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EQUITY AND BIORESOURCES

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Abstract

The district of Dangs, measuring 1722 sq.km is predominantly a forest tract. The 30,000 odd tribal households spread over 311 villages, cling to their cultural mores and yet drift with the current of 'development'. The community leaders and local organisations are busy at present deciding the priorities of development within the limited means available and mounting needs. The forest conventions existing here allow liberal rights and privileges providing support to sustenance to the tune of Rs 6000 per annum per household. Rainfed agriculture in small holdings and traditional forestry operations are the main occupations of the people. Deprivations, though common, are taken as part of their life. No death was reported due to starvation. The state-owned rich forests are managed without the hassles of any major vested interests.

Recently, raising a slogan of 'human rights, equity and social justice', a pressure group instigated some tribals to clear the rich forests for cultivation. They wanted the rights of local people to forest land and trees to be left unregulated. The alien ideology that militated against the traditional social values and systems resulted in violence and open conflicts.

In an attempt to address the situation a campaign to mobilise people to find peaceful and better options was initiated. The effort stimulated the people to think constructively. It also raised questions about the efficacy of democratic ways of development and the continued dependability of traditional values. This was probably a case of searching for equity among the deprived people at the cost of community resources that sustained them. Obvious along with reorienting the present forestry practices, there is an urgent necessity to organise and strengthen the common people, to prepare them to seek equity and justice with responsibility, in the sensitive areas of living resources.

#### HISTORICAL BACKGROUND

Not much is known about the mediaeval life of Dang; broadly it could have been the same as other tribals in central India. The throbbing forests had nurtured a few tribal clans, in the latter's self-demarcated small territories. Each clan was free to hunt, gather and till. Nothing was privately owned. It was a primitive kind of socialism. Free subsistence was the law of nature and it was the same for the tribal clans.

The hilly tract of Dang is located between the latitudes 20° 30' 50" and 21° 4' 52" N and the longitudes 73° 27' 58" and 73° 56' 36" E. Small flat-topped, tree clad hills of elevations ranging between 300m and 700m above MSL intermingled with small patches of plains, make it a picturesque country. With an

average annual rainfall of 2000 mm and winter touching a low of 6 degrees Celsius and summer as high as 40 degrees Celsius, its climate is generally warm and dry. The meagre underground water reserves lie between 3m and 20m below the surface. The small rivers draining the area go dry in summer. The district, with no economically important minerals to exploit, was part of the erstwhile Bombay state, but in 1961 it became a constituent of Gujarat.

Over 90 per cent of the population in Dangs are tribals. The main constituents include Bhils (32 per cent), Kumbis (45 per cent) and Varlis (14 per cent). Gamits, Dhodiya, Kathodia, Vitodiya, Nayaka and Chaudharis make up the rest. Though Bhils were the original residents of Dangs, they somehow fell behind other communities in economic and social development. There is distinct stratification amongst the communities and each has its own independent social identity. It is, however, to be noticed that all the tribes have a common geographical origin and hence all of them go under the common name "Dangi".

The British rulers first came in contact with the Chiefs of Dangs in 1818 when they farmed out timber rights to some Surat merchants. A meagre quantity of around 1500 cubic metres of the best available timber was harvested annually from accessible areas. In 1897, some 60,000 trees were cut to meet the requirement of sleepers for a new railway line coming up nearby. This deal, involving payment to the Chiefs, opened up forest resources to an external market.

With the accord with the Chiefs on timber extraction Britishers started the process of 'forest management'. Earlier such 'management' consisted of efforts to prevent the occurrence of fires and removal of inferior wood to facilitate regeneration of commercially important tree species. Development of motorable roads and formation of essential forestry - related infrastructures were taken up simultaneously.

This invasion of modern amenities into the forest areas has had its effect on the Dangs. On the social front, their interaction with outside people was increasing and as a result they started adopting ways of settled life. The tribal Chiefs, for instance, sought help in farming from neighbourhood communities. The social amalgamation and development went hand in hand.

Following such exposure to diverse socio-political pressures, development of Dangs from 1901 onwards makes an interesting case study.

The rate of growth of population in Dangs is almost on a par with national average. The family planning programme has done little to reduce the Dangi growth rate. Their population of 18,333 in 1901 rose to 47,282 in 1951; 1,13,664 in 1981 and 1,35,000 in 1991. The projected figures with the present male/female ratio of 51/49, in the year 2000, 2050 and 2100 at a conservative rise of 20 per cent per decade may hit 0.16 million, 0.4 million and 1.00 million respectively.

With such progressive rise in population, the density per sq.km would increase substantially putting very great strain on Dangis' land and other resources. One can visualise situations in which there could be some reduction in the projected population, through migration on account of unsustaining assets, <sup>more</sup> ~~more~~ effective birth control methods, great social pressure and bigger incentives to restrict family size, and so on. But the prognosis could be wrong.

