Unit 27
Dam and Displacement

Contents

Learning Objectives

This unit will enable you to learn and critically evaluate more on:

● The history of water management and the role of State and community in water management in general and in Indian context as well;

● Issues of dam and displacement including human, ecological, economic, political and cultural aspects;

● Indian experience with dams;

● Arguments for and against the construction of large dams; and

● Alternatives to the construction of large dams as a form of water management.

27.1 Introduction

One of the most discussed and debated issues in the last century has been the human and ecological cost of constructing large dams in the country. Large dams have singularly displaced millions of people from their habitats and submerged large tracts of forests. The question that has been regularly raised in the context of dams is whether the benefits of dams outdo the losses. Is the construction of dams worth millions of people losing their homes? Can we afford to lose large tracts of rich natural vegetation, which is not only a sanctuary for a variety of life forms, but also the lifeline of the people dependent on it? Although the debate has concentrated around certain movements that have campaigned against the construction of large dams such as the Narmada Movement in India, it has caught the attention of not only the Indian people but also the international environmental circles. These movements have brought to light the politics of development, that is, the reasons as to why such development is undertaken despite resistance and its obvious catastrophic consequences. They have served as sites for raising larger critical issues of economic growth, social justice and ecological restoration.

This unit will try to address some of these key issues on dam and displacement, enumerating the various interrelated dimensions of the issues of human, ecological, economic, political as well as cultural. The first section of the unit would explore and present a short history of dams and the reasoning that accompanied its popularity in the 19th and the 20th century, both in India and the world. The second section specifically focuses on the Indian experience with dams, and would present the debate in India in favour and against dams. The third section would elaborate upon the term 'displacement', of both persons and values, and thereby develop on some of the larger substantive

issues relating to modern development and progress, and ecological restoration. The last section would present examples of some of the alternatives to large dams as a form of water management. The conclusion would recapitulate the key issues that have emerged in the course of the discussion on dams and displacement.

27.2 Dams and Development: Background

Water, as the saying goes, is life itself. Human civilisation has grown on the banks of rivers. Dams are as old as human civilisation and have been considered as one of the oldest techniques of storing and channelling water. Patrick McCully (1998) presents a succinct history of dams. According to him, the earliest dam in the world was built in Jawa town, presently in Jordan, around 3000 BC. It was a system of ten reservoirs made of rock and earth that collected the water from a fall, which was channelled through a canal. The largest dam was more than 4 metres high. Egypt's 'Dam of the Pagan' across a seasonal stream near Cairo was known to be 14 metres high and 113 metres long, but was washed away after a decade of its construction. Spain is home to a surviving Roman dam, built in the late first millennium B.C. A number of dams were built during this period all over the world, in the Middle East, China, and Central America and around the Mediterranean. The King of Sri Lanka, Parakrama Babu, also known for his despotic rule, built a 14 kilometres long dam. No other dam in the region could equal its volume. The king was supposed to have restored and built more than 4000 dams. McCully (1998) quotes the famous anthropologist, Edward Leach, on the large dams in Sri Lanka, stating that these dams 'are monuments and not utilitarian structures' (Ibid: 15). The Sri Lankan villagers depended more on artificial ponds called 'tanks' than on dams for irrigation.

In fact, this is true for most of south Asia. Irrigation in India was largely dependent on traditional hydraulic infrastructure built and maintained locally, which included wells, ditches and tanks. Given the local caste-based social set up, it was difficult for the state to intervene in local customs. Nonetheless, the state did provide tax subsidies to promote water conservation. For example, in Gujarat, local officials had the authority to revise taxes and grant tax concessions. There were instances when tax on crops grown through irrigation from a recently constructed well was reduced till the cost of constructing the well was recovered (Hardiman 1998: 1537). Both the Mughals and the Marathas assessed tax on the basis of the ecological conditions of the region and climatic fluctuations. Local traditional elites were obliged by custom to regularly invest in public resources such as water. They were expected to build tanks, repair wells, etc. from time to time. China unlike India relied on an integrated hydraulic system for irrigation. Village level farming in north China depended on the local level drainage, which in turn was connected to the regional networks of dikes, levees and master canals. This system was closely interlinked to the massive central public works project. Flood control, canal management and local irrigation formed an integrated whole and the collapse of one could lead to the collapse of the entire system. Local irrigation was therefore state sponsored, with many of the wells and ditches built under the supervision of state officials.

Clearly, the role of the state, however minimal (as in the case of India), was crucial in establishing and maintaining a hydraulic system. Water was an important resource and its management was not left to chance and a good monsoon alone. Colonialism however played havoc with the local system of water management. Colonialism brought with it a stringent system of revenue assessment, which was unsympathetic to local social and political dynamics and to climatic fluctuations. Likewise, the priorities of the colonial government were markedly different from the previous rulers. In India, expenditure on public works took a backseat with the British trying to consolidate its position after the bloody 1857 mutiny. The post mutiny period was characterised by

greater investiture in military installations and the railways. Of the expenditure that was set aside for irrigation, 90% was spent on major irrigation projects based in Punjab. The British were keen on encouraging commercial crops such as cotton, opium, sugar cane and wheat. This interest in commercial agriculture was at the expense of subsistence-based agriculture and the small farmers managed irrigation systems of wells, tanks, small channels and dams.

Unlike the Mughals, the British did not subsidise construction of wells and tanks. Moreover heavy land tax did not leave any surplus to invest in irrigation systems. The new revenue system of the British granted water rights with land titles, thereby legally legitimising private appropriation of water resources. Those without water resources in their lands faced regular water shortage, especially during poor monsoons. Privatisation of water and land cut into the local system of maintaining irrigation systems. The situation in China was worse with the state withdrawing its role in the maintenance of the centralised hydraulic system. The area under irrigation decreased drastically, to the extent that only 6.8% of cultivated acreage in north China was irrigated in 1932 (The Corner House 2002). Between 1876-79, Asia (India, China, Java, Philippines and Korea), South Africa, Brazil, Algeria and Morocco reported recurrent drought and famine conditions. Never in the history of the world had famine and drought been registered simultaneously in so many nations. Millions died due to malnutrition and hunger. Evidently, "Climate risk...is not given by nature but...by 'negotiated settlement' since each society has institutional, social and technical means for coping with risk...Famines [thus] are social crises that represent the failures of particular economic and political systems" (Watt cf The Corner House 2002: 19; emphasis added). The occurrence of famines across Asia, Africa and South America at the same time is not only proof of the effects of colonialism in that it created chronic conditions of poverty, hunger and ill-health, but also announced the break down of local institution systems that usually rescued people from situations of crises.

Dams and in particular large dams gained in popularity in the 19th and the 20th century. Dams perform two important functions that make them supposedly 'indispensable' in the modern world. One, they store river or surface water to overcome the inconsistencies in the demand for water and its availability. Two, the differential height between the water collected in the dam in the upstream and the river downstream create hydropower and generate electricity. The dam thus not only provides electricity to industrial units and households but also supplies water for agriculture, industries and mass consumption. Rivers were the untapped resource for harnessing energy. Around 200 dams were built in Britain in the 19th century to provide water to its expanding cities. The dams built around the 1900s were earthen embankments and were built on a trial and error basis. Many of the dams built during this time in the world collapsed. The collapse of Johnstown Pennsylvania dam in 1889, St. Francis Dam of Los Angeles in the 1900s, and the water supply dam of Yorkshire in 1864 killed thousands of people and destroyed entire townships.

Large dams unlike local irrigation systems are huge structures, and are an outcome of centralised planning. That is why almost all large dams are state ventures, involving large investments and resources, both human and material. They are an integral part of the larger agenda to harness water resources for economic growth and development. The fascination with dams in the United States can be traced to the quest to irrigate the semi-arid regions in the west. In 1902, the famous National Reclamation or 'Newlands' Act was passed to reclaim land in the Western United States. Irrigation projects were seen as a way to turn arid lands into fertile plains, which would attract the landless from the east to migrate and settle in the west. The west however saw the rise of large landlords who benefited from the patronage of the state subsidies. The biggest disaster known in the history of the US is the collapse of the Hoover dam in 1931, though the latter did not dissuade the faith in large dams in solving the problem of water and power.

The former United Soviet Union (USSR) was no exception in this regard. Motivated by the conviction to build a strong socialist nation, dams were viewed as important structures of centralised resource mobilisation. As in the United States, it was a grand state project staffed by numerous engineers, officials, junior staff and workers. Damming of rivers claimed vast stretches of fertile land, marine life as well as the occupation of hundreds of fishermen (McCully 1996). Following the revolution, dam building was an integral part of Mao Zedong's project of 'Great Leap Forward'. Large dams to hold floodwater put the traditional system of containing floodwater through levees and canals redundant. Hydrologists were sceptical of the enthusiasm shown by the economic planners and their cynicism was not ill judged. Thousands of dams burst and created conditions of chaos and led to one of the worst known famines in the world. China has embarked on a new venture of constructing the Three Gorges Dam in 1996. Seismologists have drawn attention to the disastrous seismic consequences of building the dam in the region.

India too has had its share of involvement with dams. Jawaharlal Nehru's words are quoted ever too often in praise of the Bhakra Nangal Dam, claiming big dams to be 'modern day temples'. But Nehru too overcame his fascination for big dams subsequently, as is evident in the following statement, "I have been beginning to think that we are suffering from what we call we may call disease of giganticisms" (Ibid: 23). In newly independent India, big dams, power centres, factories and industrial units came to symbolise the magnanimous presence of the state and its will to build a prosperous and a modern India. Dams were the official solution to generating water resources for industries, irrigation and harnessing energy. The focus was on increasing agricultural production and generating hydropower to fuel industrial production. Interestingly, despite the crores of rupees spent on building large dams, most of India survives by exploiting ground water. Surface water or rivers cater to less than 10% of the water requirements in the country. The next section analyses the impact of dams on development in India, whether large dams facilitate development and, if they do, at what cost (human and ecological), and finally, whether this development was uniform or uneven across classes, castes and regions.

Reflection and Action 27.1

Write a sociological note on the background of dams and their impacts on irrigation and agriculture.

27.3 Arguments Against Large Dams

There are various debates on the impact of dams on economy, society, ecology and environment. These debates have brought forth arguments both in favour and against the construction of large dams. Let us examine some of these arguments.

a) Resistance and Displacement

Large dams have evoked more resistance than approval. The construction of Hirakud was marked by thirty thousand people, comprising of local politicians, bureaucrats and the people who were going to get evicted from the dam site taking to the street, in 1946. Hirakud was in this sense a forerunner of protests against dams in other parts of the country. Even while these protests focused on specific projects, the arguments raised for and especially against dams have been common. In the newly created tribal state of Jharkhand, there have been thirteen large irrigation projects, hundred and eight medium irrigation projects and six thousand eight hundred and twenty small water projects till date. Most of these projects have failed. Some are incomplete and have been

abandoned. Most of these projects have been notorious for high levels of corruption and red tape. Large dam projects, notably the Subarnarekha Project and the Koel-Karo Project, faced tremendous resistance from the local tribal population.

The Koel-Karo Project was commissioned despite the fact that it would have destroyed 200 tribal villages and submerged 45,000 hectares of arable land. The Subernarekha Project has been the site of police atrocities and the high level of illegal transactions of funds within the project has been common knowledge. JOHAR, a Human Rights Organisation in Jharkhand, has some very appalling findings on the state initiated nine minor irrigation projects within 1960-90 in West Singhbhum district of Jharkhand. The entire capital outlay of these projects was 14 crores. The government had claimed that 47,764 acres of land would gain through the irrigation facility of these projects on their completion. According to JOHAR's research, the nine projects 'do not exist' and there is no accounting for the public money spent on these projects. Till 1997, 22.5 lakh acres of land had been procured from the local tribal population in the name of minor and major irrigation projects. Lakhs have been displaced from their land and have turned towards wage labour in mines and factories in the surrounding areas for employment.

The campaign that drew attention of the world to the politics of large dam construction and its harmful impact on the environment is the Narmada *Bachao Andolan* or the movement to save the river Narmada. Narmada runs through the three States of India, i.e., Madhya Pradesh, Maharashtra and Gujarat. Worshipped as a holy river, Narmada is the lifeline of thousands of villages and her importance is illustrated in the folk traditions of the region. In 1985, the World Bank approved $450 million Sardar Sarover Multi-Purpose Dam Project on the Narmada. According to World Bank estimates, the project was to generate 1300 million cubic-metres per year of water for civic and industrial purposes, an installed capacity of 1450 MW of electricity and provide irrigation to 1.9 million hectares of land. The project was to submerge 13,744 hectares of forestland, 11,318 hectares of fertile agricultural land, and displace over 100,000 people, mostly persons and families belonging to the category of scheduled tribes and the rural poor. The sheer magnitude and size of the project raised concern among concerned citizens and specialists. The planners according to the Narmada *Bachao* Movement had not critically and realistically assessed the ecological, human and financial consequences of undertaking this project. Let us explore the three main areas identified by the movement as arguments against large dams.

b) Ecological Consequences

The most apparent ecological effect of large dams is the permanent destruction of vast expanse of forests, wetlands, and wild life. The dam would submerge vast tracts of rich forest cover. But the lesser-known consequences are equally disturbing. The forests are routes of migration of many animals, the wetland attract various migratory birds, while the river is a channel for migratory fishes. The destruction of the routes of migration of animals, birds and fishes not only affect the ecosystem, but also affect the lives of the local population. Fish forms an integral part of the staple diet of local populations; embankment blocks their movement downstream as well as intercept the cycle of breeding among them. In places like Jharkhand and Chattisgarh, the cutting down of forests has forced the wild animals to wander into villages in search of food, often attacking and killing the locals. Dams convert rivers into reservoirs, which has environmental implications on its entire drainage area - upstream, downstream and the command area of the reservoir. Embankment restricts the river water to flow downstream. The upstream in the process collects the sediment, which increases the water level and can cause floods in the area drowning people and property. The river downstream, denied of its regular quota of water and sediment is, according to McCully (1998), 'hungry' and eats

away the plains along its course. The plains are also denied of the rich alluvial content of the river, which affects the fertility, quality and the productivity of the soil. The river downstream also experiences sudden fluctuations, with water being thrown out periodically from the command area to reduce the pressure of water. Often this may destroy vegetation along its way as well as settlements that take over the land vacated by the river after the construction of the dam. The reservoir by holding large quantity of water encourages high rate of water evaporation. This leads to the increase in the salinity of water, which can have a long-term effect on the quality of water.

c)   Human Consequences

One of the most obvious and visible unwarranted outcomes of dam projects is the displacement of people from their habitat. This means that not only are persons living in and around dam sites asked to vacate their homes and settle in other places, but also that they are expected to give up their land, their homes that they have nurtured all their lives and surroundings they have been familiar with so that the dam could be built for the anonymous beneficiaries. It is difficult for the ousted to comprehend the benefits of dams, as to how it can possibly bring prosperity and well-being. Large numbers migrate to the already overcrowded and overburdened towns and cities in search of work and live in dismal urban conditions. Many subsist by working at the dam site. They labour under severe work conditions. The construction site is especially susceptible to infectious diseases such as malaria, tuberculosis, and influenza. Once the work at the dam is over, very often the locals have to be physically forced to leave the site. In the late 1950s, when Mexico's Maztec Indians refused to vacate their homes from the site of the Miguel Aleman Dam, their houses were set on fire and the army was called in to quell the unrest. Similarly, in erstwhile USSR, the displaced population were often forced to take part in bringing down their homes, churches, and orchards and disinter the coffins of their dead relatives (McCully 1998).

Besides the number of people that dam projects displace, it is noteworthy that majority of the persons who are displaced belong to the category of tribes or constitute the rural poor, with marginal or no land. A document brought out by the Ministry of Rural Development of India Government, in 1996, suggests that over one crore sixty lakh persons have been displaced due to mining, dams and canals, industries, sanctuaries and national parks. Of these, about thirty-nine lakh have been rehabilitated. According to Scheduled Tribe and Scheduled Caste Commission report (1990), almost forty percent of the displaced population belongs to the scheduled tribe category. The Sardar Sarovar Dam project in Gujarat, Koel-Karo Dam project, Subernarekha and the Kuju Dam project in Jharkhand, Balimela project and the Machkunda Dam in Orissa are some of the better-known instances where tribal rights to land and forests have been disregarded to fulfil the larger interests of the State and the general population.

d)   Financial Consequences

Dams have entailed huge financial investments, which to its critics are most uneconomical investments by far. The Sardar Sarovar Dam's total final cost as per official estimates (1987-88) is Rs. 11,154/- crores and this estimate does not include other expenses and recurring costs to be incurred on account of treatment of catchment area, delays caused in completing the project, compensatory afforestation among many others over the eight years within which the project has to be completed. Even this 'modest' estimate was more than the centre and state's Plan expenditure in the entire seventh five-year plan period. As per the Government of India, Department of Environment and Forest note to the Prime Minister, the total environmental loss due to the project was a colossal 40,000 crores (Alvares and Billorey 1988: 46-7). Almost all large dam projects the world over has been financed by the World Bank at a heavy interest rate of 10.75% per annum. The Bank agreed to extend a maximum

loan of Rs. 700 crores. The rest of the finances were being sought from Japan; ONGC agreed to extend a loan of Rs 200 crores at the interest rate of 14.5% per annum. The Gujarat government even issued tax-free bonds to raise the required money and managed to raise about a paltry sum from the public (Amte, Baba 1990). The key question is as to how will the Gujarat Government raise this money and how does it propose to pay up the interests on the loans. What about it's other development commitments as well as social welfare responsibilities of providing health care, education and employment?

