

Science, Technology and Rural Development in India

M. N. SRINIVAS

KALE MEMORIAL LECTURE, 1977

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The R.B.R.R. Kale Memorial Lecture, 1977 was delivered by Professor M. N. Srinivas on the 4th of June 1977 at the Institute. The subject of the lecture was "Science, Technology and Rural Development in India".

Born in Mysore 1916, Professor Srinivas had his University education in Mysore, Bombay and in Oxford. He holds a Ph.D. degree of Bombay University and a D.Phil. degree of Oxford University. After teaching Indian Sociology at Oxford University for some time he returned to India and joined the M.S. University of Baroda. In 1959, he joined Delhi University as Professor and Head of the Department of Sociology, Delhi School of Economics. After his retirement from Delhi, he became a Senior Fellow and Head of the Sociology Unit in the Institute for Social and Economic Change, Bangalore.

In 1963, he went to Manchester University as Simon Visiting Professor and in the same year, he delivered the famous Tagore Memorial Lectures at the University of California, Berkeley. These lectures were published later in the form of a book entitled *Social Change in Modern India*.

Professor Srinivas has done extensive field work among the Coorgs in Karnataka and in Tamil, Telugu and Karnataka villages. These field studies gave him ample data to write several books and a large number of research papers in Indian Sociology. In one of his books *Religion and Society among the Coorgs of South India*, he introduced the concept "sanskritization", an underlying process of Indian social change. His recently published book *Remembered Village* records on memory the process of change going on in a Karnataka village.

In recognition of his outstanding contributions to Indian Sociology, he was awarded the famous Rivers Memorial Medal of the Royal Anthropological Institute of Great Britain and Ireland and Sarat Chandra Roy Memorial Gold Medal of the Asiatic Society of Bengal. He was the President of the Anthropology and Archaeology Section of the Indian Science Congress, 1957. Recently, for his distinguished services in the field of Sociology, the Government of India awarded him Padma Bhushan.

SCIENCE, TECHNOLOGY AND RURAL DEVELOPMENT IN INDIA

I

The decision taken in the early seventies by the Government of India to use systematically science and technology for promoting "integrated rural development" was not a new one, marking a radical break from the past, but, on the contrary, was in line with the development strategy followed since the 1950s. Indeed, one could go back further to the thirties when Pandit Nehru headed a Congress Committee on planning, the other two members being Sir M. Visweswariah and Professor K. T. Shah. Pandit Nehru had been greatly impressed by the manner in which the USSR had developed through planning. The national Planning Commission was set up in 1950 with Pandit Nehru as the Chairman and the First Five-Year Plan was launched in 1952.

It is relevant to recall that Sir M. Visweswariah was one of the earliest advocates of planned development, and in the forties, a few Indian industrialists, including Messrs Tata and Birla, drew up a plan for development which intended to make use of the sterling balances which India had accumulated in Britain during the War years. The industrialists were only too well aware that they did not have the resources necessary for investing in creating the infra-structure for development and in heavy industries. They therefore wanted the Government to go in for planned development.

Broadly, the fifties were given to creating an infra-structure for large-scale development, and to constructing several basic industries and hydro-electric projects. Pandit Nehru wanted the Government to control the "commanding heights of the economy", and he saw in industrialization the hope for solving the unemployment problem. He tried to invest a mundane activity like development with a religious quality: he wanted the people to regard the immense dams and factories as "places of pilgrimage" in new India.

In agriculture, more land was brought under cultivation, and also, irrigational facilities were extended. Concessional land tenures such as zamindari in its various forms were abolished, and efforts were made to provide security of tenure to tenants as also a fair share of the yield. The idea of imposing a ceiling on the amount of land owned

by an individual was discussed. In brief, the general direction of land reforms was to eliminate all middlemen between the cultivator and the State. But success in their implementation has not been unqualified except in a few States. The leaders of the landed castes who are well represented in State legislatures, and frequently, in State Cabinets, have dragged their feet over implementing land reforms while ceilings have been largely negated by effecting partition of land among close relatives. Concealed tenancies and secret evictions have occurred everywhere. Generally speaking, the degree of success in implementing land reforms has depended upon the determination the State Government has shown and the effectiveness with which it has used the party organisation. The quality of the State administration is also a factor.

