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"Salvation of India lies in Cottages."

—*MAHATMA GANDHI*

EFFICIENT FARMING - THE ALTERNATIVE

IN his letter to the Editor of this journal, Shri Mahesh Chand, who is more or less our regular contributor and with whose contributions our readers are already familiar, accepts the challenge of Shri Nehru and suggests alternative programme to the much criticised and widely opposed programme of Joint Co-operative Farming adopted by the Congress and the Government. He writes to say:-

"At last the critics of the Nagpur Congress resolution have been told by Nehruji that they should at least give "understandable and reasonably good alternative schemes to improve the condition of the peasants in the country". The peasants must be helped to produce more, and better farming methods are definitely desirable.

"Let the Government choose one percent of the villages in India and make economic surveys as also ask the heads of households what are their felt-needs for increasing the production by 50 to 100 percent. Let the economy of these villages be reorganised such, that surplus manpower in a village is given alternative economic activities in the village itself. As far as possible whatever is produced in a village should be what the village itself is seeking to consume. Let the goods produced be exchanged on barter basis through a multi-purpose village co-operative or a state-run exchange centre. Whatever is surplus production may be made over to the government for disposal wherever it likes.

"For this purpose we would no doubt, need honest, disciplined organisers and workers. Let the Prime Minister get such men. They may be administrative officers or non-official workers. They should be provided every facility and the challenge would be that within two years they must show the results or clear out.

"To help Nehruji choose such men, I start suggesting for his consideration, the name of Pandit Daya Shanker Dubey (Daragunj, Allahabad) and his small booklet, "Our Agricultural Plan" (Publishers: Kitab Mahal, Allahabad). Let similar help be extended by critics.

"The real problem is to produce more and at the same time transfer surplus labour from agriculture to non-agriculture in the village itself, as has been pointed out before in these pages. Since Co-operative Joint Farming does not provide for the economic activities for those who shall get displaced, there is likely to be obstacles to successful and widespread implementation of the solution proposed by the Nagpur Congress.

"But there is full scope for the Congress workers themselves to show results in a few thousand villages in the next two years. There is also scope for the government to take groups of critics round the co-operative farms already in existence in the country. A dispassionate study of the experiences in land should also promote better understandings between the Government and the critics".

But where are honest, disciplined organisers and workers among official and non-official circles in the country today who would be prepared to accept the challenge thrown by the Congress or suggested by Shri Mahesh Chand as an alternative and make it a success within two years? The failure of the much advertised "Grow More Food" campaign, successive First and Second Plans, Community Projects and National Extension Services is a poignant reminder of the dearth of this nation-building human material in the country. It seems

"Truth and Honesty" have been the first victim in our post–freedom era.

Just Another Stunt

People, who have witnessed successive failures of high–sounding Government plans and policies during the last 12 years hardly attach any seriousness to the new programme of "Joint Co–operative Farming", which according to them is no more than a fresh "stunt" to win the approaching Third Election. Experience will bear it out that it was no more than a political stunt for winning election.

And the much desired alternative for developing the country and its human and material resources will only follow the change of Government which sincerely believes in constructive nation–building and has requisite capacity to carry out its plans and policies, which is not the case today.

THE NAGPUR RESOLUTION

By: D. TRIPATHY

THE ruling Party–Indian National Congress–has set before the country the goal of a Socialist Co–operative Commonwealth wherein all economic activities–production, distribution and exchange–will be conducted through the medium of national agencies and people's organisations or co-operatives. One should not, therefore, be taken by surprise if the Congress decided at Nagpur to extend the principles of co–operation to the field of agricultural production.

The Congress in its 64th session at Nagpur has resolved to introduce co–operative joint farming in which the land will be pooled mainly by persuasive methods, using compulsion to the barest minimum, for joint cultivation with a view to raising the per acre yield of agricultural produce by enlarging the size of the holding, introducing progressive farming methods and improved techniques of production, and encouraging intensive farming in order not only to make agriculture a flourishing industry but also to provide ample surplus for capital formation and economic growth. It envisages the organisation of service co–operatives throughout the country within a period of three years, i. e. by 1961 as a first step prior to the institution of joint farming on a country–wide scale. The resolution has also laid down the principles to be observed in distributing the output from such farming between the owners of the land and the tillers of the soil or actual workers. The Congress has further resolved to fix up ceilings on land holdings. It thus aims at technological change in the art of agriculture through the medium of institutional and organisational changes. The later pronouncements of Sri Nehru show that the Party is determined to introduce co–operative joint farming for improving the lot of the cultivators, so much so that it is prepared to tolerate a split in the organisation on this issue.

The advantages claimed in favour of co–operative joint farming may be summarised as follows :

(i) There will be increased agricultural production. Such farming will raise the per acre yield of agricultural produce by enlarging the size of the holding consequent upon consolidation of small, scattered holdings and elimina-

tion of sub-division and fragmentation of holdings, introducing progressive farming methods and improved techniques of production, and encouraging intensive farming.