Reflection and Action 27.2

You must have read a lot on the issues of dams and their impacts in the newspaper and other sources. Based on your reading write a note on the impacts of large dams on the economic, social and ecological aspects of the society?

27.4 Arguments For Large Dams

The exposition so far has presented only the arguments against large dams. There has been however a strong support for large dams in India. There are specialists such as economists, engineers, development planners and agronomists who have defended the construction of large dams. The defenders of large dams have tried to answer the doubts about the efficacy of large dams and have been unconvinced by the hue and cry raised by environmentalists and social activists about the destructive potential of large dams. Large dams have been supported on the grounds that they are the best among the existing options in dealing with the crisis in irrigation, drinking water and power. With nuclear energy being questioned for its safety with regard to radiation and thermal energy for using non-renewable resources, the only viable source of renewable energy is water resources. Hydel power is the cheapest, cleanest and a renewable resource. The lack of appropriate technology in the field of solar energy has left no other option but to tap hydel power. If this option is also opposed, the proponents argue, there is no other viable choice left for meeting the energy requirements of the country.

The 1960s in India was characterised by a critical food shortage and the government singularly focused on increasing food production. That is when a concerted effort was made to introduce methods of increasing production. It is argued that the self-sufficiency achieved by the Indian government in the production of food grain is primarily due to its focus on improving irrigation facilities, increasing the area under cultivation and its output by the use of improved fertilisers and seeds. Without the introduction of modern techniques, which have been criticised by environmentalists for its debilitating and poisonous effect on the soil and on the health of the general population, this feat would not have been possible. Thus the first criticism presented by the defenders of large dams is that the latter is necessitated by the sheer scale and requirement of irrigation and power in the country. The Agricultural Division of World Bank, listed a number of arguments in support of large dams. The arguments summarise the views of a number of development planners and engineers in support of large dams. An excerpt of their defence is presented below. The context was their defence on the Sardar Sarovar Dam.

While small dams have a role and are, indeed, a significant part of the overall development proposals for the Narmada Basin, they do not, and cannot approach the scale of the benefits of the larger dams. First they are not as low cost as is often claimed: a study of small "tanks" (as they are called) in India by an International Research Institution found most of them to be uneconomic (partly because of the amount of the land they inundate relative to the water stored). Second, while a few good small dam remains that could be developed at modest cost, the cost escalates greatly as in the search for

the large numbers of small dams needed for storing significant volumes of water, one is compelled to tackle increasingly less suitable sites. Third, they fail to fill in the very year, the dry year, when they are needed the most. It was only the large dams that performed adequately for Gujarat in the last drought. Fourth, they inundate relatively massive areas of land; in the lower parts of basins this tends to be very fertile agricultural land, in the upper parts forest. Typically small "tanks" of around 40 to 100 ha size inundate almost as much land as they irrigate, around 0.9 of a hectare for every 1.0 hectare (usually irrigating one crop only, whereas large dams irrigate much more than one, apart from also providing power). Sardar Sarovar will inundate only about 1.6% of the area irrigated. Thus even if it were technically possible to find enough small dam sites to store the same amount of water, the land lost to inundation could well be over 1 million hectares as opposed to about 37,000 ha for the Sardar Sarovar Reservoir.

An important issue raised by the defenders of large dams is the over-exploitation of ground water for irrigation purposes. The small dams have according to them proved to be poor substitutes, as people still continue to rely on ground water for their most essential and regular requirements. With regards to the detrimental consequences of large dams, the proponents of large dams admit that large dams do submerge large tracts of forests, but also draw attention to the fact that the loss of forest in the Narmada Basin has been at the rate of about 20,000 ha per annum without the large dam in place or any other mega development project. This is a significant observation not only about the state of forest management in the country as a whole, wherein forest products are being extracted indiscriminately by encroachers and commercial interests, but also the increasing pressure on forests to fulfil subsistence needs of the people. This brings out the levels of corruption, malpractice and inefficiency that exist in India, with or without large dams. Development initiatives thereby get a bad name, as the discrepancy in the implementation process is passed on to the plan itself. Also, they are of the opinion that planting trees in the irrigation area, which can also supply 'far greater' supply of wood, can easily make up the loss. The regular supply of water from the large dams can improve general health conditions of the people, while the chances of getting water-borne diseases from the dam site can be controlled through appropriate preventive measures.

A fact that is borne out by both sides is that the costs of large dams, or for that matter any development project, escalate with time. Indian development has been plagued by a delay in completing development projects, which not only increases expenditure, but also intensifies the misery of people affected by the project who are left in an indeterminate state, neither in a state that they had lived with and adjusted to thus far (however miserable), nor settled in the "promised land", where they were to be provided with a 'better' life. As is evident, the debate is inconclusive. However, the debate has managed to arouse public interest in matters of development and increased transparency in the planning process. Hopefully, the debate will push for greater participation and involvement of concerned citizens as well as the affected persons of large development projects in directing the course of economic and social development in the country.

27.5 Dams and Displacement: Persons and Values

The government of India has tried to rescue the situation by its rehabilitation package, although there was no national level policy for resettlement and rehabilitation till 2004. In February 2004 the central government promulgated the National Rehabilitation Policy for the Project Displaced Persons. Even before that certain states such as Karnataka, Maharashtra, Punjab and Madhya Pradesh have evolved state-level policies on resettlement and rehabilitation. Most rehabilitation efforts have been to provide alternative land titles to the evictees or compensate them in cash. As for the monetary compensation, the evictees

are forced to go through the arduous bureaucratic procedures to procure what is rightfully their due. The land in the case of the Sardar Sarovar Project had been assessed according to old land records, which under-price its present value. Often, the land provided by the government has been of poor quality. The evictees are required to produce land deeds, which many don't possess. Compensation through cash has also not been an appropriate form of compensation, as it has been observed that the beneficiaries often spend the money on short-term requirements and are left without money and are homeless in a matter of a few months of rehabilitation.

In cases of rehabilitation through alternative land titles, the problem faced by the government has been of locating land to settle the displaced. Large parts of forest of other areas have been cut down to distribute land to the displaced, as is evident in Nandurbar district of Maharashtra. The rehabilitated population in Nandurbar have still not received formal, registered copies of the land they have been settled on. The forests have been encroached upon by the rehabilitated population, much to the resentment of the local tribes who derive large part of their sustenance from the forests. There is a direct relation between environment destruction and the impoverishment of the evictees. For one, both are victims of dam projects. Secondly and most importantly, forests are the alternative lifelines of the rural poor. Much of the subsistence is derived from forest products. Forests also help them pull through the seasonal lean period, as they make do with fruits, herbs, green leaves and game available in the forests. This fact has not been given serious thought while considering the issue of rehabilitation. Growing tensions between the rehabilitated population and the local tribes has become a cause for concern. 40% of the forest in Nandurbar has been declared as degraded. The policy of 'land-for-land' is based on the premise that there is excess public land available for distribution among the evictees, which is questionable. The land available most often than not is poor quality land or non-cultivable. This premise also reveals the linear perception of livelihood options. As illustrated above, livelihood includes a host of economic activities (as quite often, land holdings are small) and there is no one activity from which livelihood is derived. Compensation of land then is only a partial remuneration of the losses incurred by the evictees. Ideally the replacement of the livelihood lost only can provide any kind of relief to the displaced people. Neither the National Policy nor the State policies/laws have provision for this.

The debate on large dams has focused on displacement and its effect on the ecology and human beings. Large dams however represent a larger purpose or vision of society. They were considered as symbols of a modern, progressive world. They demonstrated the capacity of human intelligence and ingenuity to tap and use natural resources for human advancement. They stood for the ability of modern science and technology to overcome the constraints of nature for the benefit of humankind. The issue, which is equally important and often overlooked, is as to what is the type of society that was and is sought to be 'displaced' by this modern vision of progress and development. Also, who are the people most adversely affected by this displacement? As mentioned earlier, the peoples and communities who are displaced through development programmes live on the margins of society such as tribes, pastoralists and subsistence agriculturists. These groups have inhabited forests and survived in the fringes of the mainstream civilisation for centuries. The benefits of development programmes rarely accrue to them. Although monetary compensation is provided to them (the evaluation of loss is yet again a contentious issue), scant attention is given to their customs and traditions while rehabilitating them. The rehabilitation policies reveal intolerance to cultural and social issues. The displaced are a 'number' among the large mass to be rehabilitated.

The reasoning that has predominated the issue of rehabilitation of displaced persons is largely economic. Economic issues are supposed to be survival issues,

while the destruction of culture is considered as secondary. Economic and cultural rehabilitation are seen as distinct from each other. In most traditional, agricultural societies, it is difficult to separate the two. Economic skills are disseminated through cultural practices and the process of socialisation, while culture is renewed and reinstated in society in the process of economic production. Needless to say, almost all festivals and ritual functions in traditional societies mark different stages of work over the various seasons in the year. In such a scenario, the prioritisation of the economic over the cultural aspect of life demonstrates the secularisation and modernisation of life evident in modern industrial society. Displacement through large dams then has not just meant moving people from one place to another, but has also entailed destroying an entire way of life built over generations, economic and cultural skills accumulated through ages to survive in, often, the harshest of environmental conditions.

In an unrelenting effort to find solutions to the problem of poverty, the development planners have evolved projects involving unimaginable expenses, encouraged investments in agricultural and industrial production, which has created drought-like conditions in many parts of the country as well as increased economic inequality. Thus in a quest to dispel poverty, poor are displaced and rendered homeless. In an attempt to deal with the drought-like conditions and the crisis of water for drinking and irrigation, they have acquiesced to destroy existing natural resources to create new ones. This circuitous attempt at development or the pursuance of modern development that aggravates the resource crisis while simultaneously addressing the problem by further exploiting existing resources has caused greater harm than gain. It has proved to be unsustainable, both in terms of environmental consequences and as a model for alleviating poverty. Rather, it has come to symbolise a politics of development that is highly materialistic and aggressive, catering to the needs of a select population.

27.6 Experiments with Alternatives to Large Dams

What then is the alternative? Are there no other alternatives to large dams? Is there no other way of addressing the water crisis and yet reduce the human and ecological costs entailed in the construction of large dams? Are 'small' technologies or community level initiatives sustainable, and have they always been environmentally and socially appropriate? In India, it is common knowledge that low castes such as the untouchables were, and still are in some parts of the country, denied access to community-based water resources. The debate on dams and displacement has brought these questions and issues to the forefront. Thus it is necessary to move beyond the rhetoric of 'small is beautiful' or the unending debate over tradition versus modernity, and dwell on some of the experiments (which have borrowed techniques big and small, traditional and modern) taken up to address the water crisis. There are ongoing alternatives to big dams that are being experimented with, by grassroots organisations in various parts of the country as well as the world. According to the UN Food and Agriculture Organisation research, almost half of the five million hectares irrigated land receives water from small scale and traditional systems. Similarly, according to official sources in India, three-fifths of the irrigated area receives water from traditional wells or small reservoirs known locally as 'tanks' (Figures of the World Bank as quoted by McCully 1998: 184).

Reflection and Action 27.3

Now that you have learnt about some potential alternatives to large dams. You have also learnt the potential dangers of large dams. In view of your experience suggest a few measures, which may be implemented as alternative to large dams in your area.

> **Box 27.1: Alternatives suggestion**
>
> What do you think of these suggestions as measures to ease the water crisis in north Gujarat? Are they practicable and can these suggestions be considered for India as a whole? How effective would these suggestions be within the existing socio-economic and political environment in the country?
>
> Suggestions made by a group consisting of economists, NGO workers, hydrologists, and village level workers for dealing with the water crisis:
>
> - Recognition of the traditional sources of water such as *talavs* (lakes), *virdas* (shallow holes into which groundwater slowly seeps and is collected for drinking) and *vava* (stepped wells). This, along with village-level water harvesting measures such as check-dams and storage dams, can alleviate scarcity situations.
>
> - Modify the present structure of property rights over groundwater. Currently groundwater is not a common resource; it belongs to people who dig bore-wells in their land. This has resulted in landowners trying to exploit as much of the groundwater as possible regardless of the extent of their needs.
>
> - Limit the depths of bore-wells. An attempt to amend the Bombay Irrigation Act was made in 1970 in order to prevent the digging of bore-wells beyond 45 metres. But ordinary ordinances that might have made this a reality have been allowed to lapse.
>
> - The state monitor groundwater levels with a view to halt the use of a particular well if it goes below a stipulated level. This method may be applied only if alternative water sources are available in the area.
>
> - Return to pro-rate pricing of electricity instead of the existing flat rate. Gujarat had fixed a flat rate, but the farmers' lobby got it changed.
>
> - If agriculture is to remain the mainstay of these regions, implement an extension approach for irrigation using methods such as drip irrigation. If this is done, some of the cash crops responsible for straining water resources would automatically be phased out, since extension irrigation is not suitable for all crops.
>
> - Adopt widely dry farming methods and alteration in cropping patterns.
>
> - Alter the pricing policy in order to attract people to other crops. Saurashtra is the world's largest supplier of the groundnut crop. It is possible that any attempt to alter this will be opposed by the rich farmers of the region.
>
> Source: *Frontline* 9 June 2000

Alternatives to large dams have concentrated on two broad aspects of water management: recharging ground water and water conservation. One of the biggest impediments to water conservation has been the indiscriminate use and waste of water in urban areas as well as for irrigation. Many modern techniques such as drip irrigation, in which water is delivered directly to the root of the plant through porous pipes, and sprinklers are commonly known prudent methods of irrigation. Similarly, urban domestic consumption of water has been a matter of concern in advanced societies. A set of measures introduced in Arizona helped to bring down household consumption of water from 760 litres to 590 litres per day per person. These measures include subsidising the distribution of water-efficient technologies like low flush toilets that uses 6 litres of water instead of the 16 litres used by a conventional flush system, initiating campaigns on water conservation as well as fitting meters to monitor water consumption in each household. Another method that has been successfully used in Israel is the utilisation of treated sewage or municipal wastewater for irrigation (McCully 1998).

In the early 1990s, the catchphrase in India was 'watershed development'. It was considered as alternatives to big dams, a natural way of harnessing and

collecting runaway river water and rainwater by diverting it into tanks and wells through trenches, etc. Government circles, the international funding agencies as well as NGOs were taken in by this method and community level initiatives were started all over the country. The principle was to work along the topography of the area. Rivers are supplied by numerous sources of water that channel rainwater to the rivers. These sources from which rivers catch their water are called catchments. The idea is to harness the water from the catchments by planting shrubs and plants on the natural slopes to slow down the momentum of its flow and reduce soil erosion as well as hold water in the area for local use. The water thus weighed down is then channelled through trenches, troughs, etc. into tanks, bandhs or wells. Watershed development has succeeded in a number of villages but has not really taken off on a large scale as an alternative for harnessing water.

Experiments in watershed management have certain common characteristics in that they require small-scale efforts at the village level, with each village creating their systems to tap water, but all the individual efforts come together as a part of a larger scheme. The scheme therefore requires an equally efficient management, cooperation of people as well as technical guidance, as each area has a distinct topographical and watershed profile. It requires technical and management experts to acquiesce on the scheme in as much as it requires careful consultation with the community on the efficacy of the design. Practical knowledge about the terrain and climatic behaviour are often crucial tests of scientific experiments, as observed in most cases across the country. The success of watershed development has usually depended upon how well the programme has been received by the community and whether they have actively participated in its conception and implementation. At the community level, the issues of water rights of socially and economically disadvantaged groups have been crucial. Conflicts over resources have become highly volatile, with the rich and the socially powerful trying to corner the benefits of the hitherto common resources and fortifying the conditions of deprivation and poverty.

Thus alternatives to large dams or macro irrigation projects have typically their own constraints - social, technical and managerial. Micro irrigation efforts have been dismissed for its limited scope and scale. Yet they have been appreciated for the use of diversity of cost effective techniques as well as for initiating community based programmes instead of the top-down administration of water projects, as in the case of large dams, thereby introducing transparency and people's participation in maintaining and managing natural resources.