The first nation-wide attempt made to improve agriculture and the villages was in 1952 when the Community Development Programme was started on an experimental basis, while a diluted version of it, the National Extension Service, came into existence somewhat later. The two together provided a countrywide organisation for developing agriculture and the villages. The initial *elan* the programme evoked was gradually lost owing to a variety of reasons one of which was that the minor official who had the task of promoting development at the grassroots level viz., the village level worker, was burdened with too many responsibilities.

Since the sixties the emphasis in agriculture has shifted to concentrating on increasing production through using fertilisers in certain districts which had assured irrigation facilities. This strategy paid off, 40% of the increase in grain production during 1960-65 being attributed to the use of fertilisers.

It was in the early sixties that hybrid varieties of wheat from Mexico reached India thus beginning the green revolution. This period also saw the starting of universities which had as their main aim carrying out agricultural research, education and extension. The Indian Agricultural Research Institute, Delhi, Pant Nagar University in Western UP, and the Punjab Agricultural University, Ludhiana, all played a pioneering role in evolving new, hybrid varieties of wheat suited to Indian conditions. In a short while, in the Punjab, Haryana, and parts of UP and Rajasthan, the production of hybrid wheat showed a spectacular rise, and during the short period 1966-70, the country's wheat production registered an increase of over seven million tonnes, from 11.3 to 20.4.

Hybrid varieties were also evolved in a relatively short period, for maize, *bajra*, *jowar*, ragi and even rice, though the resulting yield increases were not substantial. Among the non-food crops, hybrid

varieties were evolved for cotton and mulberry. Bivoltine cocoons increased silk production.

The "green revolution" was greeted with hostility by the radicals as it ran counter to their thesis that production could not increase without fundamental changes in agrarian relations. Further, only the rich landowners ("kuklas") had access to the new technology and an inevitable result of this was the further widening of the gap between the rich and poor. It was the radicals' attack on the green revolution that led the Government to devise, in the seventies, measures, positive and negative, to reduce inequalities. Credit and other facilities were given to small and marginal farmers, and land, obtained as surplus from the big landowners, was distributed among landless labourers. House sites were distributed among Harijans. On the negative side, there was an attempt to enforce the land ceiling acts more strictly, and subsidies were withdrawn from agricultural inputs. Agricultural property came under wealth and gift acts, and the steep rise in land values which had occurred everywhere had made many landowners liable to pay these taxes.

A system of local self-government, panchayati raj, was introduced in 1958, from the village (panchayat) upto the district (Zilla Parishad). It was aimed at educating the people in self-government through giving them a modicum of power and resources. However, the provisions of the panchayati raj act vary from one State to another. In addition, the formation of cooperative societies was encouraged in rural areas to protect villagers from the rapacities of middlemen.

II

Integrated rural development may be said to have begun in September 1972 when the Council of Scientific and Industrial Research (CSIR) became involved in the development of Karimnagar, a backward district in Andhra Pradesh. Soon, a few research institutions functioning under the umbrella of the CSIR followed the latter's example and undertook the development of nearby regions. Later, a few institutions of higher learning like universities and institutes of technology became involved in the actual work of rural development. The urge also spread to a few industrial houses. Involvement in rural development had become fashionable, fast approaching a status symbol like wearing *khadi*.

The scientists' commitment to rural development led to the choice of "Integrated Rural Development" as the focal theme for discussion at the 63rd Indian Science Congress Session held at Waltair in January 1976. Professor M. S. Swaminathan was the general president of the Session. Addressing the concluding meeting of the Session,

Mr. P. N. Haksar, then Deputy Chairman of the Planning Commission, asked the assembled scientists to take up, as a challenge, the development of a backward district in Bihar.

A considerable amount of staff work seems to have been done in 1975 for facilitating scientists' participation in integrated rural development, for Mr. C. Subramanian, then finance minister, submitted in March 1976 a special paper to Parliament, "Programme for Integrated Rural Development" (*Programme for Integrated Rural Development*, Government of India, November 1976) along with his budget proposals. A sum of Rs. 15 crores was set aside for the development of a backward district in each State of the Union. The Department of Rural Development in the Ministry of Agriculture and Irrigation was entrusted with the overall responsibility for implementing the programme, while the Department of Agricultural Research and Education (DARE), and the Indian Council of Agricultural Research (ICAR) were made responsible for preparing "resource inventories and action plans" for the twenty selected districts. Finally, a Committee headed by the member for agriculture in the Planning Commission was entrusted with the responsibility for coordinating the programme at the national level. A working group was set up in May 1976, and heads of national laboratories and other scientific and technological institutions drew up blueprints for the development of individual districts (*PIRD*, 2-3).

