wars under the able leadership of Dohara Bissoyi from 1815 to 1835. Deposing Dhananjay Bhanja for his habitual recalcitrance the British occupied Ghumusar on November 3, 1835. Dhananjaya Bhanja died at G.Udayagiri in December of the same year as a fugitive.

Balliguda region was under the Gangas of Kandhamal, most probably from the 10th Century and the dynasty ruled over these hilly tracts till the 19th century. British captured this area in phases from 1830 to 1880 by subjugating some hill chiefs, who were the protégés of the Gangas. Ghumusar and Balliguda regions were under the uninterrupted reign of the Bhanjas and Gangas, respectively, for about a millennium. But the Kandhamal area, which was part of Boudh, witnessed a chequered history during the same period.

The present Kandhamal sub-division was an integral part of Boudh from time immemorial till 1855. The earliest history of this area is gleaned from a number of copper-plate inscriptions issued by the kings of the early Bhanja dynasty, that

reigned over Boudh and Kandhamal in the 8th and 9th Century. Their kingdom was known as Khinjali Mandala. From the 10th Century to the advent of British in this region, Boudh, including Kandhamal, has been governed in succession by the following royal dynasties: the Somavanshis, the Chindak Nagas/Telugu Chodas, the Kalachuris and the Bhanjas. The history of Boudh-Kandhamal for 500 years prior to the coming of the British is however, still nebulous.

The Britishers launched a vigorous campaign in these hilly tracts with the objectives of annexing the areas to their empire and suppressing the abominable practice of **human sacrifice**, then prevalent among the *Kondhas*. The Britishers encountered stiff resistance from the tribal's for a prolonged period of 20 years from 1835 to 1855. As the Boudh Raja utterly failed to curb the horrendous ritual of the tribal, the British truncated a large area, where the *Kondhas* were predominant, from Boudh on February 15, 1855 and named this newly annexed territory as Kandhamal. After British conquest of Uttar Ghumasar (G.Udayagiri area) and Uttar Khemundi (Balliguda area) these territories were placed under the administration of the Collector of Ganjam district. These areas remained under the control and administration of the British until India attained her independence.

Kandhamal remained a Tahasil from 1855 to 1891 and it was administered by a Tahasildar under the direct control and supervision of the superintendent of the Tributary mahals of Cuttack. In 1891, it was upgraded to sub-division and tagged with Anugul district. When the new province of Orissa was formed in 1936, and Ganjam was merged with Odisha, from the Madras presidency, Kandhamal became a sub-division of Ganjam. In the wake of the amalgamation of the princely states with Orissa

in January 1948, Boudh and Kandhamal constituted the new district of Boudh-Kandhamal, with its headquarters at Phulbani. Balliguda sub-division was added to Boudh-Kandhamal district on 1.1.1949. With the secession of Boudh from Phulbani district as a separate district only Balliguda and Kandhamal sub-divisions remained with Phulbani district, which was later rechristened as Kandhamal in June, 1994. The district of Kandhamal ranks as one of the most backward districts of the 69 identified most backward districts of independent India. The proposed study was conducted in the Nuagaon village of Kotagarh block of Kandhamal district. Kandhamal district is stretched between 19°34' & 20°36' degree latitude in the north and 83°34' & 84°34' longitude in the east, with an area of 7649 sqkm. It constitutes 2 sub-divisions, 12 Community Development Blocks, 2 NACs, 153 Gram Panchayats and 2515 villages. The total population of the district is 6,48,200 out of which ST population comprises of 51.96 %. The physiographic of the entire district lies with a high altitude zone with inter-spreading inaccessible terrain of hilly ranges and narrow valley tracts, which guides in general the socio-economic conditions of the people and the development of the district.

The district of Kandhamal is bestowed with the beauty of nature. It has wild life, scenic beauty, healthy climate, and serpentine ghat roads for the tourists who need to relax and unwind. It has attractions, like panoramic coffee gardens, pine jungles, Ghat roads, hills and water falls, virgin forest and typical tribal village life. Almost 66% of the land area of the district is covered with dense forest and towering mountains which provide shelter to the inhabitants like *Kondhas*, classified under the ancient Gondid race of proto Austroloid group, rich in green meadows at the altitude of 2000 ft to 3000 ft, the terraced valleys

thronged with these colorful tribals in their natural heritage, dancing and sporting has its own appeal. Kandhamal is also famous for handicrafts such as Dokra, Terra-cotta, Cane and Bamboo works. The region is proud of its rich cultural heritage. Mauryan Emperor Ashoka mentioned in Jaugada (Ganjam) edict about the people of this hill tract as Atavikas who practised their own religion. The ghat tract of Kandhamal "Kalinga" was known to the travellers of Medieval history. The tract was used for the transportation of salt to the central India. Again the route running through Daringibadi was known in history as Great Military road discovered by Britishers who happened to come over Daringibadi for pleasure trips to enjoy the natural beauty and cool climate during summer.

Communication techniques of Kondhs of Kandhamal can be divided into four main categories. i.e

- (i) Ancient Communication Techniques
- (ii) Traditional Communication Techniques
- (iii) Oral Communication Techniques

(i) Ancient Communication Techniques :

Better than shouting:

Communication begins with language, the distinctive ability which has made possible the evolution of human society. With language any message, no matter how complex, can be conveyed between people over a limited distance - within a room or place of assembly, or across a short open space. In modern times 'town criers' hold an annual contest to discover which of them can shout a comprehensible message over the greatest distance. The world record is less than 100 metres. Already, at that short range, a more practical alternative is to run with the message. The invention of writing and in particular of alphabetic writing marked a milestone in cultural

development. It provided humanity with a new means of communication that literally inscribed in stone, the spoken word. Communication could now span both space and time. Space, because writing could be sent from one place to another. Time, because writing could preserve the words for generations to come. Since the art of writing was discovered, nearly every form of writing material has been used. Some were intended to ensure permanence while others were simple and inexpensive but temporary. From the wax notepad of the schoolboy to the grand inscriptions on monuments, almost everything we know about antiquity is derived from writings such as those written on animals, vegetables and minerals.

Stone: Stone was mainly used for writing on permanent monuments and public buildings. The writing on stone usually requires the use of hammer and chisel. The most comfortable, accurate and hence productive manner of carving stone inscriptions is to hold the chisel in one hand and hit it with the hammer held in the other hand. Although this sounds like too simple an explanation, one must consider that as most people are right handed then there would be a tendency to cut the letters from right to left.

Metal : Sheets of metal were rarely used for writing or are rarely found. For one, they were expensive to manufacture and secondly, the metal was often re-smelted for use as weapons in times of war, so few sheets remain. More commonly, bronze tablets and copper sheets were used to provide semi-permanence and could be stored more easily than cumbersome rock.

Wood: The use of wood as a writing medium was strictly confined to temporary purposes and not many such tablets have survived through antiquity, as the climate in state is not conducive to their preservation. In antiquity, wooden boards were used for displaying public announcements. They

were whitened boards that could be sign written and when the message became out of date the board could easily be whitewashed and rewritten. The qualities of slaves would be written on such boards and they would be made to stand under them while being paraded for sale.

(ii) Traditional Communication Techniques of Subsistence strategies and Settlement pattern:

Subsistence and settlement of the Kondhs belongs to traditional communication techniques. They used different techniques for settle down in a place and searching for mode of subsistence. The term subsistence economy is explicitly defined in it's social sciences. It is employed principally in connection with rural societies in technologically poorly developed countries and is often synonymous with the term subsistence farming and subsistence agriculture. In the field of Anthropology of application of the term to primitive hunting and gathering society would however also be meaningful as an economy providing bare subsistence (M.J. Herskovits, 1940). Economy as the way in which resources technology and work are combined to satisfy the material requirements of human beings and of social groups.

Settlement Pattern Techniques:

Every place there is a history of first settlers like that of nomenclature. One area became a place of habitations when a group of people migrated from one place to some other places and settle down permanently. According to the *Kondhs* of Kandhamal district, once open a time they were living on the top of the hill. They were migrated from the top of the nearby hill due to searching of a new place where they led a healthy life. The descent of the located *Kondh* villager of the area were *Kutia Kondhs*, who were living in the dense forest; but now they are

identifying themselves as *Adivasi* or *Kondh*. Another reason of migration is due to poverty and their home land declared as reserve forest by the Forest Department.

House Pattern : The houses of Kondhs are of linear pattern and the two rows of house flanked by a wide street. The people like to live in thatched houses. The settlement of an individual is permanent in his plot. However all the houses of the village are situated line by line facing each other. The houses are rectangular in shape. One or more double rows of attached house face each other in a rectangular space.

The Roof: The roof is made of straw. The thatched roof is constructed with a long bamboo beam at the apex of the roof. To this beam bamboo clubs are attached. These sticks are attached in vertical manner to the beam while other bamboo sticks are tied to these clubs in a horizontal manner. On such a frame of bamboo beam with a network of bamboo sticks bundles of paddy straw are spread for making the roof. The roof is made of paddy straw. The roof is culminated by two slopes or four slopes of every house.

Wall : In Nuagoan village most of the walls are mud, mud bricks and lateritic stone. It is plastered by mud, cow dung and clay. They also decorate it by different colours; especially lightly red and white. The stones are available near the forest and they collect it by themselves. The bricks are made by them.

Floor : The floor is made of stone chips and clay like that wall. It is plain and smooth. The people of Nuagoan plastered the floor by cow dung everyday.

Doors and Window : The door is essential to enter in a house. Almost all the houses have only one in front side of the house. Some house have

doors in the inner side. The inner side door usually leads to the storage house. The doors are made of wooden planks which are prepared from teak wood and Sal wood. Some doors are made of bamboo sticks also. The windows are absent in most of the houses. But there are skylight found in each and every house. Most of the houses are divided into general room, storage room and verandah in the front side and found neat and clean.

Vegetational area : Vegetation area is located on the back side of the house. They raise boundary around the house by some bamboo sticks or sal sticks or beam and other materials. They cultivate chilly, maize, pumpkin, papaya, cucumber etc in their vegetational area.

Garbage : The people of Nuagoan use garbage. The garbage area is kept away from the house. Some are in the vegetation corner and some are near the field. They throw the waste materials to the garbage. They collect any types of tree leaves and throw it into the garbage. The cow dung, goat dung and pig dung are also kept in the village garbage.

Cow shed : The villagers of Nuagoan keep their cow, goat and pig in a common area. The cowshed is at a little distance from each house of their habitation. The cowsheds are also situated in a linear pattern. The floor is not polished. There is not found a wall like their own house. The walls of the cowshed are made of bamboo sticks or sal sticks and the upper part of the houses are thatched by paddy straw. The floors are made of either by stone or by slice wood along with mud. There are four pillars in each cowshed. As a whole the cowshed is open wall in linear pattern. But the goats and chickens are kept in the verandah. They collect the cow dung every day and clean the cowshed. Only there is a gate to enter into the cowshed. The common cowshed

of the village is open for all. The cowshed is separated from their habitation. The cowshed is also made in a linear pattern and a common place where the cows are living in the village.

Gathering of fire wood & other forest products techniques:

Elements of food gathering economy are still prevailing in several parts of the tribal belts of Orissa. An example of this economy found among the *Kondhs*. Collection of fire wood and forest products is an old practice and continued till now by the people of Kandhamal. They learnt the technique of collection of fire wood and forest products by their ancestors. Both male and female go to the forest for gathering purpose. In the hamlet we can see more number of female going to the forest for collection of fire wood. The *Kondh* people of this district are extremely poor. When they have no work, they go for gathering of fire wood and collect the jungle fruit from the nearby forest. They also depend on forest because originally they are food gatherers and hunters. For the collection of fire wood, they go to nearby forest. They rise early in the morning and take their breakfast before 7.30AM and set out for forest. They reach the forest about 9.30 AM. From that time they engage themselves in cutting and collecting wood up to 5PM. They take their lunch at their leisure hours. Cutting of fire wood is done in the forest. After cutting these are bound in bundles. One bundle contains nearly 15-20 pieces of wood and they bring it to village on their head and shoulder. They prepare some rope from the bark of few trees for their own purpose and to sell in the local market. Generally young male and female in the age group of 17 to 45 years are engaged in this work.