Reflection and Action: 27.4

Listed here are some of the ongoing and successful Watershed Development initiatives in perennially drought-prone areas. *Samaj Pragati Sahayog*, Bagli Tehsil of Dewas District, Madhya Pradesh, *Hiwre Bazaar* in Ahmednagar District, Maharashtra, Ralegansiddhi in Ahmednagar District, Maharashtra, Tarun Bharat Sangh in Alwar, Rajasthan. You may be having information about many such development initiatives. Either best on your experience or information collected from secondary sources write a detail note about the functioning and effectiveness of watershed development initiatives.

27.7 Conclusion

The unit began with a short note on dams, enunciating their historical significance as well as the role of the state and community in managing water resources through the ages. Clearly, famines and droughts have always concerned human civilisation, but the problem has intensified in the modern era. This millennium is characterised by a water crisis, which is aggravating by the day. While human civilisation has been able to tap natural resources for the benefit of humankind with the advancement of modern science and technology, the latter has also disregarded the rhythm of nature leading to the

present ecological crisis. The debate on dam and displacement also demonstrated how large dams not only displaced people, but also that the displaced persons belong to the marginalised sections of the society such as tribes, poor peasants and the landless. The section on alternatives demonstrated how alternatives to large dams, taking cue from the experience with large dams the world over, have tried to focus on environmentally friendly and viable techniques of harnessing water as well as evolving greater participation of people so as to ensure equal accessibility to water resources across social and economic divisions. Although the alternatives have also been subjected to criticisms regarding their efficacy and sustainability, they illustrate the relentless endeavour to experiment and seek solutions to one of the world's most critical concerns - water.

27.8 Further Reading

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UNIT 28
Green Peace Movement

Contents

Learning Objectives

This unit introduces you to a new phenomenon called green peace movement, which has enduring impacts on the process of development. After reading this unit you should be able to discuss:

- objective of this movement;

- the emergence and growth of this movement;

- achievements of this movement; and

- socio-political implications of this movement.

28.1 Introduction

At the threshold of the 20th century, new socio-political movements emerged in the world challenging the conventional developmental model prevalent in the capitalist mode of production and consumption. These movements evolved as a response to the problems and issues that emerged in different parts of the world and in different communities and groups that were the result of the the current process of development followed nationally and internationally and its political, economic and social ramifications. These movements, struggles and organisations have taken many forms and have different emphases at different places. Green peace is one such independent international environmental organisation founded in Vancouver, British Columbia, Canada in 1971. It is committed to the principles of non-violence, political independence and internationalism. Green peace's official mission statement describes the organisation and its aims thus: Green peace is an independent campaigning organistion, which uses non-violent, creative confrontation to expose global environmental problems and force solutions for a green and peaceful future that follows sustainable development practices. The goal of green peace is to ensure the ability of the Earth to nurture life in all its diversity (http://www. greenpeace.org).

The Environment has been a prominent part of any political and social agenda since the 1960s. The expansion of the consumer society after the 2nd World War in North America and Europe has increased the pressure on the environment causing the deterioration/degradation of the environment. The environmental movement that originated from these concerns is not very historically oriented. The contemporary problems are seen as unique and a product of 20th century capitalism and industrial progress.

In this context we shall look at the efforts of one of the forerunners of environmental activist movement in the world, the Green peace movement. Green peace movement works to change government and industrial policies that threaten the natural world. Green peace calls attention to the dangers to the environment of such actions as offshore oil drilling, nuclear bomb testing and the dumping of radioactive wastes into oceans. It also opposes whaling, the spread of nuclear weapons and the threat to wildlife from hunting, pollution and habitat loss.

The present unit will look into the circumstances that lead to the emergence of the green peace movement and its growth through its activities for more than three decades. The green peace movement emerged as a people's initiative to save the environment and the ecology, which was affected to a great extend by the so-called development activities around the globe. The movement emerged with some specific objectives, which will be explained in detail here. The unit will also look into the main activities and the major achievements of green peace movement. Let us start with the emergence of this environment movement.

28.2 The Emergence and Growth of the Organisation

Green peace was founded in 1971 in the basement of the Unitarian Church in USA by a small group of people who were motivated by a vision of a green and peaceful world. These activists, the founders of green peace, believed that individuals could make a difference. The founders linked peace, ecology and a talent for media communications and went on to build the world's largest environmental activist organisation.

Taking its name from a slogan used during protests against United States nuclear testing in late 1969, the Committee came together with the objective of stopping a second underground nuclear bomb test codenamed Cannikin by the United States military beneath the island of Amchitka, a tiny island of the West Coast of Alaska, which is one of the world's most earthquake-prone regions. A small team of activists set sail from Vancouver, Canada, in an old fishing boat. Their mission was to "bear witness" to US underground nuclear testing at Amchitka. Amchitka was the last refuge for 3000 endangered sea otters, and home to bald eagles, peregrine falcons and other wildlife. When though their old boat, the Phyllis Cormack, was intercepted before it got to Amchitka, the journey sparked a flurry of public interest. The test was not stopped, but the voice of reason had been heard and the organisation of the committee laid the groundwork for green peaces later activities. Nuclear testing in Amchitka ended that same year and the island was later declared a bird sanctrary.

Although the movement started its activities opposing nuclear tests, in later years, the focus of the organisation turned to other environmental issues as well, including bottom trawling, global warming and genetic engineering. Green peace also gained international attention for its efforts to save whales and for its opposition to the killing of baby seals off the coast of Newfoundland in Canada. In 1985, Green peace members planned to use their ship Rainbow warrior to protest against French nuclear tests in the South Pacific. But an explosion sank the ship in the harbour at Auckland, New Zealand, and a Green peace photographer was killed. French government officials admitted responsibility for the sinking, and the defense minister resigned.

By 1986 Green peace was established in 26 countries and had an income of over $100 million per year. In 1986 the mainstream of western society had started adopting the very environmental agenda that had been considered radical only fifteen years earlier. By 1989 the combined impact of Chernobyl, the Exxon Valdez, the threat of global warming and the ozone hole clinched the debate. All but a handful of reactionaries joined the call for sustainable development and environmental protection.

Whereas previously the leaders of the environmental movement found themselves on the outside railing at the gates of power, they were now being invited to the table in boardrooms and caucuses around the world. For environmentalists, accustomed to the politics of confrontation, this new era of acceptance posed a challenge as great as any campaign to save the planet.

Presently, Green peace is an international organisation that prioritises global environmental campaigns. In 2005, Green peace has 2.8 million supporters worldwide, and national as well as regional offices in 41 countries, all affiliated to Green peace international based in Amsterdam, Netherlands (www.green peace.org).

Reflection and Action 28.1

Just now you learnt the circumstance under which green peace movement emerged. Can you examine the significance of green peace movement that functions cuting across national boundaries?

28.3 Green Peace Movements: Objectives

Members of Green peace use direct and as mentioned earlier, nonviolent methods of protest. Green peace has been campaigning against environmental degradation since 1971, where the US Government was conducting underground nuclear tests. This tradition of 'bearing witness' in a non-violent manner continues till today.

The green peace activists' act of protest is unique. They go to the place where an activity that the group considers harmful is occurring. Without using force, they try to stop the activity. For example, to protest against whaling, Green peace members in boats position themselves between whales and whaling ships.

Green peace is a campaigning organisation and organises public campaigns for the following causes:

- Protection of oceans and ancient forests
- Phasing out of fossil fuels and the promotion of renewable energy to stop climate change
- Elimination of toxic chemicals
- Prevention of genetically modified organisms being released into nature
- End to the nuclear threat and nuclear contamination
- Safe and sustainable trade

Examine the significance of the objectives of greenpeace movement in the context of present day development practices.

Green peace does not solicit or accepts funding from governments; for not compromising its independence, aims, objectives or integrity. It relies on the voluntary donations of individual supporters, and on grant support from foundations.

Among other things Green peace has played a pivotal role in:

- Ban on toxic waste exports to less developed countries
- Moratorium on commercial whaling
- United Nations convention providing for better management of world fisheries
- Southern Ocean Whale Sanctuary
- A 50-year moratorium on mineral exploitation in Antarctica

- Ban on the dumping at sea of radioactive and industrial waste and disused oil installations

- End to high-sea, large-scale driftnet fishing

- Ban on all nuclear weapons testing which was their first ever campaign.

Box 28.1: The Impact of Reclcling of e-wastes on the Enviornment in India

Every year 20-50 million tones of electrical and electronic wastes (e-wastes) are generated world wide, which can bring serious risks to human health and environment. This rapidly growing e-waste system presents additional difficulties because a wide range of hazardous chemicals are, or in the past been used in the components of electric or electronic devises, and these subsequently create substantial problems with regard to handling, recycling and disposal of obsolete products. The EU banned the use of certain hazardous substances in electrical and electronic products from July 2006 to facilitate safer recycling. The e-waste recycling sector in many parts of Asia remains highly unregulated. Green peace studies the impact of e-waste recycling in India on environment, and on the health of recycling workers and surrounding communities. It studied samples that included industrial wastes, indoor dusts, soils, river sediments and ground water from typical sites representing all major stages routinely employed in dismantling, recycling and final disposal of the e-wastes. The results of the study confirm that all stages in the processing of e-waste have the potential to release substantial quantum of toxic heavy metal and organic compounds to the workplace environment and also the surrounding soil and watercourses. The study illuminates on the urgent need for the manufacturers of electronic products to take the responsibility for their products from production through to the end of their lives. It also urges the manufacturers to develop and design clean products with longer life span that are safe and easy to repair, upgrade and recycle and will not expose the workers and the environment to hazardous chemicals.

Source: www.greenpeace.org

28.4   Green peace Movements: Global Avenues of Action

The priority issue for green peace is climatic changes. They believe the disruption in the ecosystem will likely harm everything from minke whales to coral reefs to polar bears. The world forest cover will deplete, and hundreds of thousands of species will become extinct due to drastic weather change. Climate change will also bring devastation to people and communities, especially some of the world's poorest. They do this by sensitising the people about the need to maintain climatic stability and influencing the policy decisions of national givernments that may leave an impact on the climate. Let us now look into some of the green peace actions against some national initiatives which otherwise could have caused adverse environmental changes.

Some of the main avenues of action of green peace movements as mentioned earlier, are in the areas of climate change are saving sea and sea wealth, protection of ancient forests, protesting against genetic engineering, elimination of toxic chemicals, ending nuclear tests, encouraging sustainable trade, and abolishing nuclear weapon. In this section let us see some of the initiatives of the green peace in each of these avenues.

Stop human caused climate change: Green peace activists are very prompt in protesting the energy and power plants that may cause environmental deterioration and climatic changes. They claim burning of coal is one of the main causes for global warming. And this is precisely what many of the giant power plants around the globe do. They accuse that international lending agencies such as Asian Development Bank, World Bank, Japanese International

Bank for International Cooperation, Export Agencies etc. all of whose proclaimed agenda is development of underdeveloped, in fact are depriving the people of the both developing and developed nation a healthy living environment by way of financing huge power projects that cause adverse environmental impact.

According to green peace movement out of the ADB's entire Energy Portfolio Financing from 1966-2004, only 1.82% went towards funding renewable energy and energy efficiency. The overwhelming majority of financing has been geared towards fossil fuel power projects such as the Masinloc coal plant in the Philippines and Southeast Asia's largest coal plant in Mae Moh, Thailand and currently funds are being earmarked for newer plants like Map Ta Phut in Thailand. Since Mae Moh began operations in 1955, 30000 people have been displaced, almost 200 killed and thousands suffer from respiratory problems caused by inhalation and exposure to sulfur dioxide from the mine and the power station.

Clean alternatives to fossil fuel power in Asia are widely available. In the Philippines enough wind power potential exists to produce 7 times over the country's current energy demand. In the Chinese province of Guangdong there exists sufficient wind power potential to meet the equivalent of the current energy supply in Hong Kong.

International financing institutions like the ADB, along with the WB, need to stop fuelling the problem of climate change and start financing cleaner, safer solutions. Greenpeace calls on them to commit to a 20% renewable energy target for power project lending annually. They need to come clean on dirty energy. Green peace activists demonstrate peacefull protest against these projects. They protested the expansion of the Masinloc coal power plant in Mainila. Greenpeace activists were at the plant to draw attention to Australian and Japanese backing of the expansion of climate changing coal dependency in Asia. Australia and Japan are underwriting climate change at a time when the Philippines and Asia are facing the likelihood of devastating social and economic instability from climate change precisely when the country and the rest of Asia are least able to deal with its impacts.

Another instance is that of a case in Brazil. The devastating drought currently affecting the Amazon rainforest is part of a vicious cycle created by the combined affects of global warming and deforestation and could cause the collapse of the rainforest, according to scientists. Brazil is one of the most vulnerable countries to climate changes in the world because of its invaluable biodiversity. Seventeen per cent of the Amazon has been completely wiped out over the past 30 years, according to Brazilian National Institute for Space Research (INPE) and even more has been damaged by destructive and illegal logging and other human activities. Life on Earth depends on ancient forests for its survival. They are the richest most diverse habitats, and help stabilize climate and regulate the weather. Amazonian deforestation and fires account for more than 75% of Brazil's greenhouse gas emissions and place it amongst the top four contributors to global climate change. Greenpeace called on governments to take urgent action to stop deforestation and commit to the massive carbon dioxide reductions needed to protect the Earth's biodiversity and millions of people who are at risk from the impacts of climate change and ancient forest destruction.

In China the severity of climate change is already bringing two of the world's mightiest rivers at the brink of collapse. Scientists from the Chinese Academy of Sciences say that environmental damage linked to climate change is pushing the Yellow River source into an ecological breakdown, threatening the lifeblood of 120 million people who rely on it for domestic as well as agricultural and industrial uses. In the Amazon river region, one of the worst droughts ever recorded is damaging the world's largest rainforest, with wildfires breaking out, fresh drinking water becoming scarce and polluted and the death of millions of fish as the streams dry up.

Save sea from destruction

Our oceans cover two thirds of the planet and host 80% of all life, from microscopic plankton to the largest of the great whales. Oceans also provide half of the oxygen requirement of the planet. Until a few centuries ago oceans were protected by vast distances, great depth and harsh conditions making it inaccessible to the human kind. The latest vessels and equipment used to exploit marine life coupled with the burning of fossil fuels and the development and dumping of chemicals into the oceans outpace their ability to cleanse themselves and maintain a natural balance. The indiscriminate exploitation of oceans causes "dead zones" of lifelessness in the sea, decimation of fishing stocks, extinction of whales etc. Green peace movement make a voice aginst this for saving our sea and sea life from further destuction.

Other than seabed trawling some of the key threats to the sea life are industrial fishing, destructive fishing, unfair fisheries and fish farming. Industrial fishing fleets, using pinpoint accurate sonar, can zone in on schools of fish with frightening speed and precision. The modern 'goldrush' for fish in many places far exceeds the ocean's ability to recover. Destructive fishing wastes marine life. Many a times when it is fishing for particular types of fishes 90% of what comes into the net are thrown back mostly killing the unwanted fish lives. This accidental catch or by-catch as it is euphemistically known, is not restricted to unwanted fish. Every year, up to 300,000 whales, dolphins and porpoises die in nets and 100,000 albatrosses are caught on hooked fishing lines. Turtles, seals and sharks are also victims of indiscriminate fishing practices. Unfair fisheries include pirate ships that steal vast quantities of fish destroying the marine environment. Also by misappropriation of their "catch" large fleets of trawlers cheat the nations. Fish farming, known as aquaculture, is often promoted as the solution to over fishing. But it is far from the answer. The shrimp aquaculture industry is perhaps the most destructive, unsustainable and unjust fisheries industry. Mangrove clearances, fishery destruction, murder and community land clearances, to make way for fish farming, have been widely reported by human rights and environmental groups in almost a dozen countries around the world.

Some countries have introduced protected areas within their national waters — a national twelve-mile exclusive economic zone to save the sea from destructive human activities. Greenpeace believes that this is not enough if protection is to be effective. They call for a massive network of marine reserves. Marine reserves are areas of the sea that are fully protected form human activities – national parks for oceans. Greenpeace defines marine reserves as areas that are closed to all extractive uses, such as fishing and mining, as well as to disposal activities. Within these areas there may be core zones where no human activities are allowed, for instance areas that act as scientific reference areas or areas where there are particularly sensitive habitats or species. Some areas within the coastal zone may be opened to small-scale, non-destructive fisheries, provided that they are sustainable, within ecological limits, and have been decided upon with the full participation of affected local communities. The establishment of marine reserves has been shown to result in long-lasting and often rapid increases in marine populations, their diversity and productivity.

Protect ancient forests

The world's ancient forests are truly diverse. They include boreal, temperate and tropical forests, coniferous and broadleaf forests, rainforests and

mangroves. Together they maintain environmental systems that are essential for life on Earth. They influence weather by controlling rainfall and evaporation of water from soil. They help stabilise the world's climate by storing large amounts of carbon that would otherwise contribute to climate change.