While the decision to use science and technology for bringing about the rapid development of rural areas was basically in line with previous efforts at development, the political situation in the country in the seventies was radically different from that obtaining, for instance, in 1952. The 1969 split in the Congress had produced a leftist swing, bringing Mrs. Gandhi close to the Communist Party of India as also the radicals in her own party. Mrs. Gandhi acquired a leftist image, and the 1971 general elections, coming after bank nationalisation and the abolition of privy purses of the princes, were won on the slogan of *garibi hatao* meaning the expeditious abolition of poverty. Mrs. Gandhi's leftist colleagues and advisors exerted pressure on her to pursue increasingly radical programmes. Soon a climate was created in which "commitment" and "relevance" became the watchwords for officials, academics and even judges. In practice it meant supporting the policies and programmes of Mrs. Gandhi's government.

It was against this background that the integrated rural development programme came into existence involving the cream of the country's intelligentsia, the top scientists and technologists in the rapid development of rural areas. They would be demonstrating both their "relevance" and "commitment" by participating in the programme.

But whatever the ultimate sources of the scientists' involvement in development, its implications both for development and science are likely to be far-reaching. In the first place, it signifies a cognitive revolution for the scientists in so far as they were called upon to shift their attention from matters of purely technical concern to those which were partly technical and partly economic and social. It is probable that the transition from the pure to the applied, the universal to the local, and the laboratory to the field, was a difficult one particularly for scientists from ex-colonial countries for they are generally eager to retain their links with the leaders of science and technology in the West. But in the present instance the transition seems to have been made somewhat easier as a result of Western scientists themselves becoming preoccupied with finding solutions to problems such as pollution, finding new sources of energy, conservation, recycling etc. Many scientists and technologists are also bothered by the problems of developing countries as they realise that the world is shrinking fast and that it is not realistic to expect a few prosperous and sanitary pockets to remain unaffected by vast and overcrowded areas which are desperately poor, insanitary and frustrated. Further, there now exist several international agencies which bring together scientists and technologists from the developed and developing countries to discuss problems of common concern. All in all, the climate, national as well as international, is propitious for Indian scientists and technologists to pay attention to solving problems of poverty, malnutrition, disease, illiteracy and backwardness which afflict a large majority of their countrymen.

The considerations listed above help explain, at least partly, the scientists' active interest and participation in rural development. But, as I have stated earlier, whatever the reasons, it is likely to have profound consequences not only for development but for Indian science itself. Immersion in the problems of villagers, especially poor villagers, may stimulate their creativity in a myriad ways leading to exciting solutions, which, incidentally, might also be relevant for other developing countries. Since the problems of development are rarely purely technical but in fact intermeshed with political and economic matters, scientists will have to work in close collaboration with social scientists and also with the people, in order to arrive at acceptable innovations. At the present moment, scientists and technologists only pay lip service to the need for collaborating with social scientists. The most progressive among them might want a young economist or sociologist to investigate problems which *they* think significant. Genuine collaboration on the basis of equality is very far away indeed.

Further, wonder at the greatness and marvels of Western science must not make one lose sight of the fact that it is essentially based on the *Western* experience of the Western and non-Western world, and that the perceptions and reactions of non-Western scientists working in their home environments, are likely to be profoundly different. So much so that when Indian scientists are addressing themselves to the problems of the rural poor, they are in a sense, enlarging the experimental range of modern science just as the Chinese are probably doing. That ought to contribute to making science less West-bound, parochial and more universal.

III

Since the 63rd Session of the Indian Science Congress at Waltair in January 1976, the phrase "integrated rural development", has become enormously popular. It is the "in" thing, and rural development which does not claim to be "integrated", does not get an audience. Naturally, academic entrepreneurs have got on the bandwagon of "integrated rural development" with a view to securing funds for research and enlarging their range of patronage. But it is a matter for surprise that in spite of all the pother about integrated rural development no one has bothered to explain what it is, and to what extent, if any, it differs from other forms of rural development. I must hasten to add, however, that I am not one of those who places too much importance to definitions as such. In fact, I am convinced that, generally, in Indian academic circles, arriving at a clear and logical definition is frequently regarded as the end of intellectual activity instead of as a beginning to systematic inquiry. Correspondingly, a scholar might begin an investigation with a rough idea of the area or problem he wants to investigate, and might arrive at a clearer idea of what he wants to do at the end of his study. But when crores of rupees of tax payers are being spent on a project, the government and others who are concerned, have an obligation to try and make clear what they are spending public money on. Under the circumstances, lack of clarity amounts to irresponsibility.