There are some rare roots and tubers which are not found anywhere except in forest. These are very much liked by the *Kondh* people.

They collect some roots and tubers for medicinal purpose. The *Kondhs* avoid to go to the hospital. They mostly depend on medicinal herbs known to them.

Hunting techniques :From the ancient days till the present era hunting as an occupation, prevalent in almost all societies. Anthropologists normally applies the term hunter only to the group who depend primarily upon hunting game for their food. Hunting was practiced as a means of livelihood since long past. Before entering into the forest the hunters divide themselves into two groups, one group possesses their hunting implements and other group with some trap(*phasa*) enter into the forest. They make different kinds of sounds. Due to the noise the big animals are compelled to run at the desired direction of the hunters and they easily kill them with the help of bow and arrow. In the second method they go to the jungle and prepare a platform of wood on the branches of the tall trees. They call the platform as '*Mancha*'. From this *Mancha* they shoot down the animal from the height. The third method of hunting is by the help of traps. They are used various types of traps for hunting different animals. Before the initiation of hunting the hunter set those trap ready. Then they go to the other part of the forest and scare the animals by showing fire, beating drums and making sounds by other methods when the animals run away from one part to another part they fall into the trap. Then they kill the animals and collect it from the trap. The fourth method of hunting is that they go to the forest at the evening. They conceal themselves blind big rocks near places of water pools and wait animals there to come to drink. When animal come they shoot down. All the male members of the village move for hunting expedition to the forest under the leadership of a senior person among them. According to his direction the group start intensive search of the game. After hunting completed, the

leader orders to cut the flesh of the animals and to equally distribute among all the participants while actual hunter of the animal gets a little more share. Before they go for the hunting purpose they observe a special ritual in the name of forest deity for safety.

Fishing techniques : Fishing is practiced all over the tribal communities. Some people practice it for their livelihood and some have practiced it as hobby. *Kondhs* of Kandhamal practiced it as their hobby. They take it as a secondary occupation. The people like to go for fishing in their leisure time. There is no particular season for their fishing purpose but they prefer specially rainy season and winter seasons. In rainy season ponds, canals and also cultivated land become filled with water. It is the most suitable season for fishing. While they are ploughing their land, the water become muddy and the fish come out from the bottom of the water moving here and there. They catch fishes from the muddy water of the cultivated land which is used for their own consumption and they devote into muddy water catching fish with bare hands. In winter season, they go for harvesting from the cultivated land and catch the fish after harvesting the paddy. The fish caught is not a large quantity. Hence there is no selling of fish. But they exchange it for another purpose like vegetable. Besides fish they catch big or small tortoise and crab for eating purpose. Fish is termed as 'Minu' in the *Kondh* dialect.

Agricultural technology: Technology refers to socially standardized techniques associated artifact or tools. Technology is usually restricted to the technique of manufacture, maintenance and manipulation. Some of the traditional agricultural implements still persist. They are axe, hatchet, sickle, yoke, plough, crowbar, wooden hammer, flat basket etc. They get these implements either from the nearby local market and some of the implements are also made by them. Rice, being

the staple food of the villagers, they take utmost care for the production of paddy. The possession of paddy lands is a status symbol for the villagers. The farmers at present, are encouraged to use scientific methods of agricultural operations to produce more crops from the same piece of land for yield. Agricultural production depends open timely rain, an adequate water management, soil conservation, modern technology etc. The life style of the people of Nuagaon is agriculture based. During the harvesting season the school children help their family members in the harvesting crops. The cycle of agriculture among the *Kondh* is not different from that of other neighbouring and caste communities. It starts with the processing of the field during the month of May-June. Just before the arrival of South-West monsoon, sowing is usually done during June while plantation of paddy becomes necessary at least once, during August and then they keep vigilant watch on the field till the harvest in the month of November-December. They cultivate oil seeds and vegetable after the harvesting of paddy. Few people are engaged in summer crops and paddy.

Thus in this study, an attempt has been made for an ethnographic study of the *Kondhs* with special reference to their settlement and subsistence strategies. At a general comparative level, the agricultural activities of the *Kondhs* of Kandhamal have important implication for subsistence of Neolithic cultures. What is necessary now is to make an in-depth study of subsistence strategies of other ethnic group in various parts of Orissa for understanding the subsistence strategies of Prehistoric cultures of Orissa.

(iii) Oral Communication techniques:

This techniques of *Kondhs* belong to their cultural activity. The *Kondh* people express their **cultural identity** and distinctiveness in their social

organisation, language, rituals and festivals and also in their dress, ornament, art and craft. They have retained their own way of managing internal affairs of the village mainly through two institutions namely, the village council and the youth dormitory. They believe that their lives and work are controlled by **supernatural beings** whose abode is around them in hills, forests, rivers and houses. It is very difficult to standardize the Gods and spirits as their composition continually changes when old ones are forgotten with the introduction of new ones. The **ceremonies and festivals** of the tribes can be classified into two groups, that is, those that relate to the individual families and those that relate to the village as a whole. The ceremonies and rites relating to birth of a child, marriage, death are observed family-wise whereas those relating to various agricultural cycle, eating of new fruits, hunting, etc. are observed by the village community. The joy of free life finds expression in tribal **art and craft**. It is through this endeavour their cultural self-image and aesthetic sensibility are visualized. Kondh dance is mostly confined to unmarried boys and girls and free mixing of the sexes is allowed during dancing. The dances are performed especially when the boys or girls of one village visit another village. The dance forms an item in the daily routine of the *Kondh*, when the boys and girls in their dormitories meet after the day's toil. The girls dance in lines and the boys dance behind and in front of them. The girls wear sarees in two pieces and bangles on their ankles. They dance in rows, facing rows of boys who sing songs and play on hand drums. Songs play a very important part in the dance. Special dances are performed during buffalo sacrifice, called the *Kedu* festival. The artistic skill of the tribal people is not only manifested in their dance and music but also in their dress and ornaments, wall-paintings, wood carvings and decorations, etc. Tribal weekly

market or *Hat* plays an important role of Kondhs of Kandhamal for their interaction. They go to nearby village weekly market to sell their forest produces, vegetables, rice, goat, buffalo, bullock, cow etc and buy for them necessary household materials. In the local market they meet other villagers and discuss with them about different cultural and social activity and agricultural cycle. Apart from this, now few of the villagers are engaged in modern communication techniques like uses of mobile phone, internet.

The forests, being mixed deciduous, primarily have a rich growth of Sal trees. The place takes pride in its natural panoramic view – lush green woods, cluster of hills, tranquil surroundings with a rich endowment of flora and fauna and above all, the tribal societies dwelling in this area. The uniqueness of the state is truly retained by its tribal population. They continue to lead a rustic lifestyle in the lap of nature. These tribal societies embrace the section of people who understand the meaning of living together and join hands to work together to achieve any shared interest to cater to the benefits of their society. The tribal groups although have undertaken various forms of odd jobs at present, yet their basic livelihood depend on hunting and cultivation. In the past eras, the tribal land areas were never surveyed and they did not lead a settled life. The Kondh people carried out shifting cultivation, taking into consideration that they were the possessors of the natural resources like the river, water, forest, trees and the lush green lands. This practice of self cultivation still continues till date.

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Our Civil Society as an Instrument of Social Change

Lokanath Suar

Just as one day never lives another, although the sun rises and sets everyday just as no single spring is ever identical with another, although the seasons occur rhythmically each year, no single individual much less the society of which he is member has ever been identical to another either in physical or in mental faculties. Therefore change is a basic factor of social processes. A society cannot remain static. It keeps on moving with economic, scientific and technological developments. Human societies have been in existence from the time immemorial. However, since their beginning, they have undergone a lot of change and the recent period has been characterized by more changes.

Meaning of Social Changes:

As a matter of fact, this process of change has been continuous. In this respect, Maclver, observes, that a thousand years hence, the human society has undergone a vast transformation and changes have taken place beyond our imagination. Lundberg defines, social change as “any modification in established patterns of inter-human conduct.” According to Anderson and Parker, social change involves alteration in the structure of functioning of societal forms or processes themselves.

Ginsberg writes that social change is “change in social structure, i.e., the size of society,

the composition or balance of its parts or the type of its organization.”

Accordingly, it may be stated that social change refers to the alterations which take place in the life patterns of people. It means change in social interactions, social reforms, primarily for further improvement.

Indian society through several millennia has undergone vast transformation. At present, ideas have originated and changes have been brought about by both individual actions and collective behaviour. One of the outstanding characteristics of Indian society is spiritual teachings which invariably intertwined with social precepts and ethical commands. The teachings of the various saints found in the Vedas, Upanishads and other scriptures of great spiritual leaders like Buddha, Sankaracharya, Jain Mahavir, Nanak, Ramakrishna, Vivekananda and great social reformers had also great impact on social patterns of social change.

Social change is such an alteration which occurs in the structure and functions of social organizations of the society. As a result, they form only a part of what is essentially a broader category called cultural change”. The latter embraces of all changes occurring in any branch of culture, including art, science, technology

philosophy, etc, as well as changes in the forms and rules of social organizations.

Regarding the direction of form of social change, there have been two different opinions. namely, whether change is cyclical or linear. Furthermore, it is very difficult to know about all the social change. Though, we have reasonably a good data concerning a few thousand years of human history out of millions of past years yet any claim of mode of change always persisting in the past or yet to persist in the future clearly goes beyond empirical knowledge. Accordingly the question of what is the ultimate nature of social change, becomes simply a philosophical puzzle having no place in social science. When we confine ourselves to what is knowable, we find both trends and fluctuations and cyclical or linear mode of change depend largely upon the span of time under consideration.

One of the important problems to which sociologists have given some attention is to devise some typology of social change thought such a typology may not be an exclusive one. In this respect, Maclver talks of biological, technological and cultural factors in social change. Now, the question is that, is it possible to devise some typology on the basis of these factors ? Accordingly, if we follow this line of action then we will have series of typological changes depending upon the importance of casual factors in social change.

Depending upon the nature of social change, we can bring it under two typologies. Under the first type, we may include those changes which are caused by radical, opposition, such as through revolutions, sudden and spasmodic changes. Catastrophe like an inundation or other such force which bring about sudden disequilibrium and maladjustment in the social organization its structure and functions. Such changes may be called unplanned changes. It also includes gradual changes in social system.

In the second typology, we can include those changes which are caused by conscious efforts and purposeful decisions to affect improvements in the social change. The agencies responsible for the planned changes may be government working through its professional agents or social associations working at their own initiative in co-operation with the government.

Factors of Social Changes:

Various factors are responsible for introducing and enhancing the social change in a given system. We can say that more primitive societies are more reluctant in change while the more modern societies are more ready to change. The stimulating factors for social changes are the followings:

(1) Biological Factors:

Problem of conflict between generations has always been there. No new generation ever exactly reenact the social life of its predecessor. The younger generation is always critical of the older generation leading to rejection of some aspects of social life and innovation of some others. There is thus always a scope for new patterns to emerge.

(2) Demographic factors:

Changes in the size and composition of the population is undoubtedly a very important factor leading to social change. The rising population bring many changes in the standard of living, accompanied by changes in the social structures and organization.

(3) Technological factors:

In the present age, the external forces, like technological developments, play an important role in causing rapid changes as they transform the structure of the whole society. Developments in this field do bring about many changes in attitudes, beliefs, and even in traditions.

(4) Natural factors:

Though we claim that with the process of fast development, man has increasingly gained control over nature, yet it is not possible to have complete control over it as none can claim to regulate the weather which greatly affects our mode of thinking, traditions, customs, eating habits, etc. Moreover, no technological development are possible in a country which is lacking in the natural resources or have them in lesser amounts.