These ancient forests are home to millions of forest people who depend on them for their survival - both physically and spiritually. These forests also house around two-thirds of the world's land-based species of plants and animals. That's hundreds of thousands of different plants and animals, and literally millions of insects - their futures also depend on the ancient forests. These magnificent ancient forests are under threat. More than 87 human cultures have been lost in Brazil alone; in the next 10 to 20 years, the world looks set to lose thousands of species of plants and animals.

Illegal and destructive logging operations encroach deeper and deeper into biggest forests of the world such as Amazon rain forests, Africa's Cameroon rain forests etc. One of the driving factors behind this forest destruction is the demand for cheap timber from the international market place. Green peace protested and alerted the concerned national governments as well as the international communities against this global threat. They gave some constructive suggestions to save the forest cover from depletion. They argued for:

a)   Adoption of legislation to halt the import and marketing of illegally logged timber into Europe and promote environmentally and socially responsible forest management worldwide. Such a law should allow for the prosecution of individuals and companies involved in the illegal trade of timber and timber products. Ultimately such a law should ensure European consumers that any timber products they buy are from legal and well-managed forests and that traders engaged in legitimate trade are not undermined.

b)   Developing strong Voluntary Partnership Agreements (VPAs) between producer countries and the European Union which will tackle corruption and weaknesses in the forest governance of producer countries and that will fully parliamentarians, NGOs and indigenous people organisations within those countries, leading to responsible forest management practises, such as those specified under the principles and criteria of the Forest Stewardship Council (FSC).

c) 'Greening' their timber procurement by introducing legal and sustainable purchasing criteria and stop fueling illegal and destructive logging activities using public money.

d)   Implementing and enforce existing national and European legislation on bribery and money laundering, which are regularly linked to the trade in illegally logged timber.

e)   Providing sufficient funding for forest conservation and sustainable forest management in timber producing countries and ensures that EU subsidy programs do not fund or promote forest destruction.

Campaign against genetic engineering

While scientific progress on molecular biology has a great potential to increase our understanding of nature and provide new medical tools, it is also used to turn the environment into a giant genetic experiment by commercial interests. The biodiversity and environmental integrity of the world's food supply is very important for our survival to be put at risk.

Genetic engineering enables scientists to create plants, animals and micro-organisms by manipulating genes in a way that does not occur naturally. These genetically modified organisms (GMO) can spread through nature and interbreed with natural organisms, thereby contaminating non genetically engineered (GE) environments and future generations in an unforeseeable and uncontrollable way. Their release is 'genetic pollution' and is a major threat because GMOs

cannot be recalled once released into the environment. Because of commercial interests, the public is being denied the right to know about GE ingredients in the food chain, and therefore losing the right to avoid them despite the presence of labelling laws in certain countries. Biological diversity must be protected and respected as the global heritage of humankind, and one of our world's fundamental keys to survival. Governments are attempting to address the threat of GE with international regulations such as the Biosafety Protocol.

Scientists have developed a genetically engineered (GE) insect resistant Bt rice variety. Genetically engineered insect resistant *Bt* rice has not yet been approved for cultivation anywhere in the world. There is neither environmental assessment, nor human food safety assessment available for any GE *Bt* rice. However, studies from other GE *Bt* crops such as maize (corn) and cotton give strong indications that *Bt* rice will have serious environmental consequences and there are human food safety concerns.

GE insect resistant *Bt* rice varieties are developed to be resistant to certain pests such as leaffolder and yellow stem borer1. *Bt* cops are created by inserting a synthetic version of a gene from the naturally occurring soil bacterium, *Bacillus thuringiensis* (*Bt*) into the plant's own DNA, so the plant creates its own toxin to destroy pests. Green peace opposed to this new variety of GE Bt rice on various grounds.

Reflection and Action 28.3

What are the potential threat of genetic enginerring to human well being?

To eliminate toxic chemicals

Toxic chemicals in our environment threaten our rivers and lakes, our air, land, and oceans, and ultimately ourselves and our future. The production, trade, use, and release of many synthetic chemicals is now widely recognised as a global threat to human health and the environment. Yet, the world's chemical industries continue to produce and release thousands of chemical compounds every year, in most cases with none or very little testing and understanding of their impacts on people and the environment.

Governments and industry have failed to control the spread of dangerous chemicals around the globe. So widespread are manmade hazardous chemicals in our environment, in our homes and in the products we use everyday, that we are constantly exposed to polluting substances. As a result even our own bodies are contaminated.

Expansion of the global market for electrical and electronic products continues to accelerate, while the lifespan of the products is dropping, resulting in a corresponding explosion in electronic scrap. UNEP (2005) reports in every year 20-50 million electrical or electronic equipment waste (e-waste) are generated world wide, which bring serious risks to human health and environment. This rapidly growing "e-waste" stream presents additional difficulties because a wide range of hazardous chemicals are, or have in the past been, used in components of electrical and electronic devices, and these subsequently create substantial problems with regard to handling, recycling and disposal of obsolete products.

Greenpeace analyses of the man-made hazardous chemicals in consumer products, house dust, rainwater and blood add to the growing documentation that man-made chemicals are out of control, threatening our health and environment. It urges international community to substitute hazardous chemicals with safer materials. The European Union (EU), Japan, South Korea, Taiwan and several states of the USA have introduced legislation making producers responsible for their end-of-life products. The EU has banned the use of certain hazardous substances in electrical and electronic products from July 2006, to facilitate safer recycling. For the present, however, the "e-waste" recycling sector in many parts of Asia remains largely unregulated.

End nuclear threat

The Nuclear Age began in July 1945 when the US tested their first nuclear bomb near Alamogordo, New Mexico. A few years later, in 1953, President Eisenhower launched his "Atoms for Peace" Programme at the United Nations amid a wave of unbridled atomic optimism. However, the use of nuclear power has never been "peaceful". Almost half a century after Eisenhower's speech the planet is left with the legacy of nuclear waste, which will be radioactive for tens or hundreds of thousands of years. Nuclear installations, whether military or civil, have a sad record of accidents and incidents, shrouded in cover-ups, lies and misinformation. Radiation released into the environment has led to the contamination of soil, air, rivers and oceans; causing cancer and other diseases in people.Greenpeace is campaigning to end nuclear power, reprocessing and waste dumping.

Greenpeace was born when a group of peace activists tried to sail into the US nuclear weapons testing zone near Amchitka, Alaska in 1971. although green peace could not prevent that nuclear test it could make a world opinion against neclear testing.

Promoting sustainable trade

Greenpeace opposes the current form of globalisation that is increasing corporate power. According to them The World Trade Organisation (WTO) promotes free trade for the gain of private interests, over and above our health and the environment. It is fatally flawed and is moving the world in the wrong direction - away from peace, security and sustainability. By stalling on issues that are crucial to poorer countries, the World Trade Organisation (WTO) faces a crisis of legitimacy. They demand that the WTO adopts a policy of trade that truly works for all and that preserves and restores the environment. They support global environmental standards and argue that the governments must work to achieve sustainable development which means integrating three things: environmental, social and economic priorities.

Abolish of nuclear weapons

The Cold War may be over, but this does not mean nuclear weapons have disappeared. Far from it: There are over 30,000 nuclear weapons in the world, with more than a thousand of them ready to launch at a moment's notice, 24 hours a day, seven days a week.

Over 400 reactors in warships and nuclear submarines are still circling the globe. Some are rotting away on the bottom of the ocean or in a distant port somewhere in Russia. Accidents such as the Russian submarine, the Kursk, tragically sinking in the Barents Sea can happen every day, anywhere.

Over 2,000 nuclear weapons tests have left a legacy of global and regional contamination. People living near the test sites have suffered from cancers, stillbirths, miscarriages and other health effects — and are still suffering today. Many had to leave their hometown or island as it became too contaminated to live there.

Reflection and Action 28.4

What are the potential threats to humanity and global environment posed by nuclear tests?

28.5 Green Peace Movement: An Assessment

Green peace is an organisation that has garnered world attention and new member through its rather unorthodox approach and techniques meant to call attention to the degradation of the earth's ecosystem. In other words, Green peace is about ringing an ecological fire alarm, waking mass consciousness to the true dimensions of our global predicament, pointing out the problems and

defining their nature. The activities of green peace could bring the issues of environment and sustainable development into the forefront. Many developed countries around the world are increasingly integrating environmental protection into the mainstream of economic and political policy. Governments and bureaucracies, industry and professional associations unions and workplaces are moving together to put ecologically sustainable development into practice (Australian conservation Foundation 1994).

Green peace doesn't necessarily have the solutions to these problems and certainly isn't equipped to put them into practice. This requires the combined efforts of governments, corporations, public institutions and environmentalists and demands a high degree of cooperation and collaboration. Many developing countries already started research to solve the problems, which affect employment and environment. They began promoting green jobs that may not deteriorate the environment. Now let us understand what is meant by green jobs, as well as other ways of generating employment that help the regeneration of environment.

28.6 Green Jobs

In 1990s more and more developed countries began to concerned about the rapid deterioration of environment and the unsustainable development practices adopted world over. Some of them even began policy initiatives to restrain this. Norway, Netherlands, European commission and Japan are some of the countries implementing strategic plans which placed the environment in the policy mainstream. They advocated the adoption of new development model to make the economic-ecological relationship a positive instead of negative one. The key for doing this lies in the creation of a new clean technology base. For example, in West Germany, drastic action was taken to reduce power plant emissions by 90% over 10 years period in order to save the destruction of their forests from acid rain. Far from acting as an impediment to economic growth, this greening of energy industry has proved an extra ordinary stimulus.

In many of the developed countries it has been noticed that in spite of the economic growth on the one hand unemployment does not stop growing. Furthermore although a series of programmes have been established and legal measures taken, there was a deterioration of environment situation. Attempts were made to find ways that may generate more employment along with environment regeneration. It has been found that adopting an economic and political-ecologist policy may reduce job opportunities in certain sectors but in certain other sectors it may create more opportunities, more than what have lost. For example, renewable energy with respect to nuclear power, management of the demand for water, repair measures and rational irrigation as opposed to large hydraulic works, the development of public transport and the railways rather than automobiles, recycling rubbish instead of dumping wastes, etc. (Green Jobs Project 1998). There are also other measures such as forestry activities designed to reduce the risk of fires, surveillance of natural and national parks, environmental studies and inspections, waste water treatment, anti-pollution control and measurement in industry, eco-audit and environmental management systems in companies etc. which not only have a positive environmental impact, also create employment.

If a job or industry is to be charecterised as sustainable in the long term then it must have the overall effect of reducing the negative impacts on the environment. According to Sarah Bloustein (1992) environmental sector is a term used to collectively describe the companies involved in business designs to limit negative environmental impacts. ILO has identified nine broad sub sectors of environment industries.

> **Box 28.2: Wind power to replace other more contaminating sources of energy in Spain**
>
> There has been a spectacular rise in the use of wind power in Spain in 199s. it has leapt from the installation of 8 MW of power in 1991 or 75 MW in 1994, to almost 400 MW in 1998. By the end of 2000 this was 1400 MW. The Spanish Department of Industry and Power could create roughly 200000 jobs.
>
> All the studies that have evaluated the employment generated by renewable energy forms, indicate that their creation capacity per unit of power produced is much greater than the equivalent for conventional and pollutant energy sources. This difference will decrease if aero generators are manufactured in large scale. The potential for this source of power at a world scale is very high.

28.7 Environment Sector and Job Opportunities

Macro economic studies carried out around the world have concluded that the labour intensive nature of energy efficiency services and renewable energy would lead to a net increase in jobs where they replaced conventional energy delivery. Energy efficiency and renewable energy sources create jobs across the manufacturing and services sector and across a wide spectrum of occupational skills from professional to trades to unskilled works. Types of jobs in this category includes energy auditing and evaluation of energy requirements, research and development, product and system design, manufacturing, marketing, sales, transport, installation, maintenance, education and training. Other renewable energy options that could generate new jobs include wind, solar thermal electricity and process heat, biogas, wood, alcohol, solar buildings, and day lighting. Waste management and clean production are another fast growing environment industry.

> **Reflection and Action 28.5**
>
> What did you understand by grean jobs? Explore job opportunities in any sector that may help in environment regeneration.

28.8 Conclusion

The priority issue for green peace is climatic changes. They believe the disruption in the ecosystem will likely harm everything from minke whales to coral reefs to polar bears. Whole forests will be lost, and hundreds of thousands of species will become extinct. Climate change will also bring devastation to people and communities, especially some of the world's poorest. They do this by sensitising the people about the need to maintain climatic stability and influencing the policy decisions of national givernments that may leave an impact on the climate.

In this unit we have seen the circumstances that lead to the emergence of green peace movement as well as their main avernes of action. We also come across various intrances where green peace movements demonstration for sustainable development. Also elobarated in this unit green jobs. the job opportuniteis in those sectors that promote sustainable environmental development and environmental regeneration.

28.10 Further Reading

This unit is largely developed based on the information given in the official website of green peace movement http://www.greenpeace.org

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Unit 29
People Science Movement

Contents

Learning Objectives

This unit will help you understand:

● the emergence of the people science movement and its aims;

● the basic issues and challenges confronting people science movement; and

● an overview of the activities of people science movement.

29.1 Introduction

Movements are about ideas – ideas that shape society and change the way we live and think. Building on this heritage, the science movement adds a new dimension to these progressive ideas – a critical understanding of science. The people's science movement has emerged as a vibrant nationwide movement encouraging mass participation in matters of development, including intervention in science-related policy formation.

This unit begins with a discussion of the emergence of the People's Science Movement (PSM) and its broad objectives. A convention of PSM held in Kerala, India for the first time initiated extensive interest and marked the beginning of PSMs in several parts of the country. A brief description of the same is presented in this unit. The activities of the PSMs are diverse and have been described here at length. The last section of the unit carries out an overview of some important PSMs functioning in our country.

29.2 Genesis and Aim

The 20th century has made the role of science and technology central to how society works. Not just in production, economics and war but also in sharing public opinion, in defining culture, in politics, in music, in government science plays an important role today.

The impetus and inspiration for science-based social activism came not from a mere desire for dissemination of information on natural sciences but largely from the disillusionment of concerned intellectuals, mostly in the younger age group, with the official thinking and action in alleviating mass poverty and unemployment and its concomitant degradation of human condition. Groups engaged in science education and dissemination became conscious of the new challenges. From acquiring and disseminating knowledge to applying it with a view to changing society meant the rationalisation of a more active role for the intellectual community than was understood hitherto.

The people science movement aims at a critical understanding of science. It informs the common people on what science is being done, how and why, i.e., analysing policies, educating people and mobilising public opinion on issues. It further works towards constructing a rational society by explaining natural phenomena using science and countering irrational beliefs ad superstitions. By initiating programmes such as training teachers to use innovative teaching methods, training village women to use health information, training farmers to experiment and use science to improve the soil, etc., mobilising the poorest and putting into practise the promise of science — improving living conditions.

People Science Movements have a history of credible interventions in the area of improving conditions of social groups, often disadvantaged, through science and technology inputs. PSMs are diverse in constitution and organisational form, and in the nature of their activities. Some focus on the unscientific attitudes and policies towards such basic issues as health, while others are engaged in highlighting the adverse impact of development activities as a result of inadequate/wrong application of science and technology in the field of the environment. Still others demonstrate innovative ways of teaching science, the use of scientific knowledge in the area of health, non-formal education, appropriate technology, housing, etc. The basic philosophy of the PSM is that Science and Technology (S&T) inputs are essential to achieve the goal of an equitable and sustainable society although such inputs by themselves are not sufficient. The PSM groups believe that the public needs to develop a critical understanding S&T in order to be able to participate in the growth and application of S&T, especially in the choice of technologies in different contexts.

Reflection and Action 29.1

Broadly speaking, what were the main objectives of the people science movement?

29.3 A Brief History

The origin of PSM in India may be traced to the early 1950s when a number of organisations got engaged in activities aimed to create scientific awareness among the general public. The Kerala *Sastra Sahitya Parishad* (KSSP), the *Marathi Vigyan Parishad*, the Assam Science Society and the Banga *Vigyan Parishad* are the more prominent among them. They began dissemination of information about science and technology by publishing literature in various Indian languages. Of these, the KSSP in the 1960s and 1970s grew into a mass organisation.

A Convention of PSM was held for the first time in India in November 1978 in Trivandrum under the auspices of Kerala *Sahitya Sastra Parishad* (KSSP). Since then, there has been an intensification of the interest in initiating a PSM in several parts of the country. The need was then felt for a second convention of PSM, which was hosted by KSSP in Kerala. The concern of the convention was focused on the need to define a PSM, which should form the basis of an all-India perspective so that programmes and activities initiated would have a clear-cut direction and purpose.