In the special paper on "Integrated Rural Development", Mr. Subramaniam emphasised two features implying that they were essential if not inseparable components of it though he did not bother to state his reasons for so doing: "making optimum use of available local resources through purposive inputs of science and technology for the benefit of the rural poor" (*PIRD*, 2). In other words, the development of resources as well as taking steps to ensure that the rural poor are benefited, are central to integrated rural development. A few pages later, the second objective was further split into two, and a fourth added: (1) "the programme must provide gainful employment and

increase the purchasing power of the rural power in particular, marginal farmers, landless labourers, artisans, women and children. . . . ; (2) "these job opportunities must be provided through the application of science and technology in making optimum use of existing local resources — human, animal, plant, soil, water, mineral and other; and (3) "the programme should be simple enough to operate and be economically viable so as to ensure that it is quickly capable of achieving self-reliance and self-replication under similar or varying conditions" (PIRD, 4).

Professor Swaminathan added two more items to the above list in his presidential address: making science and scientific outlook a part of the villager's life, and the starting of agro-industries. The first is part of the education of the villagers and it is intended to change the quality of their life while the second is aimed at providing them with jobs.

However, while no definition of integrated rural development is available, few scientists have stressed the linkage between the various technical aspects of development. For instance, Dr. J. C. Srivastava, a scientist employed in the CSIR, has written that "the (development) project should be an *integrated venture* wherein the organisation and management from production and collection of the raw material to its processing and distribution is knitted together and even the growers and raw materials became the partners in production, profit and loss" (*Invention Intelligence*, January-February 1977; Italics mine). That the development of resources which is mostly a technical matter is inextricably mixed with political, ethical, and social matters is recognised by many though such recognition does not always find clear expression. According to Dr. Bepin Behari, "Appropriate technology is neither intermediate technology nor miniaturisation of production process: it is a *radically new approach in which production technique becomes subordinate to social needs*. Solutions of resolved problems in the realm of appropriate technology must be inspired with this basic concern for the masses" (*Invention Intelligence*, January-February 1977). But while awareness is essential it is not enough: it has to express itself in actual development projects which are quickly and efficiently implemented.

It is surprising that the scientists and technologists who have written on "integrated rural development" should not have heard of "functionalism", an idea and approach which has been so influential in social anthropological and sociological research during the last sixty years or more. To put it simply, functionalism views society (or culture) as an integrated whole in the sense that the various parts are meshed in with each other, and that changes in any single institution will sooner or later, result in changes in other institutions. Not

only are the various social institutions linked with each other but the social system is in turn linked with its technology and environment. In other words, a society is really a series of interlocking systems all of which again form a system.

Let me give an example of change in one area of social life bringing about a series of linked changes in other areas. Mandya District, the richest agricultural district in Karnataka today, was extremely poor and disease-ridden in the thirties. The Visweswariah Canal had brought with it endemic malaria with the result that irrigation facilities instead of stimulating agriculture very nearly destroyed the latter. The health of the people had been so adversely affected that pregnant women were rare to come by. An intensive campaign to eradicate malaria was started by the State Government during the War years and DDT was sprayed on canals and other places where the mosquitoes bred. The starting of a sugar factory in Mandya and the adoption of a bold and imaginative policy to spread the cultivation of sugarcane in the district proved to be very successful. Further, the higher prices which food and commercial crops fetched during the War years and subsequently, resulted in prosperity for the peasantry. The richer peasants invested their surpluses in a variety of commercial activities, and with the dawn of independence, some of them entered politics. Mandya became a boom town bursting with every kind of activity. Several educational institutions were started, and it became universal for at least the sons of the richer peasants to go to school and college. Educated youths demanded huge sums as dowry, and their life-styles were sharply different from those of their parents. Agricultural prosperity resulted in the peasants' becoming aware of their collective power. It also made them sensitive to new economic opportunities, and to the importance of education for wielding power. The life-style of the rich peasants became both more Sanskritized and Westernized than before. Old temples were renovated and new ones were built, and the annual festivals of the deities were celebrated with great gusto. Alongside, drinking, gambling and litigiousness also increased. A young Deputy Commissioner of the District confided in me, in November 1972, that very little of the gains of economic development were being ploughed in investment but squandered in wasteful and ostentatious living.