(5) Legislations:

Law is dynamic. It brings about social change by influencing behaviour, beliefs and values. In India, we find Parliament has taken steps to activate social changes in various spheres.

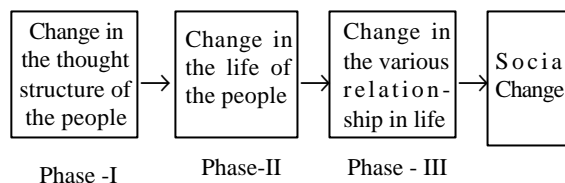
(6) Psychological Factors.

Man by nature always wants a change. He does not want to be tied to the same environment, same customs, same traditions, same cultural values. People at large are not content to do things in the same way as their ancestors had been doing. They welcome innovation and change whatsoever.

(7) Planning as a factor:

In India, we find that the very framing of the constitution was decided by noble ideas of social equality and social justice. The objectives of the various plans have been to reduce inequalities of income and wealth on the one hand to open out to the people opportunities for a richer and more varied life on the other goals of planned social change has been clearly set in terms of the provisions of the constitutions.

Thus, social change requires 3 phases of change.



(Diagram of three phase model of social change)

All these changes should be brought about together and there should be all round revolutionary transformation in our thought, life and in the institutions of life. People should be trained to think creatively on the basis of truth. Removal of inequality in any form and distribution of justice in different modes are the basic aims of social change, done by our civil society.

After 3rd April 2011, when Indian masses celebrated pre-season of Dipawali, thanks to the Indian Cricket Team, but nobody expected that an even bigger mass euphoria was waiting for Indian citizen. We observed the unprecedented response to movement by 'India Against Corruption' led by *Anna Hazare* and other Civil Society important personalities like Arvind Kejariwal, Swami Agnivesh, Kiran Bedi etc. They just proved to world that we Indian Citizens can rise in protest too with equal vigour and passion as they rose during celebrations for Indian Cricket Team's world cup win. What this moment has done is to project Indian Civil Society in front of masses out of a closed group of activists, intellectuals and academicians. Recently Guru *Ramdev* took the leadership of our civil society to eradicate corruption from our public life and demanded to get black money deposited in foreign banks for our national development. Let's hope for the best of the Indian citizens.

Civil Society in Indian has a long history since British regime. Social and religious activists like Swami Vivekananda, Swami Dayananda, Raja Ram Mohan Ray, Jyotiba Phule, Iswar Chandar Vidyasagar were few notable Civil

Society activists of that time and they did a great yeoman service in social reforms. Social and political activities of all time great, the father of our nation Mahatma Gandhi, Sardar Patal, Subhash Bose and others worked in awakening our civil society can not be undermined. Since then Civil society has moved ahead and become empowered world over. Nowadays, the Civil Society is playing a decisive role and using its power to influence international studies and deals with a lot of political and human rights issue which earlier were monopoly of governments. Organisations like Amnesty International, Red Cross, Greenpeace etc are powerful bodies in themselves. Presently, we can observe the Civil Society in transforming from an advisory bodies to influential bodies.

The free association of citizens in India and as much of the world has a long and rich tradition that goes back to pre-colonial Communal Societies. In as much of the south, modernization and colonialism undermined indigenous social relations, whereas the Soviet State did the same in the Countries of Eastern Europe and Central Asia. If we glance towards the world history particularly after Second World War-II, governments in different Countries assumed a wider range of responsibility in growing welfare nation states. However, in the last three decades, the growing disenchantment of ordinary people with the institutions of the state has resulted in the resurgence of Civil Society.

What is Civil Society :

The Civil Society means the entire range of organized groups and institutions that are independent of the State, voluntary and at least to some extent self-generating and self-reliant. This of course includes non-governmental organizations, independent mass-media, universities, and social and religious groups. To

be part of civil Societies, groups must meet some other conditions as well. In a democracy, civil society groups have respect for the law, for the right of the individuals and for the rights of other groups to express their interest and opinion. Part of what the word civil denotes is tolerance and accommodation of pluralism and diversity.

Role of Civil Society in our Present times:

Civil Society has been widely recognized as an essential “third” sector. The role played by Civil Society in building and strengthening of our democracy are as follows:

1. Its strength can have positive influence on the state and the market. Civil Society is therefore seen as an increasingly important agent for promoting good governance like transparency, effectiveness, openness, responsiveness, and accountability.
2. Civil Society first has a role of enabling the voiceless and unorganized communities interests to be represented. In other words, the sphere of civil society has a goal of empowerment for local communities.
3. Civil Society can further guide for good governance, first by policy analysis and as participants in the design of strategies; second by regulation and monitoring of state performance and the action and behaviour of public officials; third, by building Social Capital and enabling citizen to identify and articulate their values, beliefs, civic norms and democratic practices; fourth by mobilizing particular constituencies, particularly the vulnerable and marginalized sections of masses, to participate more vibrantly in politics and public affairs; and fifth, by development work to improve the well being of their own and other communities.
4. Civil Society finally has a role of ensuring the accountability of state in different spheres.

5. Civil Society ensures the right to access to information that is a first step into the state accountability in a country where the official secrecy Act predominates.

6. In a more general way, Civil Society has the monitoring function of holding the law and order machinery, accountable. This function implies the control of political parties and electoral process, the control of local bodies etc.

Working Culture of Civil Society in India:

Political participation in India has been transformed in many ways since 1960s. New social groups have entered the political sphere. They have begun to use their political resources to shape the political process. Scheduled Castes and Scheduled Tribes Previously excluded from politics because of their position at the bottom of India's social hierarchy, now they have begun to take full advantage of the opportunities presented by India's democracy.

Women and environmentalists constitute new political categories that transcend traditional distinctions. The spread of social movements and Voluntary Organisation has shown that despite the difficulties of India's Political Parties and state institutions, India's democratic tendency continues to thrive. Beginning in 1970s, activists began to form broad based social movements, which proved powerful advocates for interests that they perceived as neglected by the state and political parties. Perhaps the most powerful has been the farmers' movement which has organized hundreds of thousands of demonstrators in New Delhi and has put pressure on the government for higher prices' on agricultural commodities and more investment in rural areas.

Members of Schedule Castes led by the Dalit Panthers have moved to rearticulate the identity of former untouchables. Women from an

array of diverse organization now interact in conferences and exchange ideas in order to define and promote women's issues. Simultaneously, an environmental movement has developed that has attempted to compel the government to be more responsive to environmental concerns and has attempted to redefine the concept of "development" to include respect for indigenous culture and environmental sustainability.

With its highly competitive elections relatively independent judiciary, boisterous media and thriving civil society, our India continue to possess one of the most successful democratic political systems of all developing countries. Nevertheless Indian democracy is under stress. The country's political parties, which might aggregate the country's diverse social interests in a way that would ensure the responsiveness of state authority, are in crisis. Political power within the Indian state has become increasingly centralized at a time when India's civil society has become mobilized along lines that reflect the country's remarkable social diversity.

The unresponsiveness of India's political parties and government has encouraged the Indian public to mobilized through NGOs and Social movements. The consequent development of India's Civil Society has made Indians less confident of the transformative power of the state and more confident of the power of the individual and local community. The development is shifting a larger share of the initiative for resolving India's social problems from the state to the society. State institutions that will accommodate the diverse interests that are now mobilized in Indian Society is the major challenge confronting the Indian polity in the new millennium.

In the years after independence our India is experiencing a steady rise of Civil Society. From "Chipko Movement" led by Sunder Lal

Bahuguna, Narmada Bachao Andolan led by Medha Patekar and Right to Information movement by Arvind Kejariwal India has come along way. Environment Movement in India is strong now and has led to cancellation of multiple projects in India after Civil Society agitation. In state level we also see the local activists, those who are working to save Chilika Lake, to save Khandadhar Fall Protect, Olive Ridley Tortoise, Coastal Beach Protection Movement etc. Their numbers are not small but eye-catching in strength.

Similarly on political front true movements starting from Jayprakash Narayan's total revolution to recent movements for RTI Act and NREGA by various Civil Society activists like Aruna Roy and Jean Dreze have strengthened Indian democracy. The most recent movement by India against corruption "for Lokpal Bill in India is also a glorious chapter in long list of citizen movements in India. This movement has brought civil society for the first time in Indian history in the ambit of framing legislation as five Civil Society members are now part of Joint Lokpal Bill Drafting Committee. Similarly, the way for the first time it has brought Indian middle class out of their comfort zones and right in front of confrontation against social ill like corruption makes its achievement even more laudable.

Conclusion :

To conclude, Civil Society is simultaneously a goal means to achieve, and a framework for engaging with each other about ends and means. When the faces turn towards each other and integrate their different perspectives into a mutually supportive framework, the idea of Civil Society can explain a great deal about the course of politics and social changes and serve as a practical framework for organizing both resistance and alternative solutions to social, economic and political problems.

The role of civil society cannot be undermined in present day, because the different forms of civil society perform the collective, creative and value driven core of the active citizen calling on the best in us to respond in kind to create societies that are just true and free. So it is impossible to have a conversation about politics or public policy and even any social change these days without someone mentioning the magic words 'civil society'.

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Meat-Eating : the cause of Spiritual and Moral Degradation

K. C. Patnaik

Have compassion towards all living beings. Hatred leads to destruction. Respect for all living beings is non-violence. Real enemies live inside yourself. They are anger, pride, greed, attachment and hate. "It is better to win over self than to win over a million enemies."

The above maxim of Bhagaban Mahavir itself is self explanatory about violence and non-violence. He who is moved at the sight of any living being in trouble, cannot even think of eating meat; but those who have a tendency to torture, kill and make others suffer for their own selfish ends, will not shrink from eating meat. He whose feelings are not hurt by the knifing of an animal will not hesitate in shooting even human beings. He who can have animals butchered for the sake of his body will not hesitate to commit violence for fulfillment of his ambition in trade, status, prestige etc. Can a person whose selfishness is his main driving force be expected to follow principles of right code of conduct in any sphere of life ?

Moreover, meat-eating stimulates the urges, cruelty and violent nature is enhanced. When a child is induced to meat-eating right from the childhood, he naturally becomes prey to wrong activities such as killing other living beings for food and fun for his own interest. Gradually he becomes hard-hearted coupled with cruel nature and ultimately he will entangle himself in unsocial activities with the help of vicious circle. Noble feelings of non-violence, pity, just, righteousness

do not have a chance to arise in his heart. Selfishness all that grows in that soil which in term does not stop him from acting against the interest of the community and the nation to secure his petty gains.

Meat-eating fans the flames of urges and desires. The more these urges are satisfied, the more they increase and consequently their satisfaction is quite impossible. Any obstacles in the way of satisfaction of urges give rise to anger which suppresses the sense of discrimination between right and wrong. It destroys the intellect leading to misleads which end in total disaster. In other words, meat-eating leads us to our doom.

A survey among prisoners revealed that 80% of them were meat eaters and only 20% were vegetarians. In other words, meat-eating promotes the tendency towards criminal behaviour also.

Thus we see that besides other damages, meat-eating is the cause of the growing violence, inhumanity and other evil deeds in the world. It is leading human kind to total ruin. It is the duty of each one of us to put an end to this trend. If we fail to do so, our future generations will have to suffer the gravest consequences. Unfortunately, today many people are eating meat only on false consideration of so-called fashion, modernity or social status. The level of morality of such people is very clear and they themselves know it very well in their hearts.

Last but not the least, the learned knowledgeable persons and erudite scholars should come forward and devise ways and means to reform such heinous deeds and save the mankind and generation from falling to the prey of disaster and ruins.