Four areas were identified for a future programme of action as the basis for initiating a PSM in the country. i) Health ii) Education iii) Environment iv) use of Arts as a medium of communication with the people.

After extensive discussion a few common programmes were chalked out one each of these subjects so that joint action could be initiated throughout the country.

Health: Questions were raised on the relevance and adequacy of the existing health delivery system and hence a people's health movement should form a crucial component of a PSM. Despite expansion in health services, the actual distribution has an urban and curative bias.

The objective necessity of joint action at the all-India level, the possibility of involving non-professionals in such action programmes and the availability of resources and manpower for implementation were considered. The convention noted that the role of indigenous medicines as a possible alternative should be scientifically examined. The irrationality of the anti-diarrheal drug combinations should be emphasised and people should and can, be educated on such simple measures as Oral Rehydration Therapy (ORT) for managing diarrhea. The inter-relationship of diarrhea and unsanitary living conditions, lack of facilities for sewage disposal and above all malnutrition and poverty should be emphasised in such campaigns.

That joint action on health problems specific to women should be taken up was generally felt as highly urgent. A campaign on anaemia in women is a major issue. Propaganda against the irrational anti-anaemic drugs, demand for better medical facilities during pregnancy, prophylactic measures against anaemia and the root cause of anaemia as poverty and the poor socio-economic condition were highlighted.

Education: The most burning issue in the field of education was the failure of the Government to implement UPE, which was closely linked to the need of Adult Education. It was decided to emphasise the need for activities aimed at increasing the involvement of teachers in popularising science as well as in discussing problems of education in general. The following activities were suggested as being useful in further work:

a) Bringing out magazines for children to popularise science and literature as is done by groups like *Kerala Sastra Sahitya Parishad* (KSSP)

b) Organising community science centers with a library, workshop, audio-visual facilities and mobile exhibitions.

c) Use of art and theatre forms as catalytists media for dissemination of PSM ideas.

d) Field study and surveys of the problems of education to base the initiative and understanding on more firm grounds

Environment: Environmental problems can only be understood as an aspect of the broader reality. A scientific analysis of the totality of the interconnections between seemingly unrelated issues is the only viable basis for effective action. The Forest Bill, which gives extensive powers to forest officials, encroaches on the right of the people such as tribals who depend on forests and facilitates the acceleration of the process of deforestation by commercial vested interests. The issue of the Forest Bill is a focal point for people science movements. Not only can it enable them to assist people's struggles but it can enable the mobilisation of public opinion on a whole range of issues – social forestry, floods, wildlife, drought, etc.

Development projects are carried out without attempting to analyse their impact on the environment. A broad consensus emerged from the discussion on environment:

a) Vested interests benefiting from environmental degradation are actively assisted by the State.

b) Science is not value-neutral but used to assist vested interests. For instance, forestry science is used to justify deforestation by the forest department.

c) PSMs must base their views on scientific analysis of problems and vested interests in science.

d) Conservation of the environment is not possible unless people's struggles are channeled to counter the policies of the State and the power of the vested interests.

On the above basis it was argued that joint action be initiated at the national level on:

a) Breaking the communication gap between PSMs, informing each other about problems faced, tactics used and problems encountered;

b) Circulating policy studies such as the critique of the Forest Bill and studies on occupational safety for wider dissemination;

c) Exchanging visits;

d) Producing such other materials for exchange and dissemination; and

e) Forging a united front against the Forest Bill.

Art: A great deal of discussion took place on using art as a medium of communication with the people. The Uttarakhand *Sangharsh Vahini* had been using art in its various struggles first against deforestation and similar issues but now embracing all aspects of the people's struggles. Out of such struggles, songs, poems and plays evolved these sentiments.

It was felt that efforts should be made to exchange not only the experiences but also the performances of different groups using art as a weapon in creating people consciousness. This would not only enrich each other's efforts but also create a feeling of solidarity amongst people. Through such interchange they could see and understand the linkages between their micro and macro situations. Mutual exchange of visits, translation and adoption of the material used by different groups were viewed as a useful task.

Reflections and Actions 29.2

Discuss the programme of action identified in the PSM convention.

29.4 Some Fundamental Issues

Apart from identifying common areas for joint action, certain fundamental issues were raised in the convention regarding the various approaches to the concept and relevance of PSMs in India. One view contends that the PSM should concentrate on the issue that falls on the interface between science and society. Hence the concern of the PSM should be on the natural science content of such issues. The PSM should provide "scientific information" for effectively carrying out people's struggles by mass organisations. In such a conceptual framework, the PSM has a large area of autonomy in terms of dissemination of information, sensitising the scientific community, suggesting solutions to social problems whenever there is a strong content of science and technology and above all creating a scientific attitude among the people and their organisations.

It was argued that this view was inadequate and restricted. "Science" should emphasise the need for an alternative method for understanding and analysing social issues. This view contended that the link between natural and social sciences is organic and they are not separate. In every social issue there is a natural science content and vice versa. The emerging social contest requires a PSM which, apart from helping other mass organisations, also establishes its own territory by directly going to the people as certain issues and situations require independent intervention of PSMs.

Another view held by some put forth the argument that the concept and meaning of science as used has been derived from the western tradition, which is not too relevant to our context. An attempt should be made to turn to an indigenous concept of people's science, and on that basis build a perspective for science based social activism in the country. However serious doubts were raised on the indigenous concept of science

29.5 Activities of PSMs

The PSM activities can be broadly classified into four categories:

a) Science and Communication: Science communication is the basis for the movement in several States. It involves science teachers, working scientists and the science-qualified middle class and students. The activities include science publications, popular science lectures, street plays and school science activities. Cultural forms or communication are extensively used in the *Kala Jathas*. One of the sustained activities of Haryana *Vigyan Manch* has been its campaign against superstitions and myths. For children, in particular, science popularisation by the PSM organisations has been through children's science festivals, children's science projects, and quiz contests, science tours and publication of children's science books. An annual Children's Science Congress is held shortly before the Annual Indian Science Congress and winners in the former participate in certain special fora of the latter. Besides, innovative science teaching methods are also propagated by some of the PSM groups.

Some of the well-know publications of these groups include *CHAKMAK* (for children), *Srote and Sandarbh* (for teachers) brought out by *Eklavya; Thulir* (in Tamil) and *Jantar Mantar* (in English) brought out by the Tamil Nadu Science Forum (TNSF). Many of the PSM groups have won national awards for excellence in science communication. These include the Haryana Vigyan Manch, the Pondicherry Science Forum, the TNSF, the Karnataka Rajya Vigyan Parisha, the Madhya Pradesh Vigyan Sabha, Srujanika, the Assam Science Society, the Paschim Banga Vigyan Manch and the KSSP

b) Policy Critiques: The forum of PSM allows scientists and professionals to critically evaluate state policies, not just science and technology and research and development policies. They should point out the inadequacies of such policies and propose alternatives. The idea behind this is to provide a critical understanding of the developmental policies, which would empower people's organisations to intervene in decision-making. Sustained interventions in the area of science and technology policy and management are required if people-oriented science-society linkages are to emerge. PSM groups have periodically intervened in this direction through advocacy and campaigns. The PSM studies and articulated positions have played a significant role in nationally debated issues like nuclear disarmament, patent laws and intellectual property rights (IPRs), health and drug policies, energy and environment policies, reforms in the telecommunication and power sectors, panchayats and other decentralisation policies.

c) Development interventions: This has been a major component of the PSMs initiatives through mass campaigns and discussions. By developing pilot models in literacy, health, agriculture, credit cooperatives, watershed development, local/panchayat level planning programmes, promotion of small enterprises and their networking, PSM groups have been able to intervene effectively in the decision-making process in several instances. These campaigns serve the purpose of people's resistance to unfair policies and highlight their demand for appropriate alternatives.

Specifically, for instance in the area of health, the interventions of PSMs have resulted in the withdrawal of a number of hazardous drugs from the market and initiation of legal action on a number of other drugs. The groups have also been active in the area of health education and more recently in decentralised health planning. A number of ongoing programmes are focused on promoting community initiatives and building effective primary health care. These programmes also aim to empower women and develop a rural women's network. A major initiative in health has been that of the TNSF called "*Arogya Iyakkam*", a programme that covers about 1,000 villages in 17 blocks all over Tamil Nadu, where a local health volunteer is trained in the basics of child nutrition, maternal and child care, first aid and preventive and curative health needs.

In the area of environment, the PSMs activities have been largely in the nature of environmental education. In developing teaching aids, the PSM has integrated comprehensively environment as one of the crucial components of the modules and resource material developed by it. Advocacy and campaigns on issues such as the Silent Valley Project in Kerala, the Bhopal gas disaster and the ongoing Narmada dam project have had considerable impact. Initiatives in the form of policy level critiques related to environmental issues during the Rio Summit, the Biodiversity Convention and the World Summit on Sustainable Development have been undertaken. An initiative of the TNSF, for instance, has been the reclamation of abandoned large water tanks across the State in order to make them usable once again. The Pondicherry Science Forum intervened effectively in the unbridled practice of aquaculture in Tamil Nadu, which was causing severe damage to the coastal ecology. This resulted in the enactment of regulatory framework. The Himachal *Gyan Vigyan Samiti* has initiated a project to study the frequent occurrence of flash floods in the state.

d) Technology Development: PSM groups have engaged in developing and encouraging people-centered technologies that are less capital intensive and empower a large number of people, workers, craftspersons and artisans. Some examples of such initiatives are: wireless in local loop for telecommunications, the computer and village information software, bio-mass as replacement for cement/concrete in civil constructions, windmills and bio-mass based energy systems, non-chemical inputs to boost agricultural productivity, improved small-scale mechanised looms, small-scale oil presses and other food processing units, and mechanised blacksmithy.

Roughly, once every two years, the PSM groups come together at the All India People's Science Congress (AIPSC) to review their actions, interact with experts, learn from their experiences and plan ahead. The Tenth AIPSC was held in Shimla, Himachal Pradesh, in October 2003. The PSM has come a long way from merely disseminating scientific information to involving the people in advocacy, discussions and interventions in science-related policy and developmental issues. The movement has gone from strength to strength to become a vibrant mass movement with practically every State having an active people's science group. The efforts of the PSM are becoming more relevant today as the adverse impacts of liberalisation and globalisation are felt increasingly by the ordinary people and the state is gradually abdicating its responsibilities in education, employment, health and social welfare.

Reflection and Action 29.3

Some PSMs have been discussed in this unit. Find out about some more and learn about their activities and achievements. You may also visit a Block/Village and write a report about programmes initiated by the PSM there.

29.6 Some Prominent PSMs in INDIA

Let us now examine the functioning of some PSMs in India.

Kerala Sastra Sahitya Parishad (KSSP): One of the earliest groups to use science in the activist sense was KSSP. The slogan "science for social revolution" was launched by KSSP to emphasise the relationship between science and society in shaping the lives of the people. On the premise that science and technology are usually used by a minority to exploit the majority, KSSP sees science education as vesting people with the power to analyse social issues scientifically and thus inform their social action.

Public attention was focused on this movement during its fight to save the unique Silent Valley when a hydro-electric project was planned and exposed the unscientific and wasteful electricity and irrigation policies pursued in the State. It also takes part in the fight against the irrational drug formulations, harmful drugs and their high prices. KSSP is leading the fight against the Birlas' pulp factory at Mavoor, Calicut, which is criminally polluting the air and water around.

KSSP is widely known all over India because of the very successful *Sastrakala Jatha* held every year from October 2 to November 7. The *Jatha* is a massive effort, which attracts thousands of people from all over. Science, in its broad sense, is taken to the people through the media of i) printed wordbooks, pamphlets, posters ii) arts-songs, street plays, skits, folk art, etc.

The activities of the KSSP have spread into varied fields of human endeavor. The KSSP include thousands of professionals, students, activists. KSSP relentlessly continues helping the people understand their own physical and social environment, the various forces and counter-forces present in it and thus enables them to analyse the situation for themselves.

Box 29.1

KSSP was instrumental in the success of the literacy campaign for 100% literacy in Kerala. It is a member of the All India People's Science Network (AIPSN). It has won many awards including the 1996 Right Livelihood Award "for its major contribution to a model of development rooted in social justice and popular participation"

Tamil Nadu Science Forum (TNSF)

The TNSF is a people's movement that has been mobilising and empowering the underprivileged to help themselves since 1980. The group was started by research scientists from IIT and IISC who soon realised that critiquing the science policy and mobilising people was not enough. They had to develop solutions that could be used by the common man. They developed alternate models in literacy, education, health, enterprises and agriculture. Through these models, it was attempted to restructure science-learning techniques.

This was followed by training teachers to use innovative teaching methods, village women to use health information, farmers to use science to improve the soil. Each district tried its own experiment on social development self-reliant saving scheme (Kanyakumari, Virudhunagar), health training programmes (Ramnad), training volunteers to provide individual advice on children's and women's needs, enterprises for women (Madurai), quarry contracts for women's groups (Pudukottai), working on school dropouts (Villupuram and Guddalore), and support shelter for women victims of violence (Ramnad). A lot of experiments were conducted in these areas and those which worked started spreading.

The focus of TNSF is now on integrating and expanding ideas that they have worked on. In education these are innovative teaching method centers. These ideas are being nurtured and spread to new blocks. These programs

reach out and save thousands of children from malnutrition, and dropping out of school, while helping lakhs of women with credit enterprise and health skills and help farmers improve the soil and the yield.

The strength of TNSF lies in its ability to campaign on larger issues while at the same time demonstrating how these ideas actually improve the lives of the poor

Medico-Friend Circle (MFC)

MFC is a group of socially conscious individuals interested in the health problems of our people. It is geared towards evolving an appropriate approach to develop a system of medical care suited to the needs of the vast majority of the population.

MFC stands for popularisation and demystification of medical science since medical knowledge has been jargonised and mystified to enhance the status of the medical profession. Since medical intervention has a curative bias, MFC draws attention to the fact that health problems on the social scale can be primarily solved by preventive and social measures carried out with the active participation of the community and for decentralisation of responsibilities whenever possible.

Reflection and Action 29.4

Science affects all of us. Using science in our daily lives to improve and raise our living standards requires a scientific outlook, education and awareness. Reflect on the contribution of PSM towards this aim.

29.7 Conclusion

A people's movement aimed at ultimately reordering our society on rational, scientific lines requires the growth of the scientific attitude among the people. A major challenge is to fight superstition, myths, obscurantism, communalism, fatalism, etc., as they are deeply entrenched in the social fabric. At the same time, a mere rejection of these forces without understanding the socio-economic compulsions would be improper. Faced with such a dilemma in the Indian context, PSM has to steer an alternative course for progressive social transformation. It has to combine the best elements in one's tradition and the accumulated fund of human knowledge the world over. What is to be rejected is neither "tradition" nor "modernity" but all those elements which stand in the way of human progress towards a more civilised form of social life. Such a transition will not be complete without the participation of the people. If such a participatory process has to be initiated, the absence of the scientific method and the widening gap in human knowledge has to be narrowed down. It is in this process that PSM sees its role. The dynamics of this process is such that "learning" leads to action, which in turn leads to furthering and enriching the process of understanding. The ways through which entry points this process has to be initiated will be largely dictated by one's immediate social environment.

A counter-culture imbued with a spirit of inquiry with detached, accurate observation and experimentation would definitely be conducive to enhancing the group and the quality of people's movement. Unless people start questioning their existing condition, try to understand the whys and hows of their problem; a people's movement cannot achieve its aim. PSMs' contribution would be of use in creating a spirit of lively inquiry amongst the people towards a movement for a new world.

It is explained in this unit what is people's science movement its aims and objectives. We have also seen how this movement is emerged in some parts

of the country and spread to other parts of it. The movement attempts to elicit scientific basis to the people's day today activities and thereby make use of scientific knowledge for mass development. The expansion of the movement clearly shows the popularity and the people's acceptance of this movement. Finally the unit also looks into the activities of some major organisations, which strengthens the people's science movement through their diverse activities.

29.8 Further Readings

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Unit 30
Civil Society Movements and Grassroots Initiatives

Contents

Learning Objectives

This Unit will help you examine critically:

- meanings and dimensions of civil society;

- civil society as social movements;

- non-governmental organisations (NGOs) as civil society actors;

- relationship between NGOs and the government organisations; and

- role of civil society for empowerment of marginalised.

30.1 Introduction

In Unit 1 of Book 1 of this course we have briefly talked about the emerging role of civil society in contemporary development practices. In this unit we shall be discussing in detail the meanings and dimensions of civil society; its changing role and status in developmental processes. Civil society itself has emerged as a social movement in recent years, while it has always been part of larger social movements in society. The interface between the civil society and social movement has been a subject matter of curiosity to sociologists. We shall discuss this facet of civil society in this unit. Along with the state and the people, civil society has emerged as a partner of development.