However, the inter-relationship of institutions should not be interpreted mechanically. In a given society, institutions A and B may be far more closely inter-related than A and C or B and C. This kind of situation is particularly true of modern complex societies. Again, deterministic explanations of social change, broadly speaking, may be useful for pragmatic purposes but when treated as dogma belong more to the realm of faith than reason.

Technological determinism is as widespread as it is pernicious in explanations of social change. Stated simply and without frills it means that technological innovation is the main if not sole source of cultural change and development, and cultural and social institutions and usages have either to adapt themselves to it or die out, perhaps after lingering for a while as "survivals" or "vestiges". Such a view is, of course, understandable in a discipline like pre-historic archaeology where scanty material remains provide the only key to the interpretation of culture. A basically technological interpretation of cultural and social evolution was provided by anthropologists like Lewis Morgan who influenced Engels and Marx. But a simple technological determinism when applied to actual instances of social change produces only sterile oversimplifications. For it is a commonplace of modern ethnography that culture plays an active role in accepting, rejecting or modifying beyond recognition, an item of technology. The uses to which it is put in a culture may vary significantly from the culture from which it was taken. Indeed, technological items are perceived and interpreted through pre-existing cultural ideas and this applies as much to traditional as to new technology. The relation between culture and technology is not a one-way affair but a complex and many-sided one, and deserves to be studied empirically and comparatively. Technology has been looked at far too much from the materialist angle and too little attention has been paid to its meaning and value dimensions.

One of the potent sources of the failure to recognise the active role of culture is an unstated but none-the-less real assumption that peasants (and of course primitives) are stupid and do not know what is good for them. Thus projects which are thought up in the seminar rooms of the Planning Commission or the State capitals frequently come a cropper because they fail to take note of one or more of the myriad forces peculiar to village life. But unfortunately the urban intelligentsia does not think that the failure is due to any deficiency on its part but to the ignorance, backwardness or stupidity, or all the three combined, of the villagers. How can the intelligentsia be made to realize that the rejection of an idea or an artefact by villagers may be due to its unsuitability to village life? Thus the entire family planning programme degenerated into inserting bits of alien technology into the human body, and no attempt was made to consider it in the broad cultural and social context of rural India. (See in this connection, *Culture and Human Fertility in India*, M. N. Srinivas and E. A. Ramaswamy, Oxford University Press, 1977). On the other hand, I have come across successful instances of the acceptance of new technology by villagers even when local leaders were sceptical about such acceptance. I have also observed that attitudes to new technology and institutions

varying according to the position occupied by an individual in the economic and social hierarchy. Thus a rich man may consider a school as a place where the poor are taught useless knowledge and impertinence while some at least of the poor see it as a means of getting a salaried job and moving up in society. A photograph delights a rich man but a bonded labourer may see in it an instrument of tyranny at the hands of his master who may use it to defeat his attempts to run away.

To return to integrated rural development: According to its authors, it includes both development of resources and improving the living conditions of the rural poor. It does not seem to occur to them that the two aims might be mutually conflicting. Is such conflict only apparent or real? Does it occur only in the short run and not in the long? In any case, what is the rationale behind paying special attention to the poor? If there is a choice between growth and equality, at any stage in the development process, which should society opt for and why? Why have not such questions occurred to the sponsors of integrated rural development?

Since the early fifties it has been consistently argued by some politicians and social scientists that only the better off landowners, and that too from the dominant peasant castes, have been the biggest beneficiaries of the development programmes while the others have at best benefited only marginally. The argument only gained in strength as the pace of development quickened, and it became strident with the onset of the green revolution. The fact that the technology of the green revolution was accessible to rich farmers— or “not neutral to scale” in official jargon—means that they grow richer while the condition of the others did not improve if not deteriorate. It was sensitivity to such criticism that made the government start, in the early seventies, initiate programmes to benefit small and marginal farmers and landless labourers. The distribution of housing sites to the landless and Harijans, and of surplus land among the former, were all efforts in the same direction.