Moral Obstructions

Caused by offences : As far as possible one should avoid the ten kinds of offences against the Divine name as elaborated below for remembrance while uttering the precious divine name. The Lord assures that we are sure to attain him with whatever motive we approach Him. For it is the culmination of the highest virtue to devotee oneself exclusively to God even for the satisfaction of some worldly desire giving up all other hopes and looking to none for help. Therefore even those who practice the divine name with some worldly motive are worthy of our respect and reverence, of course, their interested motive acts as a barrier and delays the attainment of the true goal of Namajapa that is love of god or god realization. This proves that practice is never lost although want of faith and reverence and the craving for worldly objects delay the attainment of final goal. Thus it will be seen that the Sadhaka himself is to be blamed not the Nama. Notwithstanding the fact, if the Sadhaka lays the blame at Name and speaks highly glory as mere exaggerated praise he commits a sin against the Name.

Details of ten offences against the Name as are under :

- Villification of saints and devotees.
- Differentiation among the names.
- Irreverence towards the preceptors.
- Speaking highly of the scriptures.
- Treating the glory of the name as nothing but exaggerated praise.
- Committing sins on the plea of the Name.

- Ranking the Name with other virtues and practices such as fasting, charity, performances of sacrifices, etc.
- Recommending the practice of Name to irreverence and unbelieving souls who are not prepared to accept such valuable advice.
- Want of love for the name even after hearing its glory.
- Emphasis on "I and mine" and attachment to objects of enjoyment.

The above ten offences are self explanatory and as such need no commentary, but there is also remedy for the aforesaid offences because the practice of the name itself is their antidote. If through inadvertence a Sadhaka lapses into any of the sins, the only way to absolve him from the same is to repeat the name again repenting for the mistake. A verse in the Padma Purana says:

"The Nama itself is the best atonement for sins committed against the Name. Through constant Kirtan of the Name of our desires can be fulfilled."

Thus recognizing the true value of the Name we should never seek the enjoyment of the world or the next in exchange for the Name. It is undoubtedly true that the utterance of the single Name of God can absolve us to attain salvation or love of God.

"There are also sixty-four kinds of offences against Divine Worship. These offences are so terrible that they cause the downfall of even the highest aspirants. The way to avoid them is to pray to Lord with a sincere heart. 'O Lord save me from offences' – and to exert oneself fully not to commit any offence deliberately. Many offences committed so far and are still being committed, it is for this reason that the path is blocked."

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Dialogue on Waste Management and Recycling

Prof. (Dr.) Suryamani Behera

Definition: Waste is a substance or raw material which is unfit at a particular place but can be converted into useful products by using suitable technology or using new processes.

Source : Main two important sources are (1) Domestic wastes & (2) Industrial wastes. But such wastes may be in liquid, solid and gaseous state. Categories like urban wastes (Garbage), Agricultural wastes, Biological wastes, Radio active wastes etc. are cited as examples under the above two sources.

Disposal (Traditional method) : Disposal of waste materials are generally done either by burning, burying or land filling. In some places incineration processes are also followed.

Concern to Such disposal : Waste materials disposed off either by burning, land filling or burying cause soil, water and air pollution.

Waste materials after burning though reduce the volume and weight yet emit appreciable amount of smoke alongwith lead, cadmium, mercury and other toxic substances into air and thereby air pollution is caused.

Burying or land filling of waste materials (domestic wastes, Industrial wastes, Agricultural

wastes etc. cause soil and water pollution to a great extent.

Scope of discussion : Realising the impact of environmental pollution and threat to our survival, (due to population growth and over industrialization) innovative thinking and action came into operation for reutilization, recycling, renovation and recharge of waste materials.

Principle of Recycling and various Methods : The principle of recycling involves one inevitable condition i.e. separation of each waste. Collection, separation, processing and marketing of the finished products are the main steps in recycling any waste material.

METHODS OF SEPARATION OF EACH WASTE FOR RECYCLING

1. **Separation of Volatile Compounds** - The technique involves the tainted water which is pumped up through a column down which flows with a current of air. This stripping removes a part of volatile contaminants. Steam can also be used instead of air. To clean soil contaminated with volatile organics, air is drawn through by creating vacuum at many holes drilled into it. The volatile organics so stripped off can then be burnt or used in manufacturing processes if they are not very complex in nature.

Porous activated charcoal can effectively be used to absorb all organics. Any remaining organic component, if harmful, is inactivated by chemical treatment.

2. Separation of Water soluble Compounds -

Water soluble organics, including inorganic soluble salts and acids can be washed off from contaminated soil wastes adhered to it with water. Some organic wastes can be removed using other solvents which dissolve them, provided that the precious solvent is easily available, cheap and is in plenty.

3. Other solid organic waste need, however, different strategies. Most of these are reduced to a manageable waste by incineration or thermal pyrolysis.

(a) **Incineration** - The technique involves burning of wastes to a very high temperature probably above 2000 C. Incineration is most advantageous because the bulk of solid waste can be reduced to a small volume of ash. The heat so produced during incineration can be used to raise steam for turbines producing electricity. However, the process is not without drawback which are as follows.

(i) For incineration to be successful the waste should contain enough things that burn creating no air pollution problems.

(ii) Sometimes the bulk of wastes is as low in calorific - content an indicator of their burning ability- that they do not burn at all.

Disadvantages of Incineration in developed countries -

The problem concerning incineration in western countries is different from the developing ones. Their solid wastes are so cluttered with plastics, papers, synthetic polymers that incineration is not a problem at all. But the

burning of these materials often produces smoke and toxic vapours like sulphur dioxide, hydrogen peroxide, dioxins and carbon dioxide etc. adding to the already existing air pollution. Moreover, incineration reduces only 30% of the total volume of waste.

In USA, the diapers drew attention because their disposal forms a major bulk of domestic wastes and being synthetic are potential polluters when itinerated.

(b) **Thermal Pyrolysis** - In thermal pyrolysis, the solid wastes are heated to a very high temperature (600-8000 C) but in a very sparse air or oxygen so that they do not burn completely but only smoulder. The pyrolysis product resembles to that of charcoal. It can be used in fuel provided that -its burning does not produce any harmful gas. Rubber tyres and synthetic polymers etc., when burnt produce extremely polluting smoke posing air pollution. However, if these items are pyrolysed, they can be reduced to manageable wastes. This method does not reduce the waste bulk to a pittance like incineration.

Cost Effectiveness - None of these methods of waste disposal are as cheap as burning dung cakes. Incineration of wastes is a very costly affair often requiring crores of rupees as investment and high technical expertise so that all such burns, without causing any further pollution. An alternative method contemplated to render organic wastes into non-toxic constituents seems to be bioremediation.

4. Bioremediation - This approach envisages hiring help from bacteria to convert toxic compounds into either useful industrial products or harmless wastes. Here solid waste is imposed, similar to that of producing farm manure. The

technique involves microbial help to turn municipal wastes into fertilizers or soil-reinforcing products. Liberation of gas by these is also on the anvil. Although bio-remediation is cheap but enough time consuming. Also many synthetic polymers like plastics are so novel that there exist no microbes which can degrade all of them completely.

5. Bio-Technological Approach - Recently the giant steps taken by biotechnology research, especially in genetic engineering, have to some extent come to help. Now several genetically engineered bacterial strains are available to decompose complex organic compounds which were considered to be non biodegradable. Efforts are also made to synthesize such bio-degradable plastics, which are easily palatable to microbes.

6. Controlled Tipping - This remediation approach involves the use of familiar land-filling especially by controlled tipping (which can keep leachates at bay). The method is applied to a mixture of inorganic and organic solid wastes which do not budge to any other treatment.

7. Vitrification - The recent technique vitrification aims at converting the solid wastes into a sort of glass in the place where they stand. To accomplish this method electrodes are inserted into the waste-heap and a very powerful electric current is passed through it. The strong heat so produced melts glass, plastic, muck, mud and other waste into a glass like solid. It can then be dumped anywhere as it leaches very little. However, in this method care is taken to prevent mingling of radioactive wastes with other organic compounds, as radioactivity remains in whatsoever form the waste may be converted into.

8. Recycling and Reuse of Waste - Recycling envisages to reuse of most of the waste and

reducing the bulk as well as its toxicity. Some waste components can be easily recycled and reused.

Recycling of Complex Soil Pollutants - (The Paper, Plastics and Petroleum Products) - Today it is the perennial persistence of papers, plastics and petroleum products that is the main reason behind increase in wastes. Every new bit has to be given a new place. Japan, a small country annually produces so much waste materials that could fill 125 football stadia. Of this half garbage is composed of papers. It is therefore not surprising that recycling of paper, plastic, glass, metals and organics is the main issue today.

Recycling of Paper - The waste can be converted into useful products. Previously recycling of old papers generated low-graded papers which can only be used in manufacturing packing materials as cartons, corrugated boards etc. Presently modifications in recycling are being done to get a good quality paper for use even on a Xerox machine. Japan recycles 40% of its unwanted paper into new high grade one. Dr. Aarne Vasilind have reported that recovery of one ton of paper saves about 17 trees from the axe which are the sources of virgin paper. Although the cost of manufacturing new paper from waste paper is more than making virgin paper directly, but the waste paper problem can be solved upto some extent.

Recycling of Plastics - Plastics are extremely stable and appear difficult to treat, as they are polymers of very different molecules. Polythene tetraphthalate (PET), the material used in transparent plastic bottles is quite different from that of poly vinyl chloride (PVC) used in polythene bags or in sturdy pipes or buckets.

Recycling PET picked from a waste-dump though easy but not without risk. PET can

pick up several poisonous substances from the waste-dump and slowly release them into any drink or food stored in PET bottles. Torn polythene bags can be recycled only when they are pure.

Recycling PVC after retrieval from a waste dump does not produce better quality plastic. It is hard, brittle and tough.

Numerous synthetic varieties as tapes, photo films, hand bags etc. are quite different in their chemistry from the plastics of buckets, bins and boats. Each variety of waste is separated according to its category and chemically restructured to recycle. Today, although many countries are recycling much of throw out glass and paper but they are hesitant to recycle plastics. Diapers too are non-biodegradable and non-recyclable. But scientists have not lost their hopes.

Today, recent researches have enabled separation of metals and their retrieval from garbage when in minute quantities. Attempts have been made to reuse plastics in cassettes and films as well as in producing high grade paper from decayed old papers etc. Even plans to obtain a new variety of plastic by mixing various plastics in wastes are providing fruitful results.

Designing a Novel Molecule - Scientists are now designing a compatibiliser molecule which sticks together these different plastic molecules making the recycled plastic very durable. These comingled plastics with as much gloss and sturdiness as the originals can be used in fence-posts and car-bumpers etc.

Recycling of Plastic in India - Plastic recycling in India does not seem to be an issue. Previously hawkers have collected everything from paper to plastic for recycling. It then can be used in making bright coloured plastic toys, hard slippers used

by poor, the buckets and vessels which are easily breakable. This large scale retrieval of burnable plastics and papers has made the Indian refuse lowcalorific and non-burnable. Tin cans, scrap iron-railings are other wastes which can be usefully recycled in India. Thus the plastic recycling, which is a problem in the west, is not so in our country.

Recycling of Glass - Glass is a perfect recyclable product that can be used in a variety of ways. But the preparation of glass from waste is expensive than original glass manufacture.

Recycling of Metals - Recycling of metals from metallic wastes, disposed metallic cans, metallic scraps and wrecked automobiles; is quite profitable and can be utilized in many other ways.

Recycling of Organics - Organics contained in solid wastes can be subjected to aerobic decomposition. The product so formed is termed as compost which acts as an excellent soil conditioner. However, in developed countries, inorganic synthetic fertilizers are cheaper and preferred over the compost manure.

National Environmental Engineering Research Institute (NEERI), Nagpur has developed a number of models for recycling waste materials for our benefit. Ministry of Environment and Forest, Government of India, Ministry of Non conventional Energy, Government of India, The Akademy of Environmental Science, New Delhi have also extended helping hand since 1990.

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Global Warning for Global Warming

Dr. Prafulla Kumar Mohanty

Today climate change is a very common discussion amongst various cross sections of people right from school students to scientists including farmers. People are worried for the untimely rain, unexpected vanishing of winter and unbelievable temperature during summer and unimaginable rushing of sea by crossing the coastal specific area. Rain, winter, temperature and sea show certain magnitude of irregularity and severity. That is the reason why human beings on earth are very serious. Of these, the spectacular pain has been realized because of warming.