Here is the population profile of the villages. Of the 311 villages, 94 have less than 200 people, 163 have between 200 and 500 people and 49 villages have between 500 and 1000 people. Five villages have population exceeding 1000 each. These villages are bound to find themselves bursting at seams in the year 2100.

#### ASSETS : (INDIVIDUAL)

##### i. Land

Agriculture is the main source of income - the livelihood of the people is directly or indirectly linked to farming. Within agricultural sector itself there are two groups of people - the self-employed and agriculture labourers. The distinction is not very clear, though.

Some 58,000 hectares of land is owned by 11,000 joint families. The number of households engaged in self-employed agriculture is almost double. The present joint holdings is unevenly distributed as follows:

<u>Agriculture holding</u>	<u>No. of families</u>
Less than 0.2 ha	11
0.2 to 0.5 "	780
0.5 to 1 "	843
1 to 2 "	1683
2 to 3 "	1608
3 to 4 "	1410
4 to 5 "	1130
5 to 7.5 "	2023
7.5 to 10 "	1221
10 to 20 "	1088
20 to 30 "	100
30 to 40 "	12
40 to 50 "	4
Above 50	3

The farmlands which are rainfed lie adjacent to promising bioresources. The terrain being difficult, the access to services and infrastructures remains underutilised or underdeveloped.

The agricultural practice here is mostly traditional. Poor soils and unpredictable rains force people to go in for fast cropping coarse varieties of cereals and pulses. The yield is around 1.00 ton/ha fetching about Rs. 6000 (Dollar 200). The net return, excluding cost of labour and inputs, is estimated at Rs 4000 per ha. A joint family of 10 with an average holding of 3 ha earns around Rs.12,000 (Dollar 400) per annum. There are around 8,000 households, with very little land or no land at all, who are seasonally employed in agriculture with poor remuneration, and that too mostly in the form of grains.

ii. LIVE STOCK

Important assets other than lands include livestock. The last cattle census (1987) returned the following figures:

Bullocks	:	37,380
Cows	:	28,468
Goats	:	37,017
He-Buffaloes	:	8,942
She-Buffaloes	:	3,091
Poultry	:	1,70,000

Bullocks and he-buffaloes are mainly used as draught animals. Cows are maintained normally for breeding, not for milk. All the same there are 57 milk co-operatives with a total membership of 3,600. The average milk yield is 4000 litres from 3000 milch animals. Sale of goats, bullocks and poultry provides financial security in times of emergency.

### iii. EMPLOYMENT

Of the total population of Dangs, 40 per cent is classified as workers. The employment pattern emerges as:

Self-employed farmers	:	60 %
Agriculture Labourers	:	20 %
Forestry	:	17 %
Others	:	3 %

The employment in agriculture and forestry is seasonal. The situation therefore demands greater employment support from sectors producing or processing natural resources, or there should be greater efforts for the development of other sustained labour-intensive activities.

### iv. SHELTER

The most important symbol of security in Dangs is a house constructed without much cost. People build houses with materials received free from the Government, or with wood cut illegally from neighbourhood forests. The housing though simple, is a secured asset and having made it, one may not have to worry all one's life, for this security.



## COMMUNITY ASSETS

### a. WATER

With an average rainfall of 2000 mm Dangs is blessed with roughly 3,50,000 hectare-metres of water. The resource is surplus for meeting the water needs of people for drinking, partial irrigation and fishery. The geology, it is true, makes water storage difficult. It is, therefore, necessary to increase the present negligible overall storage capacity of the district.

Fishing is the most preferred diversion of the local people. Even today one can see groups of people with crude torches camping on the river banks in the dead of night for a good catch. During day time women-folk fish in shallow pools. Normally, some 5000 women, young and old, spend a few hours every day for about 2 months fishing. Average catch is 200 grams per trip. There is good potential for creating more fishing facilities by bunding the rivers at appropriate places. It may be costly, but it is desirable. The total length of the rivers traversing the district comes to 350 km.

### b. FORESTS

The district of Dangs, with a geographical area of 1722 sq.km has 1699 sq.km. of recognised forest area. But 580 sq.km. of it is in the possession of resident farmers, leaving 1119 sq.km. under the direct management of the Forest Department. The forests of Dangs are the richest in the State. Teak, forms 30 per cent of the tree population. The forest is classified as tropical

deciduous. The wild fauna in it include tigers, panthers, wild bears, sambhars and varieties of birds. The famous rusty spotted cat and Indian giant squirrel are occasionally found in this area. Difficult terrain, thin population, and traditional values still cherished by the local people have, largely, contributed to the effective preservation of the forests in the tract.