The World Development Summit 1995 emphasised the role of civil society in the empowerment of the marginalised. Here, besides discussing civil society as a social movement, this unit also analyses the role of civil society in the empowerment of the marginalised people in society. While we are discussing marginalised people, it is imperative to discuss the process of marginalisation. A small discussion on the marginalisation and empowerment of the marginalised people is also part of this unit. This unit will also provide you a critical overview of civil society's role in development.

30.2 Civil Society: Meanings and Dimensions

The term civil society is derived from the Latin word *civilis societas* which means associations or communities that work above and beyond the state. Civil society thus consists of a host of institutions that look after the activities,

which are not taken up by the state. These may relate to various religious, cultural, economic and other activities of society.

The medieval church of Europe, Hindu *Maths*, Sikh *Gurdwaras*, Muslim *Mosques*, and other religious trusts in India, caste and kinship associations, business, sports, cultural associations, etc., represent the civil society.

It is important that civil society is also referred to for its moral value and authority; as the state is more akin to an administrative unit. Civil society, in opposition to the state, lays the moral foundation of society (NSI 1996). It is in this sense that civil society has widely been viewed as an epitome not only of moral authority but also as a bastion of culture against the state, the law and capitalism. However the dimension of opposition in civil society has been in a state of flux as its relationship with the state, the market and capitalism has not always been the same everywhere and every time. However, today we tend to see civil society as the home of culture, of freedom, of independence (all good things), which enables us to rein in the state (which can do us harm if permitted) (Ibid 1996).

Importantly, Civil society has long been playing a pivotal role in influencing the state's policy on social welfare, articulating views on current issues, serving as the voice of constructive debate, providing a forum for the exchange of new ideas and information, initiating social movements by way of creating new norms, identities, institutions (Cohen and Arato 1994). Civil society is, together with the state and the market, one of the three *spheres* that interface in the making of democratic societies.

Civil society is the sphere in which social movements become organised. The organisation of civil society, which represents many diverse and sometimes contradictory social interests, is shaped to fit the social base, constituency, thematic orientations (e.g. environment, gender, human rights) and types of activity. They include church related groups, trade unions, cooperatives, service organisation, community groups and youth organisations as well as academic institutions (UNDP 1993:1). Civic involvement has always been an inseparable part of the development process of human society. In Putnam's argument, higher levels of civil involvement gives rise to "social capital" which in turn makes possible more civic involvement (Putnam 1993).

In Gramscian (1998) sense, civil society is the terrain where the state, the people and the market interact and where people wage war against the hegemony of the market and the state. The status of civil society organisations has been widely explained in terms of their relationship with the state and the market. In Tocqueville's view, civil society represents a vision of politics and democracy that is non-state centered and that has taken root in contemporary social movements and non-governmental organisations (NGOs) (Smith 2001). However to the liberals and the neo-liberals, civil society is organised around the market economy (Taylor 1990) as a non-political privatised delivery system for services such as welfare, education, healthcare, clean water and so on. In recent years there has been a phenomenal proliferation of the civil societies all over the globe. Social scientists have attributed this phenomenon to the crises in the states on the one hand and the market triumph on the other. At times the state is beset with a legitimisation deficit that destroys the conditions of its own stability, paving the way for the civil society (Chandhoke 1995).

Notwithstanding such a debate on the pro or anti State stand of civil societies or that of State failure of legitimisation crises, civil societies have been viewed as a force for democratisation, counterweights to the state and economic power and have emerged as alternative vehicles of citizens' participation at both the national and transnational levels of governance. Their activism and

initiatives have also been viewed as a movement for transformation of regional, national and global politics and economics (Edwards 2000). Many scholars, however, see the civil society beyond the state and market syndrome, as the state and the market contribute something, but not everything towards the cohesion and the dynamics of the society (Beteille 2000).

Indeed there is a need to view the civil society both as a structure (of organisation, social and political space and relationship) and also as a process (the ways in which the elements of structure come into being, and interrelate)(Blaney and Pasha 1992). In the wake of globalisation, introduction of the structural adjustment programme and paradigm shift in the social development strategy there has been an attempt to redefine the role of the state and the civil society. In the emerging scenario the emphasis has been a) on the increasing roles of the civil societies " to take the burden off the state, by involving citizens and communities in the delivery of the collective goods" (World Bank 1997:3), and b) on "strengthening of the abilities and opportunities of civil society and local communities" to ensure the process of empowerment of the marginalised in society (UN 1995). However, in the contemporary development discourse, there has been a process of involvement of civil society organisations along with the state in the formulation and implementation of development initiatives. What have been the relationships of the civil society with the people on the one hand and the state on the other? We shall discuss this issue in the following sections of this unit. Let us begin with the relationship of civil society with social movements.

Reflections and Actions 30.1

What do you mean by civil society? Can a civil society be described independent of the existence of the state?

30.3 Civil Society as Social Movements

In the last block of MSO-004 we shall be discussing in detail various aspects of social movements and their transformation. In this section let us know very briefly what we mean by social movements and what are the relationships between social movements and civil society, initiatives or activisms. Conventionally, social movements have broadly been perceived as organised efforts to bring about changes in the thought, beliefs, values, attitudes, relationships and major institutions in society, or to resist changes in any of the above structural elements of society (H. Blumer 1976; H. Toch 1956; Haberle 1972; J.R. Gusfield 1972, J. Wilson 1972). Social movements are viewed as intended and organised collective actions based on certain defined aims, methodology for collective mobilisation, distinctive ideology, identified leadership and organisation. However, since the late 1960s, especially in the wake of the proliferation of new forms of collective protest, resistance and mobilisation, like the students, environmental, Black civil rights, women's, etc., movements in the United States and Western Europe, efforts have been made to identify new elements in social movements. It has been widely recognised that social movements help to generate a sense of collective identity and new ideas that recognise the reality itself. And redefine modes of collective existence and Melucci (1996) has emphasised on collective identity formation. To him, social movements grow around relationships of new social identity that are voluntarily conceived "to empower" members in defense of this identity (Melucci 1996). Eyerman and Jamison (1991) highlight that:

> by articulating consciousness, the social movement provides public spaces for generating new thoughts, activating new actors, generating new ideas. Thus by producing new knowledge, by reflecting on their own cognitive identity, by saying what they stand for, by challenging

the dominant assumptions of the social order, social movements develop new ideas that are fundamental to the process of human creativity. Thus social movements develop worldviews that restructure cognition, that recognise reality itself. The cognitive praxis of social movements is an important source of new social images and transformation of societal identities (Eyerman and Jamison 1991: 161-66).

Social movements are framed based on a collective identity of various groups, namely, women, environmentalists, students, peasants, workers, etc., who are organised on the basis of common identity and interests. To Allan Scott (1990), in a social movement the actor's collective identity is linked to his or her understanding of their social situation. To him "a social movement is a collective actor constituted by individuals who understand themselves to have a common interest, and at least some significant part of their social existence, a common identity" (Allan Scott 1990: 6).

However, participation in social movements may not always be for the quest of an identity; rather, it may be for the gratification of political and material interests. Tilly (1978), McAdam (1982), Tarrow (994) and many others are of the view that social movements manifest in response to the increase in the potential political opportunities and growing receptivity of the state to the activities of the challenging groups. In general, these scholars emphasise the various resources involved in the manifestation and operationalisation of social movements. This approach, known as resource mobilisation, assumes that collective actions are related to the specific opportunity structures. Here importance is given on the rationality of human action, whereby the participants in the social movement calculate the costs and benefits of their participatory action in collective mobilisation. In this approach social movements are seen either as the creation of entrepreneurs skillful in the manipulation or mobilisation of social resources or the playing out of the social tensions and conflicts. Thus the motivation of the actors is seen as rational economic action. The resource mobilisation theory, indeed, aims to interpret those sets of social movements that are the visible parts of the American social reality in management terms. It is linked to the policy problem of containment (Tilly 1978: 47).

Civil Society and Social Movement: The Interface

In the context of globalisation or otherwise there have been claims of universality of civil societies. It is argued at one point that specific economic, social and political conditions influence the growth and functioning of the civil societies and thereby it can't be universal. On the other hand, there has been the argument that as there have been universal processes like modernisation, secularisation, democratisation, globalisations and so on, the claim of universality of civil society has emerged to be a reality. In view of the emergence of global social movements viz. human right, animal right, ecological and environmental etc. global civil society has been a reality. Phenomenal expansion of Information and Communication Technologies (ICTs) has smothered the global emergence and networking of civil societies as a social movement. In this backdrop, let us examine the interface between civil society and social movements. There are important parallels between social movements and civil society initiatives. It is rather at times pointed out that civil society initiative is a variant of social movements. Here, before we go into identifying this variant(s), we should know the parallels.

- Both social movements and civil societies are having structures like organisations, a well-identified leadership and ideology.

- Civil society initiatives and social movements are social processes, which undergo several stages of progression from mobilisation to intensive collective action.

- Both structures and the processes have support bases or bodies of followers who are mobilised through diverse means to get their objectives fulfilled.

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- In general both social movements and civil societies pledge for change in established order of the society. However, many civil societies or social movements also well work to resist change in society. For example, many religious organisations pledge for the fundamentalist position in society.

- Both civil society and the social movement occupy a civil space in society.

- The creation of a new collective identity is an essential part both of social movements and civil societies. Collective identities are evolved either based on certain issues or ideological choices. However, identities also get reconstructed or transformed through the processes of sustained mobilisation.

- Though a good deal of moral authority and idealism are attached to civil society activism and to social movements, at times both these processes are initiated by enterprising people for the maximisation of specific interests. Here both processes are amenable to caption by the state.

However, notwithstanding these parallels, social movements are broader categories or agencies. At times social movements look for a radical change by attacking the pre-existing power structure of society, e.g., the Naxalite movement. Civil society, on the other hand, looks for gradual change within the existing arrangement. Though civil society initiatives tend to be apolitical, many a time they ask political questions and political solutions through developmental activities. Indeed in the contemporary development discourse of development with empowerment, civil society division is very much involved in the political issues at the grassroots.

Reflection and Action 30.2

Analyse the characteristic features of social movements. What are the linkages between social movements and civil societies?

30.4 Non-Governmental Organisations as Civil Society Actors

It has been pointed out in the first section of this unit that there are several manifestations of civil society. So far as the developmental activities are concerned, Non-Government Organisations (NGOs) have emerged as important civil society actors at the grassroots. Let us examine some of its features.

The non-governmental organisation or the private voluntary organisations are basically non-profit making bodies whose primary aim is to contribute to the reduction of human sufferings and the development of the poor and the marginalised groups. They are an integral part of both the national and global civil society as they include both local communities, cooperatives, church groups, trade unions, environment groups and consumer associations, women's groups, peasant leagues, as well as international organisations like Amnesty International, Oxfam, Friends of the Earth, etc. These organisations are best known for their relief, educational, lobbying, human rights, health, employment generation, and poverty reduction activities. They are growing at a very fast rate in the developing parts of the world due to the increasing disillusionment especially of the poor with the government. The market has also failed to serve the interests of these vulnerable sections of the population. As a result many hopes have been placed on the NGOs, also known as the "third sector".

NGOs are conceptualised as non-profit and non-governmental organisations. Anheier and Salaman (1999) highlight some of the common characteristics of NGOs. According to them NGOs are:

- organisations, i.e., they have an institutional presence and structure;

- private, i.e., they are institutionally separate from the state;

- non-profit distributing, i.e., they do not return profits to their managers or to a set of owners;

- self-governing, i.e., they are fundamentally in control of their own affair; and

- voluntary, i.e., membership in them is not legally required and they attract some level of voluntary contribution of time or money".

It is significant that the element of private is to be understood in a very limited sense. It means that NGOs are neither part of the government apparatus and public administration nor are they dominated by public officials (Anheier and Salaman cf. Symthe and Smith 2003). Nor are they a private enterprise to earn profit. Indeed they have the social objective of providing selfless service to the millions, especially in those areas of activity where the state has either not been able to reach out, or has not been effective in providing service as per the local requirement and has withdrawn. At times the state has looked for collaborative arrangement with the NGOs to provide much needed service to the people, especially to the marginalised section of society.

Paul Streeten (1998), after examining the functioning of the NGOs in the developing societies, claims that NGOs have certain advantages in promoting development at the grassroots. This is mostly because of the fact that

- NGOs are good for reaching and mobilising the poor and remote communities.

- NGOs are participatory in their approach and follow a 'bottom up' strategy for the implementation of projects at the grassroots.

- They are more innovative, flexible and experimental than the government's agencies.

- The NGOs' projects are cost effective and efficient.

- The NGOs promote sustainable development.

- They are potentially organising and representative bodies in civil societies.

However, there has been a wide gap between the ideal image of NGOs and their modes of functioning at the grassroots. Indeed, the ideal-typical image of the NGOs has been widely demystified by several researchers. It has been pointed out that even though the NGOs work in the name of the poor, in effective terms they reinforce the rule of the power elite, incur a higher administrative cost, impose an autocratic, top down and non-participatory approach to development. Again, NGOs are not financially independent. As most of the NGOs flourished under a charismatic leadership or are a body of dedicated workers, many of the project, collapse with the disappearance of such leaders and workers. It has also been pointed out that NGOs have no clear-cut objectives that they suffer from the problems of sustainability, and non-replicability; and being small they reach only a few people in developing countries. They fail to reach 80% of the 1.3 billion estimated to be living in extreme poverty. Even the much publicised Grameen Bank of Bangladesh, often cited as a model NGO, accounts for only 0.15% of national credit and all NGOs in Bangladesh together provide only 0.6% of total Credit (Streeten 1998 112-113).

It is important to mention that NGOs are to work in a context and to interact with various forces. They are largely dependent on the government and the international agencies for funds. They are also to interact with the local level politicians. At times their plans and programmes are framed, modified and executed under the influence of these politicians. NGOs' activities are also conditioned by localised culture and values of the marginalised people among

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whom they are working. In the following section of this unit we shall be discussing the relationship of the NGOs with the government rather than with marginalised people.

Reflection and Action 30.3

Discuss the major features of NGOs and their advantages and disadvantages in representing the cause of downtrodden.

30.5 Relationship Between NGOs and the Government

The relationship between NGOs and the government has been rather very complex in recent years. While on the one hand there have been more and more recognition and encouragement for the NGOs' activism by the government, there have been severe criticisms of the government agencies by the NGOs for their rigid bureaucratic and traditional outlook. The government has also been trying to make the NGOs accountable to its, and to the law of the land, to ensure transparency in financial dealings, etc. The NGOs are also trying to make government officials, accountable to the people, to ensure impartial functioning of state organs at the grassroots level. However notwithstanding the contradictory position, there have been several areas of cooperation between the government and NGOs.

NGOs are mostly working on the legalised issues and on a small scale. The state policies on area development, desert development, tribal development, women's development etc., which are addressed at a local level need a vast body of local inputs and resources. The experience and the expertise of the localised NGOs usually come to help in a big way for the successful implementation of these polices. Again the NGOs also formulate innovative projects on these issues receiving expert help from government agencies (Streeten 1998). According to an estimate there are over 30,000 NGOs in India. The Indian state was initially indifferent if not hostile to NGOs' activism. The situation has changed since the Eighth Five Year Plan 1992-1997, and now the government openly encourages the participation of NGOs in development sphere (Bavaskar 2004).

However NGOs' relationship with the state has widely been dichotomous in nature. Though many of them supplement government plans and programmes, they are also simultaneously critical of government policies. Again, while on the one hand they have been defined in terms of negation of the state, on the other they have remained widely dependent on the state for funds. Policies of the NGOs are also at times guided and framed by state policies.

In recent decades there has been a process of internationalisation of NGOs' activism. While working on local and national issues, the NGOs have started getting serious attention and recognition from international agencies. At the international level, many NGOs also take part in the transnational campaign against various social evils like drug addiction, poverty, illiteracy, HIV\AIDS, child abuse, women's rights, environment protection, disarmament, violation of human rights, etc. NGOs also educate people in influencing government policies on several international issues. In the process of undertaking all these initiatives, NGOs have been part of global networking.

Over the years there has been a phenomenal growth of the transaction NGOs, with more working at the global level with larger issues. One of the reasons for such growth has been the crisis in the State caused by massive state deficits, financial crisis and economic restructuring. As the state functioning is going to be restructured along the lines of the corporate market model, and it is also withdrawing from the social sector, NGOs are emerging as important stakeholders and providers of services to the marginalised people.

In the developing countries many NGOs function by receiving funds from foreign agencies. There has also been a tendency to ignore the law of the land by these NGOs. Here serious questions are raised not only by academicians and policy planners but also by the common people on their accountability and mode of spending.