Now some questions crop up in the mind. Let us see what is temperature, heat and warming. Temperature is defined as the degree of hotness or the condition determining interchange of heat between bodies. But heat is a form of energy or that which excites the sensation of warmth especially in a high degree. Whereas warm is having moderate heat or imparting heat or sensation of heat. Earth is a beautiful planet because it supports life. Interestingly enough, earth has been resulted from warming and then cooling condition. Gradually because of availability of air and water various life forms have been evolved gradually. But after successful and fruitful evolution of floral and faunal diversity, again some changes with respect to warming are seen.

By the end of this century, it is believed that the average global temperature will be higher than ever in the past thousand years. By the end of next century, this trend could make the earth 3^o to 4^o C hotter taking the world's climate back to what it was two to three million years ago. Keeping this aspect in mind, certain questions arise.

1. Why is warming state happening and what will be the effect of this warming on animals including human beings ?
2. Why should people be worried about the earth getting bit hotter ?
3. Is it today's phenomenon or it was there earlier ?
4. Can it be solved and if yes what are the ways?
5. Who are the creators of this increased warming ?

Scientists from different countries pondered these questions during the deliberation of the Inter-Governmental Panel on Climate Change (IPCC). After serious deliberation, discussion and debate, the scientists reached the conclusion that the increase in CO₂ is the causative factor of global warming which may threaten life

on earth. Further, the reason of increased amount of CO₂ is the loss of trees or deforestation. Due to urbanization and industrialization concrete structures, roads and buildings were constructed and the natural forest grown areas were destroyed. Forests are the lungs of the earth. When forests are lost by various anthropogenic activities the amount of CO₂ got increased. This CO₂ trapped solar radiation by which the atmospheric temperature got increased.

Well, this warming practically is not at all today's phenomenon. Since inception of the earth warming was existing for which biodiversity has been possible. But recently, this warming has been increased which has brought several changes in the climate. It is believed that 3^o-4^o C increase in temperature could lead to alarming and unpredictable changes in established and systematic weather pattern that rainfall and wind patterns could change dramatically and seriously effect agriculture. Now the question is what is the solution to this pollution ?

However, following steps may be taken to reduce this increased temperature.

1. Planting of trees in our own residential areas, schools, colleges, universities, offices and working places should be undertaken.
2. Nature grown forest areas should not be disturbed or destroyed.
3. In barren lands a forestation process should be accelerated.
4. Serious punishment should be executed in case of cutting down of trees or deforestation without prior permission of the competent and concerned authorities.
5. Single individual should not construct several houses or more than one house with

concrete structures and wooden doors and windows.

6. People should not use a good number of wooden beds, furnitures etc. which needs to be discouraged.
7. Festivals like car festival should not be observed by destroying several logs of trees each year. There must be amendment in temple rules as regards the construction of chariots.
8. Newsprint part needs to be restricted, i.e., several types of newspapers or printing papers should be minimized.
9. People should prefer to use or read newspapers from common centres or offices or libraries. Individual purchase of newspaper copies should be restricted.
10. Writing paper should be properly used and both sides of paper must be utilized as far as practicable.
11. Various household articles, dresses, utensils, vehicles (more than one or two) should be highly discouraged. The household articles retain the heat from the environment.
12. Various types of chemicals, chemical products like mosquito repellants, house cleaners, toilet cleaners, detergents, hanky perfumes, naphthalene balls, pesticides etc. should be avoided as far as possible.
13. Organic or natural food must be taken regularly instead of junk food or fast food or convenience food or fast food or convenience food or synthetic food.
14. Human beings should practice exercise and walking instead of using motor bikes for short or walkable distance. People working in the office

should use office vehicle in common way or in shared manner to reduce fuel consumption and automobile exhausts.

15. Rampant industrialization, urbanization and regular massive mining activities should be restricted.

16. Power or electricity consumption should be properly taken care of everywhere preferably in offices. Light may not be used for specific hours either everyday of every week or even a month.

17. Crackers, Candles and Diyas should completely be avoided,

Global warming has been a global phenomenon not a local problem. Therefore, this

is a serious matter of concern for which it is suggested to be careful and cautious. Unless proper thoughtful measures are taken, we will definitely approach towards mass extinction. We should not forget that dignity is identity. When nature maintains its dignity, regularity and sincerity, we should not violate natural principle and denature the nature. So that nature can nurture us for a better future without torture.

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The Changing Role of Pesticides in Future Pest Management Programmes

H.P. Misra

After 1940, the use of synthetic chemical pesticides remained the major tactics in pest control. When properly used they provide an efficient, fast, reliable and cost-effective means of pest control. Until 1962, pesticide use in agriculture and public health was indiscriminate. Only after the publication of "Silent Spring" by Rachel Carson in 1962 people's awareness towards the ill effects of pesticides increased. The drawbacks most often cited with injudicious and indiscriminate use of pesticides include development of pest resistance to pesticides, destruction of natural enemies, poisoning of man and animals, environmental pollution, minor pest assuming major status and increasing costs etc. Then a change in the attitude of policy planners of pesticide use, researchers, pesticide manufacturers and users of pesticides was observed. In addition to the conceptual shift concerning pesticide use and manufacture, the selection and extent of pesticide use in pest management is strongly influenced by a host of multifarious factors. These factors exert unseen positive or negative pressures on the need for pesticides in agricultural and health situations, the selection and availability of specific compounds and the extent to which they are used. Recognition of these factors is critical to an understanding of the changes in pesticide use in the tropics.

Changes in Pesticide Policy and Legislation

Several international actions have been undertaken on pesticide use in developing countries. Such policies and legislation are aimed at improved pesticide management, a practice that can help avoid pesticide misuse and the possible loss of a valuable and badly needed pest control tactic in the third world. Food and Agricultural Organization (FAO)/ World Health Organization (WHO) established the Codex Alimentarius Commission in 1963 to harmonize international pesticide residue standards through legislation that affect shipment of food item. The commission established Maximum Residue Limits (MRL) for food coming into international trade. These are offered to participating countries for acceptance. Similarly, an International Code of Conduct on the distribution and use of pesticides was developed by the FAO conference in its 23rd session in 1985. Besides, the member countries have their own regulatory infrastructures for pesticides.

In India, the Directorate of Plant Protection, Quarantine and Storage organization was set up in 1946 under the Ministry of Agriculture, Government of India, which was later, shifted to Faridabad in 1968. This organization looks after the registration, banning, quality testing

and setting up laws for pesticide use. Besides, some other laws enforced by Government of India to prevent environmental pollution are Environment Protection Act, 1968, Water (Prevention and Control of Pollution) Act, 1974 and Water Cess Act, 1977. As of this time, over 40 pesticides are included on the suspended, cancelled and restricted use list by Government of India. Clearly, the outright banning or cancellation of pesticide registrations, particularly those in use for many years can have significant, but hopefully beneficial impact on pest management programmes.

Change in Public Perception

In spite of much intensified and restrictive requirements for registration of pesticides and a greatly accelerated programme for the re-registration of existing pesticides as well as substantial scientific conclusions on pesticide safety, agricultural pesticides are still perceived as unacceptably hazardous to human health and the environment. These perceptions, added with pressure from environmentalists encourage the development of additional pesticide regulation. The resulting decline in available pesticide choices will severely limit not only chemical pest control options but also the flexibility they offer in terms of developing Integrated Pest Management (IPM) programmes. IPM is a subject to credibility with farmers. Farmers often receive distorted views of IPM as “pest control without synthetic chemical” or as “biological control” and as a result become reluctant to relinquish their pesticide-oriented but dependable pest management programmes.

Changes in Pesticide Manufacturing Attitude

It is the older, less expensive chemical that are often used in developing countries and most of the pesticides those are obsolete or banned in developed countries are manufactured in

developing countries without compliance with safety requirements or the production standards of the multinational companies. The brightest example is the case of Union Carbide in Bhopal gas tragedy. But, now a days the pesticide industry has redirected its efforts to more IPM compatible products *i.e.* more selective chemicals with better target specificity. Directed and selective use of pesticides results in better resistance management, longer product life, improved grower satisfaction, minimum operator contamination, support from public and policy makers and also meets the FAO code of conduct commitments.

Recent advances in the understanding of insect ecology, biology, physiology and biochemistry are providing new impetus and opportunities for insect pest control. Increased knowledge of such insect hormones as brain hormone, moulting hormone, and juvenile hormone has made it possible to synthesize them. Introduction of devices that emit synthetic hormones offer the potential to disrupt normal highly insect selective functions such as breeding, growth and moulting, thus controlling the pest population. Insect pheromones are used commercially to monitor, detect and predict insect populations and to control several insect species on a variety of crops. One of the most promising areas for circumvention of the problem of current pesticides is the development of new materials with new mode of action to reduce host damage, particularly when compatible with additional pest management tactics. These 4th generation biorational pesticides offer new modes of action with less environmental disruption. For example, fenoxycarb is a “juvenoid” insect growth regulator developed by Rohm and Hass Company that help control pest populations of the mining moth in Japanese apple orchards in two phases, initially by fenoxycarb and secondly by the native endoparasitic hymenopterans which begin building

up in the second season. Similarly, the biopesticides of *B.t.* available in the market are well compatible with endosulfan insecticide. Such an approach has the added advantage of helping to delay resistance build up in insects.

Change in Population

As per FAO report, the land availability in 1965 per person was 0.4ha versus only approximately 0.25ha per person in 1988. The world food production was approximately 2.2 billion metric tones in 1965, which has almost doubled to 4.5 billion tones in 1990. In spite of doubling of food production, some 950 million people, mostly in low-income countries, had food intakes below the critical minimum for adequate health. World population, which reached 6 billion in 2000, is expected to increase to 8.2 billion by 2025. Even with no increase in nutrient intake per caput, world population will demand a doubling of food production by 2025. The father of "Green Revolution" Dr. Norman Borlaug pointed out that about 80% of the projected population increase will be in the low income and food deficit countries of Africa, Asia and Latin America. So food production must not be increased but it must be safeguarded as well. Intensification of production will lead to intensification of pest problems. Therefore a sustainable crop protection strategy, such as IPM, which utilizes all available tactics including modern pesticides, must be used.

Availability of Practical IPM Programmes

The adoption of IPM is practically low because the method is tedious, time consuming, requires new skills and has marginal benefits in terms of money. The failure and complexities of practical IPM systems, particularly monitoring and determination of crop loss and economic thresholds by small and marginal farmers will discourage the adoption of the IPM approach and encourage over reliance on single tactics such as

the use of pesticides. This has happened in 1997 by the cotton-growing farmers of Andhra Pradesh and Karnataka. Over reliance on single tactics like pesticides caused insect resistance in *Helicoverpa* and a crop failure, compelling many farmers to commit suicide. The use of resistant crop varieties offers an ecofriendly crop protection tactic that requires minimum extension inputs. The introduction of transgenic cotton variety "Boll guard" developed by Monsanto Company of USA in the two states could stabilize the situation. Unfortunately, only few new resistant varieties of only few crops are being released, and these are intended for monocultural markets rather than for the less profitable, mixed cropping systems used on small farms. However, genetic engineering technology promises to accelerate breeding for pest resistance.

Their natural enemies prevent most pests from causing excessive crop losses. However, scientists have identified successful and cost effective biological methods of control for many crops by introduction of non-endemic predators to parasitoids and augmentation of natural enemies. Besides, natural enemies those have increased tolerance to pesticides are now being identified. One such type is a *Trichogramma* egg parasitoid resistant to endosulfan insecticide. Therefore it can well be released in areas where the insecticide will kill insects and the rest are controlled by the parasitoid. Increasing the efficiency of natural enemies of crop pests through genetic engineering offers new vistas in crop protection. The success of such programmes can have significant impacts on the amount of pesticides required for crop protection.