The tree population above 30 cm girth is estimated to be over 20 million with an average of over 200 trees per ha. The major species found here, apart from teak, are Terminalia crenulata, Ougeinia dalbergioides, Anogeissus latifolia, and Dalbergia latifolia. The important, minor forest produce-yielding trees are Diospyros melanoxylon (1,50,000), Sterculia urens (1,04,000), Bauhinia racemosa (43000), Madhuca indica (33000), Embllica officinalis (1,34,000), and Acacia catechu (3,16,000). Other minor forest produce-yielding trees are Terminalia bellerica, Terminalia chebula, and Zizyphus xylopyrus. Minor forest produce-yielding climbers and shrubs include chilar (Caesalpinia decapetala), kangvel (Ventilago madraspatana) and karvi (Carvia callosa). Bamboo is easily the most important plant with 2,000,000 and odd clumps and 15 culms per clump.

#### INCOME SUPPORT FROM THE FORESTS

The privileges enjoyed by the people, as noted earlier, are liberal. The benefits derived directly by the community are quantified as under:

	<u>RS. IN MILLION</u>
1. 35,000 households daily consume 5 kg of firewood without any cost which amounts to Rs.30 M.	30.00
2. 0.1 M cattle daily graze about 10 kg of fodder without any cost which amounts to	100.00
3. On an average a household uses 25 bamboos without any cost which amounts to Rs.5 M	5.00
4. The earning from the collection and use of minor forest produce amounts to	10.00
5. Rs.15 M on an average (i.e.10% of the revenue) is contributed to the District Panchayat towards development works.	15.00
6. Rs.30 M as 20% share from net gains of logging by 26,000 members of forest-labour co-op societies.	30.00
7. Forestry operations provide employment opportunities worth Rs.60 M, including harvest of coupes.	60.00
8. Cultivation in Dangs follows slash and burn method. Annually the farmers use branches, leaves, bamboo tops etc at the rate of 5 tons per ha. for 50,000 ha.	50.00
9. The tubers and vegetables growing wild in the forest are used as food. Though the total quantity is not known on a conservative estimate it may amount to Rs 1 M.	1.00

Total: 301.00

Besides the direct benefits to the people, the forests of Dangs take care of the fertility and moisture conservation aspects of the soil. Even today these forests provide a stand of unique biological diversity. Establishing similar forests under present level of biotic pressure may be impossible, for, they take thousands of millennia to evolve.

The benefits from the forests are distributed among the surrounding communities equitably. The average support to each household amounts to Rs 8,000 per annum. Logging, the main activity in the forests, is done through forest labour co-operative societies. Local youths manage such societies. It is now acknowledged that exploitation of labourers by contractors has been eliminated by these forest labour co-operative societies. The office-bearers, of the societies, however, need to be oriented a little more towards the welfare of the members.

Bamboos in the forest used to be harvested and supplied to a paper mill located in an adjacent district. The activity used to bring cash income to the local people. But the mill stopped working six years ago. Selling bamboos to the paper mill at concessional rate, it is true, cut the revenue to the Government; however, the wages paid to the labourers by the mill, were as

per the minimum wages fixed by the Government. Same is true of katha manufacturing units which are allowed controlled removal of Acacia catechu trees at concessional rate; the labourers are paid at par with forestry operation rates. It may also be mentioned that bamboo and katha trees are harvested under the supervision of forest officials, loaned to the factories to ensure that the operations are technically sound. With long lease of forest areas for exploitation, the companies have a vested interest in seeing that the raw-material supply remains sustainable and that no harmful harvests take place. In fact, there are no major vested interests, which are keen on exploitation of labourers or forest resources for immediate gains.

In recent years management of forests meant, among other things, clear felling and regeneration of economically important species like teak, bamboo and kutch trees. Steep slopes and river banks are usually excluded from clear felling. These activities provided some temporary employment to the people, but the practice ignores the overall dependence of the community on minor forest products. In this context it is necessary to re-examine the clear felling and selective planting policy. The new forest management plan which is under preparation should perhaps ponder on the need to focus on the role of non-timber forest produce in the lives of forest-dependent communities.

The forest administration in Dangs is, as mentioned before, very liberal. The privileges of grazing and collection of firewood, small timber and M.F.P. are enjoyed by the people undisturbed. Most of the field officers are local and they provide a system of administration that harmonises with the local people's culture. The department's tribal welfare activities include small projects for ensuring social security through plantation in private lands, rehabilitation of the most backward Kotwalia communities and establishment of foodgrain banks to provide the grains on easy terms during lean periods. The projects are well conceived but the coverage may need to be expanded.

#### SERVICES AND INFRASTRUCTURES

##### HEALTH

There are in Dangs 14 health centres, including a central hospital with 200 beds. Besides, there are seven family welfare centres, all served by about 30 doctors and 130 health workers. Some 100 thousand persons avail of the facility as outdoor patients and nearly a quarter as indoor patients.