In short, our efforts at development have favoured the rich and thus widened the gulf between them and the poor. This has also happened in several other parts of the world. It might lead some people to conclude that increasing disparities between the rich and poor is inseparable from development, and there is no need, therefore, to worry too much about it. Let us first increase the size of the cake, the argument runs, before thinking of cutting slices from it. Preoccupation with distribution will mean that there will be very little to go round for everyone, and in the meanwhile, the number of mouths to be fed increases.

On the one hand, there are two kinds of arguments, one, ethico-legal, and the other, political, for the view that reducing inequalities is essential to sustain development over a long period of time. The reduction of inequalities between different sections of the population has been included among the directive principles of the Constitution and it has therefore to be implemented. The Indian Constitution gave expression to the will, ideas and aspirations of the leaders of the various sections of the people at the dawn of independence. They wanted to bring about an egalitarian social order, quite the opposite of the traditional. Certain measures, too many to be listed here, were adopted to further the ideal of egalitarianism, and the nation has a moral, if not legal, obligation to continue that pursuit.

Without being cynical, it may be said that the political argument for paying special attention to the development of the weaker sections, is likely to be appreciated far more than the ethico-legal. In a democracy based on adult franchise the expectations of the weaker sections at each election, and the continued non-fulfilment of their expectations is very likely to cause frustration and even outbursts of violence. When the weaker sections form nearly half the population, the dangers stemming from such frustration may easily be imagined. Elementary political caution, let alone statesmanship, would require that the living conditions of the poor are improved so rapidly that the polity stays afloat.

In States such as Kerala and West Bengal, leftist parties have been able to capture power by advocating radical land reform, and by organizing peasants and workers for collective action. The success which the Naxalite movement has had in West Bengal, Bihar and in the tribal regions of Andhra Pradesh, ought to serve as a warning to all political parties as to what is likely to happen if the living conditions of the rural poor remain as they are. In short, the rapid abolition of poverty, and the reduction of inequalities, are essential for political stability, and no economic development is possible without stability.

Further, no country can afford to be indifferent to the quality of its population. If a large proportion of them suffer from dire poverty as they do in India, they are bound to suffer from malnutrition and ill-health. They are also likely to display other symptoms of backwardness such as illiteracy, low level of skills, lack of a sense of citizenship, and slavery to traditional ways of life and thought. Such a population will be a drain on the country's resources instead of being an asset. In other words, when the beneficiaries of development are, in the main, a small elite while a large number remain poor and backward, the country is only utilising the intellectual and other resources,

not of the entire population, but only of a small section of its population. To say the least, it is a most inefficient way of running the country. If a businessman ran his enterprise on such a basis he would soon go bankrupt.

To sum up: apart from the ethico-legal argument, considerations of political stability as well as of the advantages to the country of having a healthy, educated, skilled and forward-looking population, emphasise the imperative need to pay special attention to improve rapidly the living conditions of the poor and backward people.

The investment of a share of the resources in improving nutrition, health and education of the very poor ought therefore to be regarded, as an investment in development. How much of the total budget should be invested in pure economic development and how much of welfare depends on a variety of circumstances which obtain at the time of formulating economic and social policy. But there is need for flexibility in the scheduling of the programme so that resources could be reallocated in response to changing circumstances.

IV

Several aspects and features of integrated rural development are clearly outside the competence of scientists and technologists though that does not seem to be realised either by scientists and technologists, or politicians. It looks as though the decision to use science and technology for development was interpreted as meaning putting scientists and technologists in charge of development. While it is true that the Department of Rural Development in the Ministry of Agriculture and Irrigation, and a committee headed by the member in charge of agriculture in the Planning Commission, have responsibility for the overall direction and coordination of the programme, there was no attempt at involving each of the ministers concerned at the Centre let alone the States. But since the decision to use science and technology for accelerating rural development was a political one — and it has to be so in a democracy — the continued overseeing of the programme by the concerned ministers and MPs is essential for its successful implementation, and for maintaining the direction and tempo of development. To mention but one example, one of the recommendations made in the Special Paper viz., the appointment of “an experienced and enthusiastic (sic) coordination officer” to relieve the Collector of liaising “with a large number of specialised scientific and technological agencies, both official and non-official” (p. 14). One would like to know in how many States this recommendation was implemented. It should have been particularly easy to have implemented it during the Emergency when no chief minister would have dared oppose it.