Cultural control practices represent another cornerstone of bio-intensive IPM. Pesticide use may play a greater role in the absence of suitable resistant plant varieties or

classical or augmentative biological control tactics, but the reverse is often the case with cultural controls. It should represent the first step in the development of local IPM programmes but due to the time and labour constraints involved in their use, they are often replaced with pesticide tactic. Many cultural tactics continue to fit to the social and economic needs of the small farmer. Regrettably, the “lure” of chemical pesticides is gradually eroding the indigenous crop protection knowledge of cultural tactics and unless they are documented and extension personnel are trained in their use, they may become lost and less available just like IPM tactics.

Innovative Technologies

The introduction of resistant genes into commercial plant varieties, use of antisense technology, virus coat proteins or satellite RNA to prevent spread of viral diseases in plants and many other technologies through modern biotechnology is envisioned by some to be the answer to crop protection problems. Clearly, they must be unaware of similar claims made many times throughout history and the miraculous adaptability of microorganisms and insects. Alternative tactics such as male sterilization technique, male annihilation technique, use of sex pheromones of important crop pests, use of chitin synthesis inhibitors, juvenile hormone analogues, anti juvenile hormones, non steroidal ecdysteroids and non terpenoid juvenile hormone compounds in pest management can significantly reduce pesticide use, particularly when used in combination with other control tactics. However, they are often extremely selective in action, depend on long term development, are too few in number, are geared to large scale agriculture, and do not preclude the development of resistance or acquaintance.

Changing Patterns in Pesticide Use

Synthetic pesticides have been extensively used in developing countries mostly after the adoption of green revolution and the control of vector borne diseases. By the early 1980's the developing countries were thought to use 10 – 25% of the world pesticide production. However, about 1/3rd of the crops were still lost to pests each year and malaria alone affected 100 million people annually. By 1990, the third world countries used 26% of the world pesticide production. Around 55% of agricultural land situated in these countries is related to much lower consumption of pesticides than developed countries. Taiwan tops the list using 17 kg a.i./ha followed by Japan (12 kg a.i./ha) and Africa, the least with 0.13 kg a.i./ha, while India used 0.57 kg a.i./ha in the year 1998. Many developing countries including India, China, Bangladesh and Indonesia are participating in the global expansion of agricultural output. The value of pesticide imports to Asia increased three fold between 1970s to 1980s. The fastest growing pesticide markets are India, Brazil, China and Spain. Of the total world pesticide production 24% reach the developing countries, 12% goes to Asia, 8% to Latin America and 4% to Africa.

In India, the total amount of pesticides used in the country increased from 2.35 thousand metric tones in 1950-51 to nearly 85,000 metric tones in 1993-94. Earlier projections had put the pesticide demand by 2000 at nearly 1-lakh metric tones. But in view of the high priority being accorded to IPM, the pesticide consumption has shown a decreasing trend in the recent years. In Tamil Nadu the synthetic pesticide consumption has decreased by more than 50% during last 7 years, a decreasing trend has also been recorded in Andhra Pradesh and Karnataka. In contrast pesticide consumption continues to rise rapidly in

Punjab and Rajasthan. In 1992, the world consumption of herbicides was 44%, insecticides 30%, fungicides 20% and others 6% of the total pesticide consumption compared to 77% insecticides, 12% herbicides, 8% fungicides and 3% others in India. When cotton utilized 54%, rice 17%, cereals and millets 6%, and others 23% of total pesticide consumption in 1979 in India it was 39% in cotton, 35% in rice, 17% in cereals and millets and 9% in others in the year 1988. In contrast to this, 27% of the total pesticides were used in horticulture, 17% in rice, 24% in cotton, 7% in maize and 25% in others in the world in 1992. The world market on pesticides is estimated to grow @ 4.5% each year with the largest growth occurring in herbicides. The average growth rate in Asia Pacific region is approximately 5–7%, but in Indonesia and Pakistan, the market is expanding @ 20-30% per annum. Along with the increase in the amount of pesticide consumption, there is a change in the potency of some new chemicals observed in recent past. DDT was applied @ 1-2kg a.i./ha for the control of different pests, the organophosphates in general are effective @ 250-500 g a.i./ha, synthetic pyrethroids @ 12.5- 100 g a.i./ha. Some recently developed chemicals like nitroguanidines are effective @ 25 g a.i./ha. Thus there has been more than 100-fold increase in the potency of new insecticides.

Future of Pesticide Use

The future of pesticide use in IPM is expected to depend on the continuation of existing pest management tactics and technology including the use of pesticides. Although the present environmentally conscious society rules out the placement of pesticides in IPM but it is technically correct for the pesticides to find a place, may be as the last alternative of IPM. Certainly, if we are to maintain a suitable IPM programme at higher

than subsistence agriculture level, we must intelligently integrate as many compatible and available strategies as possible, including that of synthetic chemical crop protectants. We have learned from our past experiences that chemical pesticides alone cannot control pests and also it is increasingly apparent that alternative tactics alone cannot control them. Some consider that pesticide use for small and marginal farmer is not a future option but an immediate urgency. The developing world is on the threshold of large increases in the use of pesticides and they offer an opportunity for a nearly 50% increase in food production. Some predict that pesticides will be used more sparingly in the IPM era (1976 onwards) and the cost within an IPM system will be lower than those where pesticides alone are used. They opined that pesticides will continue as an essential, perhaps the major, component of IPM system and must be available when needed. This group of scientists believed that chemical pesticides were part of all producer supported IPM systems and projected that use of pesticides will continue worldwide with the greatest increase occurring in Africa, Latin America, the Far East, the Middle East, and South East Asia in order.

While IPM and other alternative systems often require fewer pesticides on a per hectare basis, it is expected that pesticide will remain routine and occasionally invaluable production inputs in future in most of the crops, vector control and control of migratory pest outbreaks. Control of locust outbreak is a major problem because of the sheer magnitude and logistics of control operations. The desert locust has an invasion area of 28.5 million square kilometer covering North Africa, Middle East and Asia equaling about 20% of the earth's land surface. Crop protection during outbreaks remains almost entirely dependent on the use of pesticides. Similarly, outbreaks of

plagues have never been broken. Their management results from either prevention or strategies involving protection. Theoretically, prevention can be accomplished, particularly with the advantages of modern technologies and shared cost for surveillance. Such advantages would permit control in the recession areas prior to outbreaks. Some controversy exists over the relative value of massive aerial spraying to control the pest versus applied crop protection but there exist situations where both becomes appropriate. Therefore, pesticide use in the third world is a matter of public controversy and debate, which can only be settled through the promotion of suitable IPM programmes and the incorporation of intensified pesticide management in future.

Through ages the biological effectiveness of pesticides have increased at least 100-fold. For example, in 1945, DDT was applied @ of about 2Kg a.i./ha but with the more potent insecticides available now similar effective control is achieved with 10g a.i./ha in case of synthetic pyrethroids like deltamethrin. There exist a clear trend of decline in the use of Organochlorines in agriculture as a result of policies to phase them out due to environmental pollution and risks posed by residues. Many of the organophosphates (OP's) are also banned for use in agriculture and some are restricted and in the process of phasing out. The use of synthetic pyrethroids, their combination products (pesticide mixtures) with OP's and others and the use of herbicides seem to be increasing. Pesticide use practices have also changed in the use of newer molecules that are applied at much lower rates as discussed above. The use of

pesticide mixtures may increase in future as they are recommended as a means of delaying build-up of resistance due to completely two different modes of action. While such strategies may be useful if used properly, there exists great danger if they are used arbitrarily at the farm level. Wisely developed mixtures can simulate insect control with natural plant products, which offer a mixture of different allelochemicals. Decreases in the amount and number of applications of pesticides have occurred in some situations such as cotton and may also be adopted in other crops like vegetables in future. In other crops the number of applications may remain the same or increased while the volume of insecticides used will certainly decline.

The pesticide industries should orient towards i) lower margins, ii) financing IPM research and extension in countries where national institutes are weak, utilizing their marketing skills in the promotion of IPM and iii) organizing small-scale farmers so that they can benefit from knowledge as much as the large scale farmers. The direction of pesticide development should be clearly in the direction of developing low risk materials. It may be necessary to create special situations whereby the high-risk materials may be used in special situations in special manner, placing them in a "prescriptive" use category.

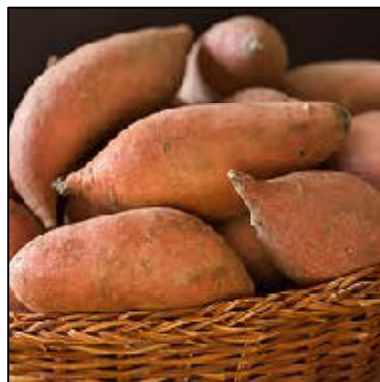
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The Triple 'f' (food, fodder and fuel) Crop Sweet Potato [*Ipomoea batatas* (L.) Lam.]

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Introduction:

Sweet potato is a staple food in several tropical countries. It is one of the world's highest yielding crops with the total food production per unit area exceeding that of rice and having greater food value. It is an important food crop in tropical and sub-tropical countries and grown in large scale in Mexico, Central America, South America, Mediterranean regions of Europe, Africa, India, China, Japan, South East Asia, East Indies and the Pacific Islands. It is a major source of carbohydrate for millions of people, especially in developing countries. The plant is grown for its edible tuberous roots that contain about 27% carbohydrate and high concentrations of Vitamin A, Vitamin C, Calcium and Iron. Fresh sweet potatoes provide about 50% more calories than Irish potatoes. The leaves is used as leaf vegetable as well as good fodder value and much more industrial value. Sweet potatoes are packed with nutrition. They are a great source of minerals such as manganese, folate, copper, and iron. The darker-coloured variety is a great source of



carotenes (precursor of vitamin A), vitamins C, B2, B6, E and biotin. Sweet potatoes are also a fantastic source of dietary fibre. Here are nine reasons you should be eating more sweet potatoes:

Nine Reasons Why You Should Eat Sweet Potatoes

1. Sweet potatoes are high in antioxidants, which work in the body to prevent inflammatory problems like asthma, arthritis, gout, and many more.
2. Sweet potatoes are an excellent source of carbohydrates for those with blood sugar problems. These fibrous root vegetables can help regulate blood sugar levels and prevent conditions like insulin resistance.
3. Sweet potatoes are healthy for the digestive tract. Being rich in digestive fibre, especially when the skin is also consumed, it helps to relieve constipation and may prevent colon cancer.
4. Sweet potatoes are good for those who are pregnant or trying to conceive because they

are high in folate, which is essential for the healthy development of fetal cell and tissue.

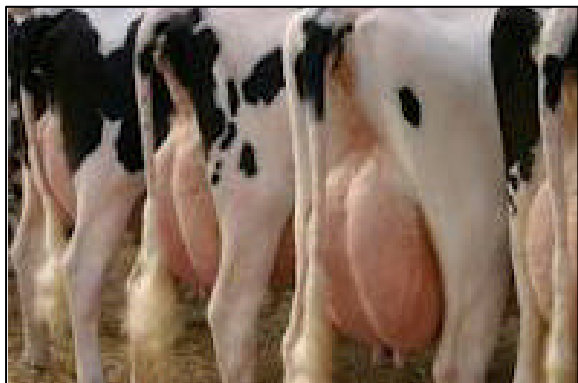
5. Packed with important vitamins and other nutrients, eating sweet potatoes can boost immunity by supporting the needs of the body.

6. Sweet potatoes are good for preventing heart disease. High in potassium, sweet potatoes can help prevent the onset of heart attack and stroke. Potassium also helps to maintain fluid and electrolyte balance in the body, which is important for stabilizing blood pressure and regulating heart function.

7. Sweet potatoes are good for alleviating muscle cramps. Potassium deficiencies are a leading cause of muscle cramps, as well injuries. By making sweet potatoes a regular part of your diet (along with proper exercise), you can expect an energy boost and fewer muscle cramps and injuries.

8. Sweet potatoes are good for treating stress-related symptoms. The body tends to use a lot of potassium and other important minerals when it is under stress. Sweet potatoes provide important minerals that will help maintain balance throughout the body during times of stress.