Infant mortality though recorded as 18, may be at par with the national average of 80 per thousand. Under 5 mortality rate is about 3 per thousand. During 1986-87, 394 males and 259 females died on account of the following reasons.

	M	F
1. Diarrhoea	20	11
2. Cholera	1	-
3. Respiratory disease	15	13
4. Fever including malaria	58	35
5. Accidents	9	7
6. Others	291	193

The patients admitted to the hospital for various ailments during 1989-90 were as under:

1. Contageous disease	2183
2. Malnutrition cases	218
3. Liver problems	3127
4. Blood circulation problems	5829
5. Respiratory troubles	7482
6. Digestion problems	4743
7. Urinary troubles	887
8. Skin diseases	2192
9. Muscular and orthopaedic cases	1268
10. Pregnancy problems	530

Though the indices of infant mortality and under 5 mortality are not alarming, the overall health of the people based on the figures of indoor patients is disturbing. The drug and alcohol addictions, neglect of hygiene, cultural taboos and malnutrition are considered responsible for the inferior health status.

#### Drinking water

It is an irony that despite 350 km of rivers traversing the district, every summer potable drinking water becomes an acute problem. The geology and topography of Dangas conspire to drain out most of the rainwater quickly, rendering the tract dry. Over 200 villages, though located near the river, are dependent on the water collected in scattered pools in the river bed. The open-wells, though an also important sources of water supply, too go dry in summer. So much so, potable water is often supplied through tankers during the dry, hot months. Some 2,000 new wells, are coming up now for irrigated agriculture. Hopefully, this may largely ease the acute potable water problem.

#### EDUCATION

The first primary school in Dangas was established in 1905. Now primary education facility is available in all the villages. Enrollment of students in 1989-90 was as under:

	<u>MALES</u>	<u>FEMALES</u>
Primary	16235	13960
Secondary	1888	1257
Higher Secondary	358	279
Technical and College	228	70



There are 366 primary schools, 17 secondary schools, 4 higher secondary schools, 3 technical schools and one college in the district. Education is free and incentives for books, cloths etc. are provided. Yet literacy among male is only 33 per cent and among female 21 per cent. The present adult education programme is very intensive. The effort now is for 100 per cent literacy. The pace of progress in this area is encouraging. The enrolment for primary education is already above 95 per cent.

#### Employment

There were 2972 candidates registered with the local employment exchange office up to 1989-90, of which 2644 were for unskilled jobs.

#### COMMUNICATION

Of the 311 villages, 82 are linked directly by the public transport system and another 32 have public transport facility within 5 km. of their villages. Each village has a postal box. They are served by 55 post offices and 88 post messengers. Three important centres, Ahwa, Waghai and Saputara, are connected by telephone. Ahwa has also a microwave station. A.T.V. transmission station is located at Ahwa and relays national programmes. The police and Forest Departments have their own independent wireless network.

### PUBLIC DISTRIBUTION

There are 24,284 ration card holders who lift 1,500 tonnes of rice, 3,000 tonnes of wheat, 250 tonnes of sugar and 70 tonnes of oil from fair price shops annually. Most of the cereals produced in the district, except vari, are consumed locally. The present production of 20,500 tonnes of cereals, 6,000 tonnes of pulses and 4,500 tonnes of public distribution cereals if consumed by 30,000 families, amounts to a consumption level of 1 tonnes/family/annum or, say, about 500 grams of grains per day per capita. The average cost of consumption per family at local prices comes to Rs. 3 per head or Rs 15 per family. Assuming 70 per cent of the cost is for food, a family with Rs. 20 per day can have a secure livelihood. The average annual earning in the normal course need be around Rs 7000 per family.

### ELECTRIFICATION

Of the 311 villages 271 are electrified. There was no electricity prior to 1961 in any of these villages.

CO-OPERATIVE SECTOR

There are over 700 co-operatives with 42,000 members. The most important of these are the primary agricultural credit co-operative societies and the forest labour co-operative societies. The co-operative activities, however, have not gathered much strength here more because of insufficient appreciation of co-operative principles and the benefits the system brings.

MARKETING

On account of meagre surpluses of produce in the district, the marketing infrastructure is not well developed. The weekly bazaars near the villages are the main marketing outlets they have got. But all the same these bazaars are ideal places for buying and selling. Some care is taken to ensure that tribals are not exploited as far as the sale of agricultural commodity is concerned. The minor forest produce is collected by the State Forest Develoement Corporation headed by a board of directors including some members from the weaker sections. The prices offered to forest producer are comparable to those prevailing in the market.

The shopkeepers in the village is the other link in the barter trade, money lending and so on. Dependence on such institutions is slowly reducing because of rising market awareness.