It is clear that sufficient attention has not been given to the sociological and political aspects of the integrated rural development programme. Only the right phrases, or rather mantras, have been uttered: social scientists should be associated with the Programme and people must be made to participate in it. But the available documents are silent as to how this is to be achieved. One of the professed aims of the programme that it "should be simple enough to operate and [be] economically viable so as to ensure that it is quickly capable of achieving self-reliance and self-replication under similar or varying conditions" (*PIRD*, 4). Leaving aside the question of the meaning of "self-replication", it is obvious that this laudable objective can only be realised if scientists and technologists associated with the Programme have an intimate knowledge of the society they are working in. A social anthropologist obtains such knowledge after years of study and fieldwork but how do scientists and technologists propose to obtain such knowledge? Do the latter really want to learn from the people? The social anthropologist generally comes to acquire, during the course of his fieldwork, respect, and frequently, even affection for the people he is studying, and their culture and this to some extent inhibits his becoming an agent of change.

In the writings on integrated rural development one does come across a very rare reference to the need to learn from the people but there is scant awareness of the preconditions for it. The people with whom one is working may be abysmally poor, illiterate and "backward" from the point of view of the urban middle class intellectuals but they are at the same time heirs to a tradition which has enabled them to survive over millenea. Unless the scientist has respect for the culture and is able to emphathise with people who are very unlike him, he will not be able to learn enough about the culture and build up the necessary rapport without which help cannot be given. The scientist and technologist must be able, like the social anthropologist, to get into the shoes of those they want to help.

Integrated rural development as a programme has no future without decentralisation and without a continuing exchange of ideas and information between scientists and the people. To be fair, both the need for decentralisation and involvement of the people do find mention, but their cruciality to the programme's success is not adequately realised. In contrast, I may cite the summary of a discussion on "Technological Choices in the Context of Social Values" held at the annual meeting of the American Association for the Advancement of Science, where decentralisation figured prominently for promoting self-reliance, and autonomy from bureaucracy (See the *Bulletin of the American Academy of Arts and Sciences*, Vol. XXX, No. 5, February 1977, pp. 4-14). The need for decentralisation is far more acute in a

country with a national civil service and planning commission not to mention the poverty and backwardness of the bulk of the people who live in villages.

In order to rouse the villagers to become self-reliant, they have to develop faith in themselves and cooperate with each other to perform common tasks. This is difficult, and may require the use of a variety of institutions including mass media, voluntary agencies and party cadres. This in turn assumes that every political party is committed to developing rural areas as fast as possible.

V

As stated earlier, ever since the starting of Community Development Programme in 1952 there have been widespread reports that development programmes have mostly benefited the richer sections of the rural population. Panchayati raj and the cooperative movement which were aimed at educating people in self-rule and self-help, have only served to increase the power and resources of the better-off men from the dominant, landed castes. Even adult franchise, at least in the fifties and early sixties, only increased the power of the rural rich as they enabled them to get elected to legislatures, or place the votes they commanded through using caste, kin and patronage ties, at the disposal of friendly politicians. The presence of representatives of the rich landed castes in the State and even Central Legislatures, enabled them to delay the implementation of land reform legislation, or evade and bypass it making use of legal loopholes and even extra-legal means.

The increased power of the rich landowners was used not only to get richer but to control recalcitrant elements in local society. Generally, it would be safe to assume that rich landowners as a class are opposed to the improvement in the economic conditions of the poorer people, including Harijans, as it would reduce their own resources and power. Village societies are no longer communities with common interests but arenas for warring factions.

If the above conclusion is correct, then even new efforts at rural development will only further widen the gap between the rich and poor, and sharpen the conflict between them. Ironically, the gap will widen in proportion to the success of the programmes. It is therefore necessary to try and change rural power structure in such a way that the poor benefit at least as much as the rich. This calls for political will, some ruthlessness as well as a large measure of tact. In addition, rural or agro-industries have to be started in small towns and large villages, and preference will have to be given in employment to Harijans, landless labourers, and women. Similarly, each of

these categories should be encouraged to form distinct cooperatives. These measures will put up agricultural wages, increase the bargaining power of the weaker sections, and finally, lessen the flow of migrants into large and overcrowded cities.