9. Sweet potatoes ranked number one in nutrition out of all vegetables by the Centre for Science in the Public Interest because they are



such a rich source of dietary fibre, natural sugars, complex carbohydrates, protein, carotenoids, vitamin C, iron and calcium.

Uses:

- a) The tubers are usually eaten boiled or baked, candied with syrup, or purred.
- b) They can also be used for canning, and as a source of starch glucose, syrup and alcohol.
- c) The tuber and green vegetative part can also be used as feed for livestock.
- d) Older vines are sometimes used as fodder for cattle, swine and fish.
- e) Because of their vine vigorous growth habit, some cultivars have ornamental value as ground cover or in hanging baskets and planters.
- F) The tuber is used as raw material for ethanol production.

Sweet potato is believed to have origin in the countries like Mexico, South America, Central America and Asia. From a study of the general characteristics of the plant, historical and archaeological records, its current distribution, and



historic linguistics, it was concluded that sweet potato originated somewhere in central America or North west South America in about 3000 B.C. The introduction of sweet potato into Africa, North America, Europe, India, China, Japan, Phillipines, etc, was primarily the result of Spanish, Portuguese and British trade³, exploration and colonization. In Asia, sweet potato is the most important root tuber crop. The total area in India is about 16 lakh hectares with an annual production of about 83 lakh tonnes. Orissa has the largest area followed by Bihar, Uttar Pradesh, Assam, Madhya Pradesh, West Bengal and Maharashtra. In India, sweet potato is considered as 'poor man's food'. In Sikkim, recent statistical data relating to the crop is lacking. However, it is a crop found in almost at sub-tropical and lower temperate areas of the state. An average yield of 10,000 kg of fresh tuber and 16,200 kg of fodder per hectare with local variety was recorded at Heegaon (elevation of 1200m) in West Districts (1982). The quality of the fodder was considered to be quite good.

Harvesting:

Sweet potato crop matures three and a half to four and a half month after planting. Harvesting sweet potato 120 days after planting is normally recommended. Delay in harvesting invites attack of sweet potato weevil. Maturity of the crop is indicated when the leaves turn yellow and begin to fall. The harvesting stole is also

determined by cutting one of the sweet potatoes. If the cut surface dries white, and does not turn greenish – black round the edge, the sweet potato is fit to eat. If a milky juice exudes which on exposure to air turns black, the sweet potato is not mature enough. The vines should be removed before harvesting. Harvesting is usually done by hand labour and with the help of spades. For easing the harvesting operation, light irrigation is to be provided 2-3 days before digging of tubers. Care should be taken to avoid injuries and bruises on tubers. Early cultivars can be harvested 90-105 days after planting, whereas medium-maturing 110 days after planting. Late harvesting is practiced in diara land as the soil is sandy.

Yield:

By adopting recommended varieties and improved cultural practices, a yield up to 30 tonnes/ha can be obtained. Average yield of sweet is around 10-20 tonnes/ha.

Post Harvesting:

For marketing of fresh tubers, cleaning and grading should be done to get better prices. After harvest, tubers are spread in partial shade for 5-6 days, for healing and curing. They should be stored in semi-dark condition in a well ventilated room. Such storage invites infestation of pests and diseases. The shrinkage of tubers is





also recorded due to dehydration. In some parts of the country, tubers are stored in a layer of dry sand or soil after curing under ambient conditions. For storing, graded tubers free from sweet potato weevil and bruises should be selected. Farmers store the graded tubers by keeping in a pit shade and covering the pit with paddy straw. Finally, the heap is plastered with mud or cow dung slurry. Tribal farmers of some parts of Odisha store their produce by heaping tubers in a corner of their huts and covering the heap with a thin layer of paddy straw. This heap is plastered with soil cow dung paste.

Market and Export Potential:

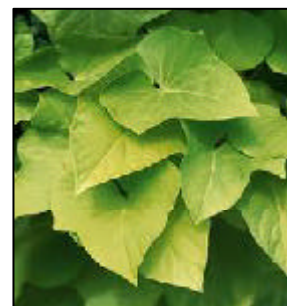
Sweet potato roots are usually washed and graded before being shipped to market. In western countries the tubers are waxed before transit if requested by the buyer. The product is marketed in consumer – perforated film bags or overwrapped trays and in mesh bags. Most of the crop is marketed through sales brokers and shipping point buyers. Selling brokers are located near production areas and arrange sales between grower – shippers and terminal market buyers. Much scope is there for this crop as the tuber has much potential with reference to its multidimensional industrial uses such as flour manufacturing, manufacture of alcohol etc.

Food in any substance is consumed to provide nutritional support for the body. It contains essential nutrient, such as carbohydrates, fats, proteins, vitamins, or minerals. The substance is ingested by an organism and assimilated by the organism's cells in an effort to produce energy, maintain life, and/or stimulate growth. Food safety and food security are monitored by agencies like the International Association for Food Protection, World Resources Institute, World Food Programme, Food and Agriculture Organization, and International Food Information Council. They address issues such as sustainability, biological diversity, climate change, nutritional economics, population growth, water supply, and access to food. The right to food is a human right derived from the International Covenant on Economic, Social and Cultural Rights (ICESCR), recognizing the “right to an adequate standard of living, including adequate food”, as well as the “fundamental right to be free from hunger”.

Fodder : An act of giving food, especially to animals or a baby, or of having food given to one.

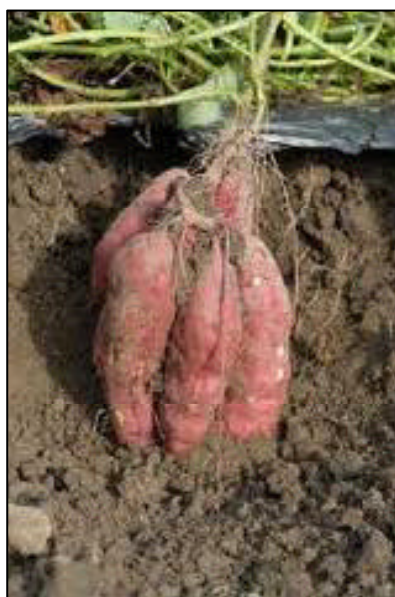
Fuel : Supply or power (an industrial plant, vehicle, or machine) with fuel. That is burned to produce heat or power.

Fodder or animal feed is any agricultural foodstuff used specifically to feed domesticated livestock such as cattle, goats, sheep, horses, chickens and pigs. Most animal feed is from plants but some are of animal origin. “Fodder” refers particularly to food given to the animals (including plants cut and carried to them), rather than that which they forage for themselves (see forage). It includes hay,



straw, silage, compressed and pelleted feeds, oils and mixed rations, and also sprouted grains and legumes. The world-wide animal feed industry consumed 635 million tonnes of feed (compound feed equivalent) in 2006, with an annual growth rate of about 2%. The use of agricultural land to grow feed rather than human food can be controversial; some types of feed, such as corn (maize), can also serve as human food; those that cannot, such as grassland grass, may be grown on land that can be used for crops consumed by humans. Some agricultural by-products which are fed to animals may be considered unsavoury by human consumers. Fuel is any material that stores energy that can later be extracted to perform mechanical work in a controlled manner. Most fuels used by humans undergo combustion, a redox reaction in which a combustible substance releases energy after it ignites and reacts with the oxygen in the air. Other processes used to convert fuel into energy include various other exothermic chemical reactions and nuclear reactions, such as nuclear fission or nuclear fusion. Fuels are also used in the cells of organisms in a process known as cellular respiration, where organic molecules are oxidized to release usable energy. Hydrocarbons are by far the most common source of fuel used by humans, but many other substances, such as radioactive metals, are currently used as well.

Dairy cattle rearing are an important subsidiary occupation for the farmers. Milk production and profit in dairy farming depends upon feeding and management practices. During the recent years,



prices of various feed ingredients like groundnut cake, wheat bran, maize etc., have increased which is a major constraint for profitable milk production. Feeding natural grasses and green fodder will help to reduce the expenditure on concentrate feeding. Quality of green fodder and hay can be further improved through enrichment and preservation techniques. Sweet potato [*Ipomoea batatas* (L.) Lam.] is a widely cultivated crop in Nigeria, from southern part through the northern part (Tewe et al 2003). The fodder has long been identified and used as supplement to low plane feeding in smallholder livestock producing (but extensive crop producing) areas of Asia, sub-Saharan Africa and Latin America (Devendra 1989). The nutritive value of forage depends on several factors such as variety, foliage components, voluntary intake, digestibility and production of meat or milk per unit of the forage consumed either as sole or supplemented diet (Coleman and Moore 2003). Thus, assessing the

quality of sweet potato foliage components (whole-plant tops, leaf-blade, leaf-petiole and stem) would enable the selection of desirable varieties that exhibit high proportions of the more digestible foliage components with higher foliage and root yields. Although some work have been done on the nutritional evaluation of sweet potato fodder, only little has been reported on the rumen degradation characteristics of the foliage components at different stages of growth (Ffoulkes et al 1978; Orodho et al 1996).

The nylon bag (*in situ*) degradability of forage has been described as a very useful means

for assessing differences in nutritive value between crop cultivars (Verbic et al 1995; von Keyserlingk et al 1996). Similarly, crude protein (CP) content and rumen degradation characteristics have been identified as important determinants of forage quality and are useful parameters for estimating both feed intake and performance of ruminants that are also influenced by stage of maturity of forage (Orskov et al 1988; Blümmel and Orskov 1993; Ingvarstsen 1994). In tropical roughages, it has been demonstrated that *in sacco* degradation gave better predictions of voluntary intake than *in vivo* digestibility (Ibrahim et al 1995). An understanding of the differences in degradation pattern of the botanical fractions in forages or crop residues would enhance the development of varieties/cultivars with more digestible forage and crop residues through breeding and selection. Therefore, the paper reports the findings from a study aimed at determining CP, NDF and rumen DM degradation characteristics of sweet potato foliage components as influenced by stage of growth.

IMPORTANCE OF GREEN FODDER

Green grass is a good source of vitamin A which is present in the form of carotene. One kg of green grass provides 50mg of vitamin A. This vitamin is necessary to maintain the health and reproduce status of the animal. Grasses are also good source of protein. One kg of green fodder gives 15 to 20g protein to the animal. Cowpea, beans, subabul leaves etc. give 30 to 40g of protein.

HOW TO PRESERVE SWEET POTATO SILAGE

Cut the grass at the early flowering stage. Dry the grass in the field for about 4 to 5 hours. Cut into small bits of 10 to 15cm length with a chaff cutter or a knife. Add 5 kg of chopped semi dry sweet potato. Prepare molasses solution in a

bucket by dissolving 5 kg molasses in 20 litres of water. Dissolve one kg salt in five litres of water. Make a circular pit in an elevated area away from water source. The size of the pit should be at least one meter in depth and one meter in diameter. Every one cubic meter of pit can hold 600 kg of green grass. Cover the bottom and sides of the pit with dry leaves or straw. Fill the pit with grass for about one foot height and press it well. Sprinkle molasses over it. Add another one foot layer of grass. Sprinkle salt solution with the help of a rose can. Repeat the filling in the same way till the entire pit is filled. Press the grass well to remove any air space inside. On the top, cover the grass with a layer of dry leaves. Cover the pit with mud for about one foot height to protect the pit from air and water. Care should be taken to protect the pit from rain water. To protect the pit from rain, the top portion should be covered with polyethene sheet or tarpaulin. Silage will be ready after two months. Pit can be opened even after four months. If silage is prepared in November, it can be taken out in Feb / March (summer) to feed the animals. Feeding silage helps to reduce concentrate feeding and to maintain the health of the animals.

FEED & FODDER REQUIREMENTS FOR MILK PRODUCTION IN INDIA

Livestock production is backbone of Indian Agriculture and source of employment in rural areas for centuries. This sector has been the primary source of energy for agriculture operation and major source of animal protein for the masses. Therefore India has been house to major draught, milch and dual-purpose breeds of cattle. Our whole system of rural economy has revolved around livestock production.