### ANIMAL CARE

There are 16 veterinary centres with 17 professionals who take care of the health of the cattle population. The vets visit the villages regularly to provide whatever help is needed. Annually nearly 15,000 cattle are thus attended. However the care of these animals in respect of their food and nutrition as well as breed improvement remains ~~is~~ largely neglected.

A unit of the Government's poultry department works in the district. It provides hybrid birds to the poor to help improve their daily earning. The scheme, on cooperative lines, looks promising.

### BANKING, SAVINGS, CREDITS AND INSURANCE

There are 13 banks including R.R.B.S. covering the entire district. Their deposits in 1988 amounted to Rs.640 lakhs and loans Rs.250 lakhs. The loan facility is satisfactory. Roughly 4000 persons obtained agricultural loans alone totalling tune of Rs. 60 lakhs. Savings by the villagers are negligible. Salaried people like Govt employees and traders and institutions like the co-operatives mostly contribute to the savings collection.

The villagers do not go in for life insurance cover. A uniform grant of Rs.2,000 is provided to the poor on death due to accident under a statutory provision.

## TOURISM

A hill station, viz. Sapulara, with an elevation of 1000 m above m.s.l. is a small recreation spot. Middle class people from neighbouring districts normally visit the spot mostly during the fair season. It is fairly crowded during holidays also. In fact, Dangs has good potential to develop as a centre of tourism in its moist valleys of Purna and Ambika. The potential is yet to be assessed from the industry's angle.

## PUBLIC SPENDING

Most of the government spendings in the district are targeted at development of water resources, forests, education, health, rural development and social welfare. Planning of development programmes is well directed but implementation part needs more care and efficiency.

## ADMINISTRATION

Being a forest District, the Department of Forests has a good administrative network in the region. The District Collector coordinates development activities and a Development Officer of the same rank assists the local elected body known as "District Panchayat". The District Panchayat's role is important in matters touching on education, health, road, water supply, agricultural development, animal husbandry and welfare. The district body also takes care of the social, cultural and judicial aspects of the people. This body is substantially financed from the revenue derived from the forests. In fact the District Panchayat is the biggest voluntary organisation implementing the integrated development programmes through experts spared by the Government. There are quite a few other service departments functioning in the district.

There are a number of voluntary organisations in the district which are active in the field of education alone. At the village level there is the organisation called "Village Panchayat". If the village is small, a Group Panchayat is constituted for a cluster of such small villages. In all there are 70 village panchayats taking care of all the 311 villages. The village Panchayat which looks after small development affairs and welfare activities of the village is financed by the District Panchayat.

There are a few local-level agricultural credit co-operative societies also in the district but their potential is limited. By far the most important voluntary organisations are the forest labour co-operative societies. Some 29 F.L.C.S. with a total strength of 26,000 members harvest the forest coupes and, on 20 per cent profit basis, collect a substantial sum for themselves. This income should have helped change the economic scenario of Dangs. This did not happen because the movement was not guided well enough by a strong and fair leadership.

The District Panchayat, Village Panchayats and the co-operative bodies in Dangs are mostly politicised. Any democratic set up with vigilant members of various political groups should help faster development, but it normally does not happen. In the pulls and pressures of the crude political process, erosion of traditional leadership occurs inevitably. Sometimes the traditional leadership also yields place to young pressure groups who consider the old system out-dated. It is, however, the traditional leaders who often come to the fore when co-ordinated participation in a development programme is the main issue.

Voluntary organisations in tribal areas need adequate financial, legal and administrative support. They also require a mechanism to resolve the internal conflicts as well as to strengthen the bonds among its members.

DISCUSSIONS

We have seen how Dang's tribal communities over a period of two centuries have been exposed to the processes of development. World has changed much for many people but the long decades have stood more or less static in the forest tract. Here the development process betrays two extremes, all at once. We see a child with sunken eyes, or a woman in tattered clothes watching an enthralling demonstration of beauty care, or colourful display of items needed for balanced diet on T.V. set gifted to the village by the Government. The incongruity of the situation cannot be overlooked by anybody, but the consolation is that even deprived people may get to know the gap and they could fight for a better deal.

We have also seen that the tribal communities in Dangs, are stratified and yet they make a homogeneous group. Their symbiosis with forests has worked for a long time. But this intimate and deep relationship is often lost sight of by economists and bureaucrats in their dealings with forests and forest-dependent communities. There is, for example, obvious conflict in the approach of social scientists and that of forest managers. The former wants the bureaucracy to be dispensed with to allow people free access to forest land and trees; the bureaucrats on the other hand consider imposing more and more controls for effective forest conservation. Neither approach is totally correct or desirable.