In short, while the programme of developing rural areas through the systematic use of science and technology is exciting, it has to be viewed against the background of the country as a whole, and in particular, the complexities of rural society. Otherwise development, instead of being a means to a higher quality of life will become an end in itself leaving awesome problems in its trail.

R. B. R. KALE MEMORIAL LECTURES

Lecturer	Subject	Year
1. V. G. KALE	<i>Modern Tendencies in Economic Thought and Policy*</i>	1937
2. G. S. GHURYE	<i>The Social Process †</i>	1938
3. B. R. AMBEDKAR	<i>Federation Versus Freedom †</i>	1939
4. K. T. SHAH	<i>The Constituent Assembly *</i>	1940
5. A. V. THAKKAR	<i>The Problem of the Aborigines in India †</i>	1941
6. V. L. MEHTA	<i>A Plea for Planning in Co-operation †</i>	1942
7. S. G. VAZE	<i>The Formation of Federations; Rs. 1.50</i>	1943
8. JOHN MATHAI	<i>Economic Policy *</i>	1944
9. S. R. DESHPANDE	<i>A Statistical Approach to Vital Economic Problems *</i>	1945
10. J. V. JOSHI	<i>India's Sterling Balances *</i>	1946
11. C. D. DESHMUKH	<i>Central Banking in India: A Retrospect †</i>	1948
12. D. G. KARVE	<i>Public Administration in Democracy †</i>	1949
13. H. L. DEY	<i>Policy of Protection in India; Re. 1.00</i>	1950
14. M. VENKATRANGAIYA	<i>Competitive and Co-operative Trends in Federalism; Rs.1.50</i>	1951
15. A. D. GORWALA	<i>The Role of the Administrator: Past, Present and Future; Rs. 2.00</i>	1952
16. LAXMANSHASTRI JOSHI	<i>Indian Nationalism *</i>	1953
17. W. R. NATU	<i>Public Administration and Economic Development †</i>	1954
18. P. C. MAHALANOBIS	<i>Some Thoughts on Planning in India *</i>	1955
19. S. K. MURANJAN	<i>Reflections on Economic Growth & Progress; Re. 1.00 †</i>	1956
20. B. K. MADAN	<i>Financing the Second Five-Year Plan; Re. 1.00 †</i>	1957
21. V. K. R. V. RAO	<i>Some Reflections on the Rate of Saving in a Developing Economy *</i>	1958
22. K. P. CHATTOPADHYAY	<i>Some Approaches to Study of Social Change; Re. 1.00</i>	1959
23. B. VENKATAPPIAH	<i>The Role of the Reserve Bank of India in the Development of Credit Institutions; Re. 1.00</i>	1960
24. B. N. GANGULI	<i>Economic Integration: Regional, National and International; Re. 1.00</i>	1961
25. A. APPADORAI	<i>Dilemma in Modern Foreign Policy; Re. 1.00</i>	1962
26. H. M. PATEL	<i>The Defence of India; Re. 1.00 †</i>	1963
27. M. L. DANTWALA	<i>The Impact of Economic Development on the Agricultural Sector; Rs. 1.50 †</i>	1964
28. PITAMBER PANT	<i>Decades of Transition—Opportunities & Tasks*</i>	1965
29. D. R. GADGIL	<i>District Development Planning; Rs. 1.50</i>	1966
30. S. L. KIRLOSEKAR	<i>Universities and the training of Industrial Business Management; Re. 1.00</i>	1967
31. E. M. S. NAMBOO- DIRIPAD	<i>The Republican Constitution in the Struggle for Socialism; Rs. 1.50</i>	1968
32. J. J. ANJARIA	<i>Strategy of Economic Development; Rs. 2.00</i>	1969
33. RAJNI KOTHARI	<i>Political Economy of Development; Rs. 2.00</i>	1971
34. V. V. JOHN	<i>Education An Investment*</i>	1972
35. K. N. RAJ	<i>The Politics and Economics of "Intermediate Regimes"; Rs. 3.00</i>	1973
36. H. K. PARANJAPE	<i>India's Strategy for Industrial Growth—An Appraisal; Rs. 5.00</i>	1974
37. ASHOK MITRA	<i>Growth and Diseconomies; Rs. 2.00</i>	1975
38. S. V. KOGEKAR	<i>Revision of the Constitution; Rs. 3.00</i>	1976

* Not Published. † Out of print. No lecture was delivered in 1947 and 1970 (Postage extra)