However, there has been a rapid change in the way agriculture operations are carried out like;

- Agriculture production i.e. cropping system, water resources, diversification of crops, intensification of agriculture.
- Increasing use of mechanical power V/S bullock power
- Transformation from sustenance farming to market oriented farming
- Changing food habits

All this has its impact on animal husbandry practices including breed character requirements of Indian farmer and thus their feeding. India is house to 15% world cattle population and 16% of human population to be sustained

and Progressed on 2% of total geographical areas. Due to ever increasing population pressure of human, arable land is mainly used for food and cash crops, thus there is little chance of having good quality arable land available for fodder production, until milk production is remunerative to the farmer as compared to other crops.

SCENARIO OF FEED AND FODDER REQUIREMENT & AVAILABILITY:

There is tremendous pressure of livestock on available feed and fodder, as land available for fodder production has been decreasing. Scenario of feed and fodder availability till 2025 is as below: -

(In million tonnes)

Year	Supply		Demand		Deficit as % of demand (actual demands)	
	Green	Dry	Green	Dry	Green	Dry
1995	379.3	421	947	526	59.95 (568)	19.95 (105)
2000	384.5	428	988	549	61.10 (604)	21.93 (121)
2005	389.9	443	1025	569	61.96 (635)	22.08 (126)
2010	395.2	451	1061	589	62.76 (666)	23.46 (138)
2015	400.6	466	1097	609	63.50 (696)	23.56 (143)
2020	405.9	473	1134	630	64.21 (728)	24.81 (157)
2025	411.3	488	1170	650	64.87 (759)	24.92 (162)

Source: Draft report of the working group on animal husbandry and dairying for five-year plan (2002-2007, Govt. of India, Planning Commission, August – 2001).

According to another estimate by NDDB for an expected production of 86 million of milk by the end of 9th Plan, annual requirement of green fodder will be to the tune of 1064 million T and dry

fodder to the tune of 585 million T. The current availability, however is estimated at 570 million T and 400 million T respectively.

Feed Production:

(in million tonnes)

	2002-03	2003-04	2004-05	2005-06	2006-07
Concentrates available	41.96	43.14	44.35	45.63	48.27
Concentrates required	117.44	120.52	123.59	127.09	130.55
Concentrates Deficit	64.27	64.21	64.12	64.10	63.03

Source: Draft report of the working group on animal husbandry and dairying for five-year plan (2002-2007, Govt. of India, Planning Commission, August – 2001).

Quality of feed & Fodder:

Livestock rearing in India is changing with the requirement of time as is also evident that demand for milch breed of cattle is going up as compared to dual or draught breed. Population of indigenous breed like Haryana, Nagori, Khilar i.e. dual & draught purpose breeds has declined more than milch breeds. In this globalize / market economy dependent agri-economy, milk production has to compete for growing fodder on good or arable land. Thus milch animals have to be of high productivity and reproductive efficiency.

Role of cultivated fodders:

- i) Feed & fodder cost constitute about 60-70% of cost of milk production thus cultivated fodder has an important role in meeting requirement of various nutrients and roughage in our country to produce milk most economically as compared to concentrates.
- ii) It needs feed, which not only meet nutrient requirement but fills the rumen to satisfy the animal.
- iii) In view of microbial digestion system, feeds have to meet requirement of cattle maintenance, production and requirement of microbes to promote digestion.

Cultivated fodder crops have a place of importance for feeding of ruminants in view of the following aspects: -

- a) In view of the peculiar digestive system, provided by nature, ruminants need feeds, which not only meet their nutritional requirements but also fill the rumen and satisfy the animal.
- b) In view of microbial digestion system the feeds have to meet requirements of the animal, its production as well as the needs of microbes for promoting digestion.

c) The fodder crops meet these requirements very effectively and hence are important for ruminant production system. As evident from reports that mixed with coarse roughages, like wheat straw, its intake and digestion are improved.

Fodder crops provide all the critical elements like highly digestible protein, carbohydrates, fats and minerals. Green fodders are a very good source of B-carotene (precursor of vitamin A).

- i) Common cereal fodder crops like Maize, Sorghum and Oats are rich in energy and the leguminous crops like Lucerne, Berseem & Cowpea are rich in proteins.
- ii) Leguminous crops, like Berseem, Lucerne & Cowpea, are a good source of major & micro minerals, so critical for rumen microbes as well as animal system.
- iii) Fodder cultivation has been traditional in most parts of the country since farmers feel that the fodder crops have some factor, which keeps the animal healthy and productive. And hence since generations farmers have marked out certain varieties and crops for fodder production and cultivate these, depending on availability of land and water.

The green fodder crops are known to be cheaper source of nutrients as compared to concentrates and hence useful in bringing down the cost of feeding and reduce the need for purchase of feeds/ concentrates from the market. The stage of harvest of crop has profound effect on the nutrient contents of the fodder crop. The moisture and nutrient contents of the crop decreases and fibre content increases with maturity and hence harvesting at proper stage is crucial. Fodder production programme should aim at selecting crops and varieties, which

produce highest quantities of ‘ Nutrients per unit of land and time period’ and hence a continuous search for improved varieties is crucial. High yielding produces good quality fodder and multipurpose utility. In case surplus fodder is available in some season it can be stored in form of silage or hay for lean season.

5. Role of common property resources in meeting feed requirement of livestock:

It has been tradition in India to have community pasture land in each village, which has been an important source of feed for cattle particularly of weaker sections like landless / small / marginal farmers. Each family has equal access to these resources in the village. In the past, group of villagers were taking care of such lands and maintaining them, but after abolition of this system, these properties became nobody’s property and are now in denuded condition and encroached upon by influential or sold by Panchayats to mobilize resources.

Sweet potatoes (*Ipomoea batatas*), raw, Nutrition value per 100 g. (Source: USDA National Nutrient data base)

Principle	Nutrient Value	Percentage of RDA
Energy	86 Kcal	4%
Carbohydrates	20.12 g	15.5%
Protein	1.6 g	3%
Total Fat	0.05 g	<0.5%
Cholesterol	0 mg	0%
Dietary Fibre	3 g	8%
Vitamins		
Folates	11 µg	3%
Niacin	0.557 mg	3.5%
Pantothenic acid	0.80 mg	16%
Pyridoxine	0.209 mg	15%
Riboflavin	0.061 mg	5.5%
Thiamine	0.078 mg	6.5%
Vitamin A	14187 IU	473%
Vitamin C	2.4 mg	4%

Vitamin E	0.26 mg	2%
Vitamin K	1.8 µg	1.5%
Electrolytes		
Sodium	55 mg	3.5%
Potassium	337 mg	7%
Minerals		
Calcium	30 mg	3%
Iron	0.61 mg	7.5%
Magnesium	25 mg	6%
Manganese	0.258 mg	11%
Phosphorus	47 mg	7%
Zinc	0.30 mg	3%
Phyto-nutrients		
Carotene-a	7 µg	—
Carotene-β	8509 µg	—
Crypto-xanthin-β	0 µg	—

Ethanol Sweet-Potatoes-Bio-based Fuel, a bio-based fuel made from sweet potatoes. A lot of terms are being bandied about these days. Ethanol, cellulosic feedstocks, biomass, methyl tertiary butyl ether (MTBE), flexible fuel vehicles (FFV), E10, E85, switchgrass, bio-based fuels, sustainable renewable fuels, green energy, net energy balance, inedible sweet potatoes, “25 by 25” plan, and the list goes on and on.

With a growing fuel crisis in the USA and other countries, both developed and developing, the race is on to produce fuels substitutes for petroleum. Sweet potatoes are one of the major crops being studied, harvested and tested for Ethanol, an additive and gasoline fuel-replacement. Ethanol production is experiencing tremendous growth in the USA and around the world. There are huge world-wide opportunities for producing this bio-based fuel from crops, like inedible sweet potatoes, that do not compete with crop resources needed to feed people.

Currently, corn is the major crop being used in the USA to make Ethanol (Brazil, the world’s largest producer of Ethanol, uses

sugarcane). However, sweet potato can be the major crop for south-eastern states that produce the most of this vegetable. And, sweet potatoes can and will play a major role in biofuel production for other countries, like China, that have large crop production. (See Global Impact)

Why Ethanol? This biofuel has many benefits including: it makes the air cleaner by reducing the levels of carbon monoxide spewing from car tailpipes, it can displace petroleum on a 1:1 ratio, and it is renewable and sustainable, has a positive net energy balance, blends easily with gasoline, is nontoxic, is biodegradable, and it helps reduce greenhouse gas emissions.

We can get all these wonderful improved-quality-of-life benefits from Ethanol because of crops like sweet potatoes :

This vegetable will have new possibilities over the next 5-10 years, and for of course, generations to come. Farmers will be encouraged to grow more, many new jobs will be created and our environment should be cleaner and healthier.

The current biofuel craze may have environmental repercussions we are unaware of. Presently, the primary source of ethanol are **corn** and **sugarcane**. Increased commercial production of the fuel alternative can have the following impacts:

1. Poisoning of the soil, water tables, and streams due to increased use of chemical fertilizers;
2. Reducing food production due to conversion of fertile and prime farmlands to ethanol production; and
3. Encroaching on and clearing of remaining tropical rainforests for sugarcane plantations.

Fortunately, a crawling vine may provide a solution to the ethanol fuel dilemma, **sweet potato** (*Ipomoea batatas*) or yam. This lowly plant's ethanol-relevant features are its large, starchy, and sweet roots. At least a fourth of each tuber is composed of **carbohydrate**, mostly starch and some glucose. They convert easily to **alcohol**. The following characteristics make sweet potato almost perfect for ethanol production:

1. It can be grown in **tropical, subtropical, and warm temperate** regions and in any terrain (*That's almost everywhere*);
2. The plant can be grown in a variety of **soil** except for heavy clay-types where the roots don't have much chance of development;
3. It does not require much **fertilizer** and has little **maintenance**. They don't need additional fertilizers in fertile soil since the plant will produce mostly greens;
4. Sweet potato has a short maturity period of **3.5 to 4 months**; and
5. The tubers can be stored for **3 months** after a seven-day cure in any open space (*try that with sugarcane*).

Flexible fuel vehicles (FFVs) are designed to run on gasoline or a blend of up to 85% ethanol (E85). Except for a few engine and fuel system modifications, they are identical to gasoline-only models. FFVs experience no loss in performance when operating on E85. However, since ethanol contains less energy per volume than gasoline, FFVs typically get about 25-30% fewer miles per gallon when fuelled with E85. FFVs have been produced since the 1980s, and dozens of models are currently available. Since FFVs look just like gasoline-only models, you may be driving an FFV and not even know it.

Conclusion

Mixed crop–livestock systems have a crucial role to play in meeting the agricultural production challenges of smallholder farmers in India. Sweet potato is seen as a potential remedial crop for these farmers because of its high productivity and low input requirements, while its usefulness for both food and feed (dual-purpose) make it attractive in areas where land availability is declining. Socio-economic and bio-physical data on farmers' land use allocation, production, and input and output use. Spatially heterogeneous characteristics of the current system regarding resources and productivity are analyzed to assess the profitability of substituting dual-purpose sweet potato for other crops currently grown for food and feed. Results indicate that a substantial number of farmers in the study area could benefit economically from adopting dual-purpose sweet potato. Depending on assumptions made, the adoption rate, expressed as the percentage of the total land under adopting farms, is between 55% and 80%. The analysis shows that the adoption rate is likely to vary positively with the average total yield of dual-purpose sweet potato, the harvest index (the ratio between tuber and fodder yields), the price of milk, and the nutritional value of available fodder. This study demonstrates the usefulness of the minimum-data methodology and provides evidence to support the hypothesis that dissemination of the dual-purpose sweet potato could help improve the livelihoods of smallholder farmers operating in mixed crop–livestock systems in India.

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