It is generally acknowledged that the pace of development has been slow in the tribal tract. This is not because the area has been ignored. The feeling of neglect is actually the result of confusion and ignorance among the tribal people, their resistance to change and the pervasive sense of insecurity in facing upto new and strange ideas. This state of mind makes simple tribal people gullible to vested interests that oppose development. These anti-development forces often take decisions for and on behalf of the common people; but the outcome of their activities will have to be faced by the people, not by the anti-development forces. People become pawns in their game. It may be hoped that the situation will change with proper appreciation of the role of livelihood support systems by the beneficiary people.



## DEVELOPMENT

We have seen vast improvement in the services and infrastructure of the district in the last few decades. It is gratifying to note how the once dormant hamlet has been woken up and brought into the main stream of development. To make full use of these improvements, an awareness campaign has been initiated through village meetings, exhibitions, camps and extension work. The agricultural extension takes the pride of place in this campaign and arrangements are made to distribute highyielding seeds, fertilisers, insecticides and horticulture. It is hoped that this process of development with special thrusts on improving the overall quality of tribal life, might lead to a society, equitably and not vulnerable to exploitation. To make this happen participatory development with the poorest among the poor taking active part in the process -must become a reality.

There is no doubt that Dangs can provide better quality of life to its tribal inhabitants. There are ample natural resources and there exist some employment opportunities also. What requires to be done is to improve the skill of the people.

Brandt Land Commission (1987) had put forth a concept of sustainable livelihood security. Livelihood is defined as adequate flow of food and cash to meet basic needs. Security refers to secure ownership of, or access to resources and income earning activities, including resources and assets to offset risk, ease shock and meet contingencies. Sustainable refers to maintenance or enhancement of resource productivity on a long-term basis.

In the light of these definitions we may examine the present livelihood status in Dang. Various resources, both individual and community, which contribute to livelihood are estimated as under:

	To self employed in agriculture per family.	To marginal family
1. Income from agricultural sources	Rs. 3000	Rs. 1000
2. Wages from forestry and allied works (for 120 days)	Rs. 2000	Rs. 3000
3. Collection of M.F.P.	Rs. 500	Rs. 500
4. Food gathering, hunting, fishing	Rs. 500	Rs. 1000
	Rs. 6000	Rs. 5500

It is apparent, there is great dependence on forestry in either case. There is also equity in the distribution of benefits from community resources to farmers and labourers. If the community resources are strengthened not only the flow of income will improve but more people can be sustained in the long term.

The economic indicators in terms of resources, human capital and opportunities in Dang district are summarised below. The resources include personal assets, in the form of land, house, animals, birds, trees, etc. and community assets include rivers, forests, ponds and wastelands.

The aggregate support a family in Dang gets from these assets is conservatively estimated as under:

No. of households: 30,000

Assets per household

Community land	Trees available	Bullocks	Cows	Goats	Poultry	Private holding	Housing
3 Ha.	Tendu	5	1	1	1	6	3 Ha
	Kadaya	3					Secured
	Asitra	1					
	Mahuwa	1					
	Amla	5					
	Belida	1					

Average support value per family

Private Holding

Average support value: —

		Bullocks	Cows	Goats	Poultry	
Wages Rs. 3000	M.F.P. colle-	Rs. 1000	Rs. 500	Rs. 200	Rs. 100	Farmers: Rs. 3000
	cion Rs. 700					Workers: Rs. 1000

### HUMAN CAPITAL

The percentage of literacy in Dang (M: 33%, F: 21%) is higher than the average among the tribals in the State. The drop out rate in higher education is very high. Majority of children restrict themselves to primary education. There are however, tribal youths who have obtained graduate and post-graduate degrees.

The older generation in Dang is more or less engaged in the activities of the forest labour coop. societies, in which they have become quite experienced. The youths, however, are learning towards new avenues opening before them. The new system of imparting technical education in masonry, carpentry, smithy, etc. especially has raised the self-confidence of rural youths even if job opportunities are not increasing correspondingly. Normally people avoid looking for employment outside Dang. This preference for local jobs is aggravating the employment situation in the district.

The womenfolk take care of household chores and farm work. They are not organised and there are no VAs taking care of their problems.

#### OPPORTUNITIES

An assessment of assets and human capital suggests that (1) the cattle owned by the people of Dang are mostly inferior. No milk is produced. The earning from sale of animals (bullocks) provide about Rs. 1000 annually to a household; (2) the (poultry) birds per household provide security for no more than Rs. 100 a year; (3) the growing of vegetables in the kitchen garden yields roughly another Rs. 200; (4) wages from agriculture and forestry add up to an average of Rs. 4000 per household; (5) the NIEP provide an average of Rs. 1000 per annum if fully tapped, and (6) the earnings can be increased by improving agriculture and community assets. The wage days and amount of wages can increase

with increased paying capacity of farmers and the yield potential of resources. But the opportunities are not distributed evenly both in place and time. The deviation may be plus or minus 50 per cent. The earning per family of five may vary between the Rs. 3000 and Rs. 8000 per annum with small security or no security at all.