30.6 Marginalisation and the Marginalised People

In developing countries like India, civil societies like NGOs play a crucial role for the social development of the marginalised people. Again these groups of people have also developed a sense of expectations from the NGOs as the state-sponsored development initiatives have miserably failed to elevate their status in society. As discussed in an earlier section, in the contemporary development discourse, the concept of empowerment of the marginalised has got a special focus and civil society initiatives have been given an emphasis. As the role of civil society has acquired a special significance for the social development and the empowerment of the marginalised people, and it has developed a substantive relationship with them let us discuss first who are the marginalised people and how the developmental processes have contributed to their marginalisation in society.

Marginalisation in conventional parlance is a complex process of relegating specific group(s) of people to the lower or outer edge of society. It effectively pushes these groups of people to the margin of society economically, politically, culturally, and socially following the parameters of exclusion and inclusion. Sociologically there are several important dimensions of marginalisation and one is to understand it in the larger context:

Dimensions of denials and deprivations: The process of marginalisation economically denies a large section of society equal access to productive resources, avenues for the realisation of their productive human potential, and opportunities of their full capacity utilisation. These denials ultimately push these populations to the state of rampant poverty, human misery, devaluation of their work, low wage and wage discrimination, casualisation in the workforce, and livelihood insecurity. Thus they are provided with very limited space for upward occupational and social mobility, and are excluded from the range of economic opportunities and choices. Politically, this process of relegation denies these people equal access to the formal power structure and participation in the decision-making processes leading to their subordination to and dependence on the economically and politically dominant groups of society. Politically they emerge to be the underdogs, un/under represented and disempowered. In the continuous process of this relegation, they emerge to be culturally excluded from the mainstream of society becoming "part society with part culture", "outsider for within", "alienated and disintegrated". They eventually get a stigmatised cultural existence, an ascribed low social status and become the victims of cultural segregation. As a consequence of the economic, political and cultural deprivation, a vast chunk of the population of the country has emerged to be socially ignorant, illiterate, uneducated and dependent. Devoid of the basic necessities of life they are relegated to live on the margins of society with a subhuman existence.

Artificial structure of hierarchy: Indeed marginalisation is a man-made and socially constructed process which is permuted and continuously reproduced on the basis of on unequal relationship of dependency and domination. In this context, even the natural differentiation between men and women, linguistic or ethnic groups and so on are put in an order of hierarchy with the guiding principle of domination and subordination. This process of creating hierarchy has arranged social groups in steep ordering of people, with a powerful few at the social and economic command deciding the mainstream of the society, polity and the economy. On the other hand, within the same arrangement the vast majority has remained powerless, occupying the bottom of the socio-economic hierarchy and surviving at the periphery of the social order.

Bases of legitimacy and reproduction: The process of marginalisation has also been historically embedded in a socio-cultural context. Significantly there are strong institutional, normative and ideological bases, steaming out of the primordial interpretation of the institutional and normative arrangements of caste, ethnicity, race, gender, patriarchy, religion and so on, to provide legitimacy to the processes of marginalisation. Again, the ongoing processes of socialisation, education, politicisation, enculturation, etc., contribute to their reproduction in society. Thus, over a period of time, the socially constructed marginalised categories tend to appear to be the empirical categories, viz., the low castes, tribes, women, blacks and so on.

Development strategy and marginalisation: The development strategies, which were implemented within the pre-existing structural arrangements of society, have not been able to bring an end to the deprivation of the marginalised groups, rather than have largely contributed to the social reproduction of marginalisation.

The *Human Development Report* 1990 highlighted ruthless, voiceless, jobless, futureless facts of development. Indeed the marginalised people have emerged to be the major victim of these processes of development. In every human society there are vulnerable sections of marginalised population who are deprived of socio-economic opportunities and choices for their minimum sustenance, and are victims of the artificial structure of hierarchy and social, cultural and political exclusion. In the Indian context, marginalised people are the rural poor, urban, slum-dwellers, manual workers in unorganised sectors, scheduled castes, tribes, women, and other such categories.

An analysis of historical facts reveals that the pre-existing arrangement of distribution of power is hierarchical in nature. This process of hierarchisation has arranged social groups in the steep ordering of people with a powerful "few" at the social and economic command, deciding the mainstream of the society, polity and the economy. On the other hand, within the same arrangement, the vast majority have remained powerless, occupying the bottom of the socio-economic hierarchy and surviving at the periphery or the margin of the social order. Here power as an enabling provision has deprived the powerless of the chance to decide the course of their lives by themselves.

As conventionally development initiatives were implemented through the pre-existing institutional arrangements of society, the marginalised people had very little or no participation in those developmental activities. Again, those initiatives were channlised through the pre-existing power structure. The systemic arrangements have not only legitimised the process of their subordination and deprivation in society through several means, but also contributed to the process of reproduction of this inequality and social construction of marginalisation. Thus the process of marginalisation has remained historically imbedded, notwithstanding the state sponsored initiatives implemented for the upward mobility of the marginalised groups. As against this backdrop, there has been serious rethinking for the participation of the marginalised people in development. As the welfare or emancipation approach of the state has failed to integrate the marginalised people in the development process, an alternative has emerged to evolve the strategy for empowerment of the marginalised people. Let us explain in the next section what we mean by empowerment.

30.7 Civil Society and Empowerment of the Marginalised

Empowerment is a political process. Before we go into conceptualising empowerment, it is necessary to develop an understanding of the following interrelated dimensions of this process.

Dimensions of Legitimacy of Power: The centrality of the notion of empowerment is located in the dynamics of sharing, distribution and redistribution of power, which has a basis of legitimacy. In the sociological sense of Max Weber, power is one's capacity to have control over others; and as such, when this capacity to control is legitimised, it becomes authority (Julien 1968). Indeed the logic of empowerment essentially involves the dynamics of authority. While one talks of the process of distribution/ redistribution of authority or in that sense legitimised power, one naturally questions not only the bases of legitimacy for the authority, but also the societal arrangements through which power relations are operated. Following the same logic, powerlessness has also been legitimised within the given social order. Hence empowerment will mean a process of distribution of power through legitimised means.

Context of Use: While talking of authority (legitimised power) as the accompaniment of empowerment, James Herrick (1995) points out that authority in general is used in the following contexts: a) regulatory, based on one's formal position and status in relation to others; b) expert knowledge, where the expert may possess the power to define ordinary people or to withhold knowledge from those whose well-being is affected by it; and c) relationship ability or interpersonal skills, where power comes from interpersonal influence based on abilities to work with people. In human society, however everybody has no equal authority as people have unequal access to the resources that determine power. Indeed, those who have power are those who have control over material resources, knowledge and ideology. Hence the process of gaining control over self, ideology, material and knowledge resources, which determine power, may be termed empowerment (*Batliwala* 1993). Thus the process of gaining control over resources is to be seen within the given context of devisal deprivation, structure of hierarchy and the process of legitimisation and reproduction. Indeed the process of empowerment endeavours to construct an alternative context for equal access to the resources that determine power.

Dynamics of Power Relations: The meaning of power in empowerment practice needs to be examined in terms of power relations. First, that there should be the ability to exercise power in a given context as having power is not the same as exercising it. Second, the exercise of power takes in the objective reality of empowerment – the structural conditions that affect the allocation of power; seizing or creating opportunities in the environment, changing structural conditions. Third, power relations can be symmetrical or asymmetrical. Relations of symmetry are those where relatively equal amounts and type of power and authority are exercised and are based on reciprocity. Relations of asymmetry are those involving unequal amount and types of authority and are those of subordination and super-ordination. It is the latter case - power relations of asymmetry, which we suggest is the major stage for empowerment practice (Heller cf. *Herrick* 1995).

Principle of Change and Transformation: The process of empowerment challenges the power structures of subordination. In the words of *Sen and Crown* (1988) empowerment is concerned with the transformation of the structure of subordination. It implies a process of redistribution of power within and between families/societies (or systems) and a process aiming at social equality, which can be achieved only by disempowering some structures, systems and institutions. To Sharma it is having a specific focus for the disadvantaged sections (Sharma 1992: 29). The processes of demolition of the pre-existing structure of subordination and redistribution of power, however, are not automatic. These also involve participatory approaches that enable people to emancipate themselves (Konenburg 1986: 229), a process of the creation of new knowledge (*Colin* 1990), a process of conscientisation (Freire 1972) and new identity formation with alternative sensibility. Indeed the process of empowerment is a social movement that looks for a radical change in the systemic arrangements of society (SinghRoy 1995). Hence empowerment is

viewed not as an end in itself, but as a means to an end — a strategy to bring liberation from all domination. Liberation from all domination, to Freire, is the fundamental theme of this epoch. This liberation is not a mechanical process but the critical thinking of the socio-historical reality of the life; ability to intervene in reality with a commitment is the harbingers of liberation. To quote Freire:

> Men emerge from their submersion and acquire the ability to intervene in reality, as it is unveiled. Intervention represents a step forward from emergence, and results from the conscientisation of the situation. Conscientisation is the deepening of the attitude of awareness characteristics of all emergences. By achieving awareness they come to perceive reality differently (*Freire 1972*: 81-85).

In developing countries like India, development practices were geared towards "growth with stability". In the fifties and early sixties with the basic thrust being for industrialisation, agricultural modernisation and expansion of infrastructure, education and mass communication. However in the backdrop of imbalanced economic development, increased class inequality, gender segregation and sharp downward mobility of a vast section of the population along with increased levels of poverty, illiteracy and ill health, development policy was reoriented in India in the early seventies to incorporate the philosophy of "social justice" in the development discourse. This reorientation of "development with justice" envisaged strategies to integrate the hitherto neglected "underprivileged", "weaker sections", "deprived and marginalised groups" into the mainstream of society by providing various state-sponsored economic (employment, access to productive resources, etc.) and social (education, training, healthcare, water, housing, etc.) benefits to them.

The development practice in India has been reoriented once again since the mid-eighties to associate the notion of empowerment with "development". This reorientation aims at ensuring the basic necessities of life to the people "by sharing power" with them through institutionalised means, i.e., laws, legal procedures and international obligation. The significant point of departure here is that while the earlier discourses saw the poor people as "beneficiaries", the emergent one has recognised them as "partners of development". Accordingly there has been a new coinage of the term "social/human development" since the mid-eighties with the recognition that the "human person is the central subject of development" (United Nations 1985). The context of this reorientation, however, has been globalisation and the structural adjustment programme that implicitly or explicitly looks for the reduction of state expenditure in the social sector - health, education, food security and other basic needs — and the encouragement of provatisation. Thus the state has emerged as "central to economic and social development not as a direct provider of growth, but as a partner, catalyst and facilitator" (World Bank 1997).

In this context, it is essential to examine the recommendation of the World Development Summit, 1995 which talks about "people initiatives", "people empowerment" and "strengthening capacities of the people". Regarding the objectives of development, it specifically mentions that:

> empowering people, particularly women, to strengthen their capacities is the main objective of development and its principal resource. Empowerment requires the full participation of people in the formulation, implementation and evaluation of decisions determining the functioning and well-being of our societies. To ensure full participation of the people, it is pointed out that the state should provide "a stable legal framework" in accordance with the constitutions, laws and procedures consistent with international law and obligation; which promotes, among with other things, the encouragement of "partnership with free and representative organisations of civil society, strengthening of the abilities and opportunities of civil society and local communities to develop their own organisations, resources and activities (UN 1995).

It is in relation to the above that the World Development Report, 1997, emphasised the need on for effective role of the state for social and economic development, but in a new form. It writes:

> the state is central to economic and social development, not as a direct provider for growth but as a partner, catalyst and a facilitator … the world is changing, and with its our ideas about the state's role in economic and social development (World Bank 1997: 1).

In view of the collapse of the command and control economies, fiscal crises of the welfare states, explosion in humanitarian emergencies in several parts of the world, growing lack of confidence in governance among the marginalised groups, endemic corruption within the system, increase in poverty and various dramatic events, especially technological change in the world economy on the one hand and the growing discontent of the people, manifestation of grassroots mobilisation and increasing pressure of the civil society on the other, a redefinition of the state's responsibilities has been evolved as a strategy of the solution of some of these problems. According to the World Bank:

> This will include strategic selection of the collective actions that states will try to promote, coupled with greater efforts to take the burden off the state, by involving citizens and communities in the delivery of the collective goods … for human welfare to be advanced, the state's capacity - defined as the ability to undertake or promote collective actions efficiently, must be increased (ibid: 3).

It is apparent that within the given perspectives of the "stable legal framework", "strategic selection of collective action" (i.e., co-option of grassroots mobilisation) by the state, possible partnership of the state with civil society and state-sponsored initiatives of civil society to have their own organisation, the following three important dimensions have emerged very clearly: a) all initiatives for the empowerment of marginalised groups should be in accordance with the prescribed rule of the land; b) the state will selectively co-opt people's initiatives as and when required, and c) the non-government organisations (NGOs) would acquire a significant role to take the burden off the state for the empowerment of the marginalised.

Reflection and Action 30.4

Examine the role of civil society in empowering the marginalised in our society

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The NGOs are claimed to have emerged as equal partners in development along with the state in most parts of the developing world. There is no denying the fact that a small section of NGOs have done substantive work for the social development and empowerment of marginalised groups, opting for various innovative alternative channels of development. The efforts of the Self-employed Women's Association (SEWA), Ahmedabad, and the Bankura Project of the Centre for Women Development Studies (CWDS), New Delhi, may be cited as examples here. However, the experiences of SEWA, CWDS and a few such other institutions do not represent the whole story of NGOs' activism in India. A good section of the NGOs in India have emerged to be the "state in disguise" in many parts of the country mostly because of their hierarchical and bureaucratic structures and style of functioning, conventional outlooks, lack of dynamism and inability to generate a community of "change agents" from among the marginalised people. They mostly produce stereotypes and contribute to the prevailing power structure. Though most NGOs start with the promise of inculcating the "culture of change agents" through their interventions to break the age-old structure of subordination and marginalisation, in actual practice they end up inculcating the culture of "target group" beneficiaries who are passive recipients of benefits of various development schemes. Because of their dependency on the state for funds and other resources, they reinforce the state structure and in turn the various

structures of subordination of marginalised groups. Mr Ashis Kumar, activist of a prominent NGO, articulates his frustration:

> It is impossible to act as a change agent or to create a "community of change agents" within the given complexities of our society. The donor agencies have their specific expectations; you are to get your money channelised through government and bureaucracy. You are to negotiate at every stage. At the local level there are power dynamics - you are to accommodate their interest. At the grassroots you are to meet the immediate needs of the people. As an organisation we are to survive within the system.... Indeed we are to compromise at every stage as survival strategy. We are however, sure of one point very clearly that if we can survive within these processes, we can contribute to empowerment of the people by not creating alternatives, but by subscribing to the ongoing processes (cf. SinghaRoy 2001).

30.8 Civil Society Movements: A Critique

Though the NGOs begin with the philosophy of negation of governmental initiatives, they are guided by the economic and social policies of the government. In a system of structural dependency on the state, the NGOs without a committed manpower will provide only a limited space for the creation of alternatives. Many NGOs have even proved their inability to fulfill their commitment to the state. It was in 1996 that Central of Council for Advancement of Peoples Action and Rural Technology (CAPARD) blacklisted around 150 NGOs for not fulfilling their commitment. Though the process of proliferation of NGOs has been very sharp in recent years, their disappearance from the public scene has also been conspicuously marked. To whom are they accountable? To the state? To the people? In a scenario where the NGOs have been unable to either inculcate the culture of "change agents" or to form a new collective identity of marginalised groups at a substantive scale, it is very doubtful whether NGO activism will alone pave the way for the empowerment of marginalised groups. However notwithstanding all the criticisms and limitations, there is no denying of the fact that civil societies have been able to initiate a process of mobilisation at the grassroots. Historical evidence shows that such changes in the pre-existing power structure are possible only through sustained grassroots mobilisations, social movements, selfless interventions of civil societies (NGOs, people's cooperatives and progressive institutions) and well-articulated alternative policy formulations and their execution with a political commitment for the redressal of power imbalances at the grassroots. After all, the marginalised people cannot stand in isolation on an unequal footing compared with the state (SinghaRoy 2001). Collective mobilisation as a long-term political investment will pave the way for the empowerment of the marginalised. Hence there is a need to view civil society activism not with a vote of negation but constructive criticality.

30.9 Conclusion

In this unit we discussed the role of civil society in the development and empowerment of the marginalised groups in society. In the early part of this unit we discussed the meanings and dimensions of the civil societies and their linkage with social movements. The significance of the NGOs as civil society actors, their relationship with the state and the marginalised people are discussed in detail. In the context of the emerging discourse on "development with empowerment", the significance of civil societies is critically examined. The unit concludes that as the civil societies have emerged to be an important partner of development along with the state and the people, their roles are to be seen very critically.