There are a few major aspects on which the discussion needs to be focussed. These are:

1. Community assets - Role modification
2. Agricultural land - Increase in productivity
3. Optimal use of skill in the sustainable exploitation of available resources
4. Increase in earnings from poultry farming, dairying and animal husbandry and pisciculture.

#### 1. COMMUNITY ASSETS (FORESTRY) - ROLE MODIFICATION

The important change that is necessary is to increase production of N.T.F.P. The forests need not be looked upon as a source of mere wood, but several forest products as well. From the present level of 15 M.F.P. trees and 700 total trees, an earnest attempt is necessary to manipulate the vegetation to provide 300 NTFP- yielding trees. This will help enhance the income from the present Rs. 1000/- to Rs. 15,000/- per family after 10 years. This will take care of the population increment for the next 50 years (upto 0.34 M people). Efforts should be made to prepare a belt of M.F.P. yielding trees around all the villages.

Growing 10 million NTFP yielding trees may need 20,000 ha of land but that can be made available from the protected forest area, now under the charge of the department. Introduction of multistorey plants of utility - herbs and shrubs - may provide returns immediately.

#### INCREASING THE PRODUCTIVITY OF AGRICULTURE

A massive soil conservation programme coupled with support irrigation and adoption of improved agricultural practices may help increase productivity of crop lands. Small underground water resources dry up in summer and create a difficult situation. Artificial storage may help overcome the problem, particularly, with drip irrigation system. Agriculture in Dangs is forest-based - roughly 250,000 tons of slash is used annually. Nowhere does such dependence on forests exist in static cultivation practice.

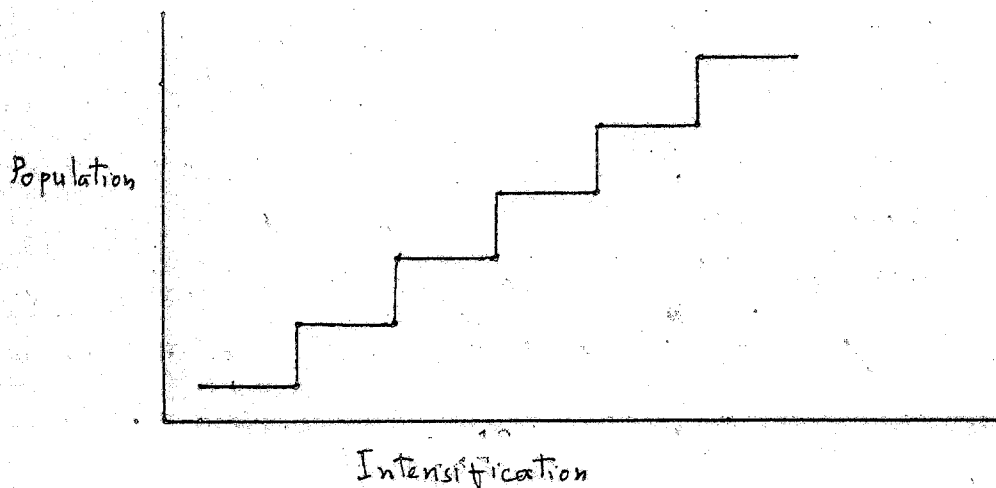
#### OPTIMAL USE OF SKILL

Labour is the only asset with the poor. Better the skill, better will be his or her earning capacity. The common people of Dangs are largely employed in unskilled work like manual logging and conversion. There is not much skill in the collection of N.T.F.P. either. Preparation of bamboo articles is very common. The work demands speed, accuracy and higher production. The present production level can be raised through training.

INCREASING THE EARNINGS FROM POULTRY, CATTLE ETC.

The poor eke out their living by various means. Otherwise often they will have to starve. But they have only small assets, often no tangible assets at all. Small assets, however, will need continual support, with ever higher productivity and shorter waiting period. The present practice of poultry farming, animal husbandry and fish farming requires some attention so that, their productivity will increase giving higher economic support. Vegetable cultivation, mixed cropping, horticulture etc. also can help in generating some extra income and employment.

We have seen that the fragile forest tracts in Dang~~gs~~ cannot support a much larger population than the present one. We have also seen that the people of Dang~~gs~~ are economically and socially under developed. The new services and infrastructure may take care of some of these problems. Yet serious efforts have to be made in meeting the projected needs and for developing the needed level of opportunities for the population a century or two ahead. What is indicated is more of a step up development economy approach.



One important change that is taking place in the field of common property resources is the localising of the usufructs so that local economy improves simultaneously with sustainable use of resources. Management of forests linked with the broader concept of national development, had so far neglected local interests and consequently forests became the casualty.

It is, therefore, necessary to optimise sustainable use of local resources. There can be varied approaches to achieve such a difficult goal. The modern concept of agro-eco practices may be one, but it may not suit the socio cultural style of the Dangs people. They may not also help conserve resources in a sustainable way. The other alternative which is more appropriate for Dangs is manipulation of those flora which have been helping the local economy through selection and improvement. The selection may be restricted to N.T.F.P. trees and plants. Identification of such species in the form of annuals, shrubs, and woody trees, and developing their capacity for higher yields preferably in different seasons can help in stimulating the local economy. This is the process that is easy to develop and consolidate. But a reorientation in the present forestry practices may become necessary.



In the absence of any well directed, action-based programme, the so-called <sup>Soc. Log. 4 -</sup> ~~environment~~ activists, in the name of human rights, speak about clearance of forests for cultivation. The constant conflict often degenerates into grave law and order problem. Such a group of activists worked in the forests of Dangs. It was difficult to convince them of our point of view; so we took the problem to the people who fortunately understood the large economic contribution forests make in their day-to-day life and the problem was sorted out.

We have seen manipulation of the tree population quantitatively and qualitatively as one of the important options available for improving the quality of life of tribal people. This is done through selection of appropriate species. There are quite a few locally preferred varieties available. Unfortunately these have not been given much thought yet. Recently an effort in developing appropriate models of afforestation has been made; several options are likely to emerge. It is easy to select suitable plant species from the wide varieties available in the tract.

The local voluntary organisations can play a vital role in the whole process. They may need some ~~by~~ reorientation, strengthening and even education to carry out the difficult task. The people who are the beneficiary, should also be mobilised and be made aware of the rules governing the drive on their own road to prosperity.

In the matter of equity, social justice and human rights, the social scientists may be right on some of the issues, like mono-culture plantations, timber monopolies, contract system, captive plantations, industries, and big irrigation projects and so on. Their agitations too may benefit a few temporarily. But this is not the correct path to improve the lot of the deprived mass. The application of socialist principles which originated during the industrial revolution of the 18th century in Europe will not suit innocent people living in fragile bioresources tracts. It is not an issue of individual labourer vs industrialist. It is more a case of poor tribals wanting to make a living out of the traditional resources. The solution to problems of human rights, social justice and equity, therefore, rests in the effective development of bioresources; not in ill-conceived agitations.

#### PRIORITIES IN PLANNING AND ACTION

The foregoing discussion shows that priorities in planning are many and there may be need to proceed simultaneously. That means taking up conservation of soil and water, animal husbandry development, development of fodder, agriculture, horticulture, fishery, cooperation and social engineering, social forestry and agro-forestry - all together. One of the important instruments of security rests in improving the socio-economical role of the forests.

The discussion above also shows that insights into developmental issues cannot be expected not only from bureaucrats but also from the common people who may have to organise, strengthen and shoulder the responsibility of enriching the bio resources on which their life depends totally. The common people of Dangs may have to rise, organise and strengthen for their own benefit.

LIST OF SPECIES OF SOCIO ECONOMIC IMPORTANCE, "DANGS" (GUJARAT)

Sr.No.	Name of spp.	Size
1.	<i>Madhuca latifolia</i>	Tree
2.	<i>Diospyros malanoxylon</i>	Tree
3.	<i>Embllica officinalis</i>	Tree
4.	<i>Terminalia bellerica</i>	Tree
5.	<i>Terminalia chebula</i>	Tree
6.	<i>Bridelia retusa</i>	Tree
7.	<i>Stercullea urens</i>	Tree
8.	<i>Boswellia serrata</i>	Tree
9.	<i>Aegle marmelose</i>	Tree
10.	<i>Pongamea pinnata</i>	Tree
11.	<i>Semecarpus aracardium</i>	Tree
12.	<i>Schilechera oleosa</i>	Tree
13.	<i>Zizyphus xylocarpus</i>	Bush
14.	<i>Wrightea tinctoria</i>	Bush
15.	<i>Holorrhena antidycentrica</i>	Bush
16.	<i>Jatropha quercus</i>	Bush
17.	<i>Ficus glomerata</i>	Bush
18.	<i>Carissa carandas</i>	Shrubs
19.	<i>Carvia callosa</i>	Shrubs
20.	<i>Caesalpinia</i>	Climber
21.	<i>Vanilago madraspatana</i>	Climber
22.	<i>Dioscorea pentaphylla</i>	Climber
23.	<i>Abrus precatorius</i>	Climber
24.	<i>Dendrocalamus strictus</i>	Grass
25.	<i>Cymbopogon martinij</i>	Grass

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