30.10 Further Reading

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Glossary

Adult Education: Adult education is the practice of teaching and educating adults. It includes organised public educational programs, other than regular full-time and summer elementary and secondary day school that provide opportunities for adult and out-of-school youth who have not graduated to further their education. This is often done in the workplace, or through 'extension' or 'continuing education' courses at secondary schools, or at a college or university or as evening classes.

Agronomists: Agronomists are soils specialists who conduct research in everything from the very basic to the applied issues of soil and water management and land use to improve quality and yield of crops. They study interactions among plants, soils, and the environment. They use sophisticated research tools and techniques to develop new crop hybrids and varieties that grow more efficiently and are more beneficial to society. Agronomists research ways to produce crops and turf, and ways to manage soils in the most environmental friendly way.

Bandwidth: The data transfer capacity of a telecommunications channel, usually expressed in terms of the number of bits per second that can be transmitted (a bit being one unit of information). Narrow bandwidth would correspond to a dial-up modem with 2400 to 56,000 bits per second while broadband can extend to more than 10,000 times this rate.

Biodiversity: Organisms are organised at many levels, ranging from complete ecosystems to the biochemical structures that are the molecular basis of heredity. Biodiversity means the number and variety of different organisms in the ecological complexes in which they naturally occur. A large number of species signifies a healthy atmosphere and characterises the food chain, representing multiple predator-prey relationships.

Biopiracy: Biopiracy refers to the privatisation and unauthorised use of biological resources by entities including corporations, etc. outside of a country, which has pre-existing knowledge. It also means the smuggling of diverse forms of flora and fauna, and the appropriation and monopolisation of traditional population's knowledge and biological resources. Biopiracy causes the loss of control of traditional populations over their resources. Particular activities covered by the term are a) exclusive commercial rights to plants, animals, organs, microorganisms, and genes b) commercialisation of traditional communities' knowledge on biological resources, c) patenting of biological resources.

Broadband Networks: Broadband is a high-speed data transmission capability. It has a transmission speed in excess of 256,000 bits per second in both directions. The term is commonly used to refer to Internet access via cable modems, DSL (JetStream, for example) and increasingly, wireless technologies (WiFi).

Casualisation of Labour: This means expansion of casual/informal employment, which means part-time or temporary or contract employment. They may have to work with minimum wage with no social security cover and trade unionism to raise their work related issues. Casual workers excluded from many of the benefits enjoyed by ongoing, and fixed-term employees, such as legislative protections against unfair dismissal, job security etc.

Counter-culture: In sociology, counterculture is a term used to describe a cultural group whose values and norms are at odds with those of the social mainstream, a cultural equivalent of a political opposition.

Cultural Barriers: Events or occurrences based on culture that create communication problems between individuals from different cultural backgrounds.

Cyberspace: It describes the world of connected computers and the society that gathers around them. The term was coined by author William Gibson in his 1984 novel *Neuromancer.* Cyberspace is now used to describe all of the information available through computer networks and it is commonly known as the Internet.

De-industrialisation: Generally refers to an absolute decline in industrial output or employment rather than simply a decline relative to other sectors of the economy.

De-territorialisation: Some scholars define globalisation in terms of deterritorialisation. For them it is process that entails a reconfiguration of geography, so that social space is no longer mapped in terms of territorial places, territorial distances, or territorial boarders (Scholte 2000). Global relations, becomes trans-border exchanges without distance. Such relations are becoming more significant as communication and production increasingly occur without regard to geographic constraints. Transborder organisations of many kinds proliferate, and more people become aware of the world as a single whole.

Devaluation of Currency: Devaluation means the official lowering of the value of one country's currency in terms of one or more foreign currencies as a result of deliberate government action. This also means a reduction in a country's official rate at which one currency is traded for another. Devaluation makes a country's exports cheaper abroad by reducing their prices in terms of foreign currencies and makes imports more expensive by raising their prices in terms of the home currency. Devaluation can provide a short-term boost to an economy encountering balance of payments imbalances, by altering its price competitiveness, but generally has inflationary consequences.

Development Induced Displacement: Development-induced displacement is the forcing of communities and individuals out of their homes, often also their homelands, for the purposes of economic development projects. It is a subset of forced migration. It has been historically associated with the construction of dams for hydroelectric power and irrigation purposes but also appears due to many other development activities, such as mining, infrastructure development etc.

Digital Divide: The term digital divide was coined in the 1990s to describe the perceived growing gap between those who have access to and the skills to use ICT and those who, for socio-economic and/or geographical location, age, gender, culture have limited or no access. There was a particular concern that ICT would exacerbate existing inequalities.

Digitisation: Digitisation generally refers to the process of converting data and information in paper, analog sound tracks, graphics, etc. into binary coded files for the purpose of computer storage and manipulation.

Disinvestment: Disinvestments was a term first used in the 1980s, most commonly in the United States, to refer to the use of a concerted economic boycott designed to pressure the government of South Africa into abolishing its policy of apartheid, which was still in force at that time. In India since 1991 the term is applied to the privatisation of State-held assets by selling out equities.

Drip Irrigation: This is a water-conserving irrigation system where a system of tubes with small holes allow water to drip out onto the root zone of plants. This method results in very little evaporation or runoff, saving water by directing it more precisely, reduced transmission of pathogens, and fewer weeds.

Electronic mail: More often called E-Mail. This is a communication that requires an electronic device for storage and/or transmission. E-mail is a fast, easy, and inexpensive way to communicate with individuals or groups on networked computers and computers equipped for Internet access. Besides basic correspondence, with some systems you can attach and send documents and other files.

Fiscal Deficit: Fiscal deficit is the gap between the government's total spending and the sum of its revenue receipts and non-debt capital receipts. It represents the total amount of borrowed funds required by the government to completely meet its expenditure.

Foreign Exchange Reserve or Forex Reserve: Forex is the market where one currency is traded for another. It is one of the largest markets in the world. Foreign exchange are counted in US dollars. India's "forex reserves" recently passed the 100 billion US$ mark. India has built up this reserve after an unpleasant incident in the early 1990s, when the country's gold reserve had to be pledged because of a balance of payments crisis.

Fossil Fuel Power: Power generated from coal, oil or natural gas that result from the fossilisation of ancient plants or animals. Fossil fuels are the remains of plant and animal life that are used to provide energy by combustion which are produced by the decomposition of ancient (fossilized) plants and animals. These fuels have taken millions of years to form.

Genetic Diversity: Genetic diversity is heritable variation within and between populations of species. This is a property of a community of organisms of a certain species, in which members of the community have variations in their chromosomes due to a large number of slightly dissimilar ancestors; this property makes the community in general more resistant to diseases or to changing ecological conditions.

Genetic Engineering: This is the technique of removing, modifying, or adding genes to a DNA molecule in order to change the information it contains. By changing this information, genetic engineering changes the type or amount of proteins an organism is capable of producing, thus enabling it to make new substances or perform new functions.

Genetic Pollution: Uncontrolled escape of genetic information into the genomes of organisms in the environment where those genes never existed before. This also means the unintended transfer of genetic material from a genetically engineered organism to one that is not genetically engineered.

Human Capital: The stock of knowledge and skill, embodied in an individual as a result of education, training, and experience, that makes them more productive enable them to derive economic benefits from that. It is the stock of knowledge and skill embodied in the population of an economy. Human capital can be acquired formally, for example through schooling, or informally, for example through on-the-job learning.

Hydraulic System: A system designed to transmit power through a liquid medium, permitting multiplication of force in accordance with Pascal's law, which states that "a pressure exerted on a confined liquid is transmitted undiminished in all directions and acts with equal force on all equal areas." It is a mechanism operated by the resistance offered or the pressure transmitted when a liquid is forced through a small opening or tube.

Indigenous Knowledge: Indigenous knowledge refers to the knowledge belonging to a specific ethnic group, which is unique to a given culture or society. It is the basis for local-level decision-making in agriculture, health care, food preparation, education, natural resource management, and a host of other activities in rural communities. Indigenous information systems are dynamic, and are continually influenced by internal creativity and experimentation as well as by contact with external systems. It is the knowledge that people in a given community have developed over time, and continue to develop. It is based on experience, often tested over centuries of use, adapted to local culture and environment.

Inflation: The rise in price of goods and services, or Consumer Price Index (CPI), when too much money chases too few goods on the market. Moderate inflation is a result of economic growth. Hyperinflation (rising at rates of 100% or more annually) causes people to lose confidence in their economy and put their money in hard assets such as gold and real estate.

Information Processing: Organisations need to process a rapidly growing amount of information. Information processing is the process by which data are handled and stored to ensure the smooth and efficient handling of information. By typing text, entering data into a computer, operating a variety of office machines etc. all grouped into information processing. Those who engaged in information processing jobs are often called as word processors, typists, and data entry keyers, electronic data processors, keypunch technicians, or transcribers.

Intellectual Capital: Is the possession of the knowledge, applied experience, and professional skills which when properly motivated, translated into customer relationships and can provide the organisation with a competitive edge in the marketplace.

Intellectual Property: Intellectual properties are creation of the intellect that has commercial value, including copyrighted property such as literary or artistic works, and ideational property, such as patents, appellations of origin, business methods, and industrial processes. The term often used to refer generically to property rights created through intellectual and/or discovery efforts of a creator that are generally protectable under patent, trademark, copyright, trade secret, trade dress or other law.

As defined by Article 2, section (viii), of the Convention Establishing the World Intellectual Property Organisation, done at Stockholm, July 14, 1967, "intellectual property" shall include the rights relating to: literary, artistic and scientific works, performances of performing artists, phonograms, and broadcasts, inventions in all fields of human endeavor, scientific discoveries, industrial designs, trademarks, service marks, and commercial names and designations, protection against unfair competition, and all other rights resulting from intellectual activity in the industrial, scientific, literary or artistic fields.

Liberalisation: In international terms liberalisation means trade between nations without protective customs tariffs or free trade. This implies trade or commerce carried on without such restrictions as import duties, export bounties, domestic production subsidies, trade quotas, or import licenses. Internal trade liberalisation means loosening of government restrictions in trade related aspects.

Life-long Learning: A continuum of the learning process that takes place at all levels - formal, non-formal and informal - utilising various modalities such as distance learning and conventional learning. This is a broad concept where education that is flexible, diverse and available at different times and places is pursued throughout life.

Livelihood Opportunities: A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living. The five types of capital asset that comprise a livelihood are financial, physical, natural, social, and human.

Modernisation: Modernisation implies an approach toward the institutions, structures, and values of Western society. Historically modernisation is the process of change toward those types of social, economic and political systems that have developed in Western Europe and

North America from the seventeenth century to the nineteenth and have then spread to other European countries and in the nineteenth and twentieth centuries to the South American, Asian, and African continents (Eisenstadt, S. M. 1966). Generally, the classical modernisation means the historical process of the great changes of the transformation from traditional agricultural to the modern industrial society since the industrial revolution in 18th century.

Molecular Biology: This is a field of biology that studies the molecular level of organization, which means the study of the structure, function, and makeup of biologically important molecules. It studies the molecular basis of life including the biochemistry of molecules such as DNA/RNA and proteins and the molecular structure and function of the various parts of living cells.

Monopoly: Monopoly means exclusive control or possession of something. In economics, a monopoly is defined as a persistent market situation where there is only one provider of a kind of product or service. Monopolies are characterised by a lack of economic competition for the good or service that they provide and a lack of viable substitute goods.

Neo-classical Economics: Neoclassical economics refers to a general approach to economics based on supply and demand, which depends on individuals (or any economic agent) operating rationally, each seeking to maximize their individual utility or profit by making choices based on available information. Mainstream economics is largely neoclassical in its assumptions. There have been many critiques of neoclassical economics, both from within orthodox economics, and from outside of it, and often these critiques have been incorporated into new versions of neoclassical theory.

Network Society: The term Network Society was coined by Manuel Castells as part of his extensive analysis of modern society. The network society goes further than the information society that is often proclaimed. Castells argues that it is not purely the technology that defines modern societies, but also cultural, economical and political factors that make the network society.

Paradigm Shift: A complete change in thinking or belief systems that allows the creation of a new condition previously thought impossible or unacceptable. It just does not happen but rather driven by changes. A paradigm shift is the term first used by Thomas Kuhn in his famous 1962 book *The Structure of Scientific Revolutions* to describe the process and result of a change in basic assumptions within the ruling theory of science. It has since become widely applied to many other realms of human experience as well. Presently agents of change are driving a new paradigm shift. The signs are all around us. For example, the introduction of the personal computer and the Internet has impacted both personal and business environments, and is a catalyst for a Paradigm Shift. We are shifting from a mechanistic, manufacturing, industrial society to an organic, service based, information centered society, and increases in technology will continue to impact globally. Change is inevitable. It's the only true constant.

Patent: A patent is a set of exclusive rights granted by a government to a person the sole right to make, use and sell, for a fixed period of time in exchange for the regulated, public disclosure of certain details of an invention. The person applying for a patent does not need to be the inventor who created or authored the invention. Many audio and video technologies are covered by patents.

Privatisation: Privatisation is the process of transferring property, from public ownership to private ownership and/or transferring the management of a service or activity from the government to the private sector.

Radioactive Wastes: Radioactive by-products from the operation of a nuclear reactor or from the reprocessing of depleted nuclear waste.

Renewable Energy Resources: Resources that are continually being renewed and replenished and are unlikely to run out. They include solar energy, hydropower, wind, waves and tides. Renewable energy and energy efficiency technologies are key to creating a clean energy future. Most renewable energy comes either directly or indirectly from the sun. Sunlight, or solar energy, can be used directly for heating and lighting homes and other buildings, for generating electricity, and for hot water heating, solar cooling, and a variety of commercial and industrial uses.

Scientific Information: These are Factual inputs, data, models, analyses, technical information, or scientific assessments based on scientific data. This includes any communication or representation of knowledge such as facts or data, in any medium or form, including textual, numerical, graphic, cartographic, narrative, or audiovisual forms

Service Economy: The service economy consists of all those economic activities not involved in the production and processing of goods and energy. Service economy can refer to one or both of two recent economic developments. One is the increased importance of the service sector in industrialised economies. Services now account for a higher percentage of GDP than just 20 years ago.

Social Exclusion: This is a term to describe marginalisation from employment, income, social networks such as family, neighbourhood and community, decision making and from an adequate quality of life, the various ways in which people are excluded (economically, politically, socially, culturally) from the accepted norms within a society.

Social Sector: Social sector of an economy includes those areas where any investment may not gain financial returns. Social sector investments lead to the accumulation of human and social capital in a society. Social sector mainly includes poverty eradication, employment generation, education, health, water supply, sanitation, housing, slum development, social welfare and nutrition, rural employment and minimum basic services.

Staple Food: A staple food is a basic but nutritious food that forms the basis of a traditional diet, particularly that of the poor. Although nutritious, staple foods generally do not by themselves provide a full range of nutrients, so other foods need to be added to the diet to prevent malnutrition. Staple foods vary from place to place, but are usually of vegetable origin, from cereals, pulses, corn, rice, millets and plants growing starchy roots.

Symbolic Analysts: Symbolic analysists solve, identify, and broker problems by manipulating symbols. They simplify reality into abstract images that can be rearranged, juggled, experimented with, communicated to other specialists, and then, eventually, transformed back into reality. The manipulations are done with analytic tools, sharpened by experience. These tools may be mathematical algorithms, legal arguments, financial gimmicks, scientific principles, psychological insights about how to persuade or to amuse, systems of induction or deduction, or any other set of techniques for doing conceptual puzzles (Robert B. Reich 1991).

Trade Deficit: Trade deficit is an excess of imports over exports. Trade Surplus is an excess of exports over imports. Balance of trade means both surplus or deficit. The Balance of trade is made up of transactions in merchandise and other movable goods. Balance of trade figures are the sum of the money gained by a given economy by selling exports, minus the cost of buying imports.

Trade Secrets: A trade secret is a confidential practice, method, process, design, or other information used by a company to compete with other businesses. It is also referred to in some jurisdictions as confidential information.

Vicious Cycle: A Vicious cycle is a cycle in which one problem leads to another, which in turn aggravates the first problem. For example poverty. A poor person may not be able to invest in the education of their children or to provide enough economic support this may in turn lead to the poverty of the younger generation also.

Water Conservation: Water conservation means the care, preservation, protection, and wise use of water with methods ranging from more efficient practices in farm, home and industry to capturing water for use through water storage or conservation projects etc.

World Wide Web (WWW): A hypermedia-based system for browsing Internet sites. It is named the Web because it is made of many sites linked together; users can travel from one site to another by clicking on hyperlinks. The World Wide Web is a portion of the Internet comprised of a constellation of networked resources. Its Internet servers utilise HTTP to transfer documents and multimedia files formatted in hypertext markup language (HTML). Not all servers on the Internet are part of the World Wide Web.

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