(ii) It will reduce working expenses by conferring all the benefits of large-scale operation such as employment of agricultural experts, more efficient and full use of resources–human and material –, division of labour and specialisation, superior bargaining power in buying essential supplies and selling the surplus, obtaining larger credit with greater ease and less expenses, employment of most up–to–date devices, savings in time and labour.

(iii) It will facilitate pooling of surplus produce of the village and marketing the same. This will reduce the cost of marketing by eliminating some of the middlemen and will bring in higher profits to the cultivators.

(iv) It will release a part of the resources and labour force for development of better housing and improvements in community services such as electrification, improved communications and recreational facilities, e.t.c. in the rural areas.

In short co–operative joint farming will bring the benefits of large–scale production within the easy reach of the small cultivators. There are thus commercial and financial advantages as well as technical and managerial advantages in co–operative joint farming as in large-scale farming or large–scale industry.

The Nagpur Resolution of the Congress on co–operative farming has evoked strong opposition, rather tirade from a certain section in the country including some top leaders of the Party itself. The antagonists of the idea of co–operative farming oppose it on the following grounds :—

(i) Co-operative farming wherever tried in India has failed.

(ii) Nowhere in the world co–operative farming on a voluntary basis worked. Even where coercion has been used as in the case of collective farming in the totalitarian countries food production has not increased. It has been abandoned in socialist Yugoslovia and communist Poland.

(iii) Co–operative farming by pooling land and reducing the need for labour required will aggravate the already acute problem of rural unemployment unless alternative arrangements of absorbing the persons, whose sevices will no longer be required, are made, which has in fact not been provided for in the resolution.

(iv) It will lead the country away towards totalitarian collective farming by uprooting the boundaries of the holdings and introducing some element of coercion and compulsion for its success. It would make the end of Democratic Socialism.

(v) It is utopian in conception and impracticable in execution in the present agrarian conditions where the psychology of the peasants, their superstitious attachment to land, illiteracy, faction–ridden atmosphere of the villages, age–old conservatism and above all dearth of capable human material to manage joint farming operations hardly provide favourable chance to give practical shape to the Resolution on a country–wide scale in the near future and for a long time to come.

An examination of the above objections would show that most of them are not convincing and sound. The A. I. C. C. Economic Review while admitting the objection (i) has pointed out that the combination of diverse elements such as the landowners, landless labourers, occupancy tenants and tenants-at–will as done in the past is never conducive to a healthy system of co–operative farming. It trusts that the fixation of ceiling on

holdings as contemplated in the Resolution will be an effective check against the past ills.

A study by the Delhi School of Economics shows that most of the co-operative societies for joint farming are fake. It, therefore, appears that there was no sincere effort on a large scale in the past for organisation of co-operative farming societies.

The second objection seems to be a distortion of real facts. One cannot deny the success of the co-operative farming societies in Israel, Mexico and some of the European countries—although not working on a country-wide scale–and their voluntary nature. One cannot dispute that co-operative farming by enlarging the size of the holding results in increased production and economies of large-scale operation. U. S. S. R. is one of the most powerful and prosperous nations of the world and China is making rapid progress heading very fast towards self–sufficiency in food production. In both the countries large-scale co-operative and collective farms are prevalent. Could it have been possible without a sharp rise in agricultural production in these countries ? Without going into the causes of abandonment of co-operative farming in Yugoslovia and Poland it may be observed that conditions in India are not the same as in Yugoslovia and Poland. Moreover, their experience will enable us to reduce the chances of failure and brighten the chances of success by avoiding their pitfalls and shortcomings. Should we not adopt a bold policy of carrying on new experiments ?

The third objection points out the lapse in the Resolution and not any defect of co-operative farming.

It is true that introduction of co-operative farming would restrict individual freedom to some extent. But it is no less true that even under cent percent democracy a code of conduct has to be prescribed and some restrictions imposed on the conduct of the individual in so far as it has a bearing on the whole community, and farming is one such, 'community regarding' conduct. If a farmer takes the liberty of letting his holding fallow for a number of years it would affect not only the farmer but it would have a great adverse effect on the entire community. The resolution has nowhere given even a grain of hint to introduce collective farming or State farming as opposed to co-operative farming. Thus the Nagpur Resolution aims at curtailment of individual freedom to the irreducibly barest minimum in the best interests of the community.

The population of India is increasing at the rate of 1.75 p. c. per annum and is thus adding the population of a U. K. or of a Spain in a decade. It creates the need for an additional ½ m. ton of food-grains each year to feed the growing mouths. In addition to additional food there is also increasing demand for raw cotton, sugar–cane, oil–seeds and forests e. t. c. for the growing population. Thus the Devil of Malthus is headache No. 1 of India's administrators. No administrator–be a Congressman or a non–Congressman–can afford to close his eyes to the realities of the situation and turn a deaf ear to the cry of the hungry millions in the country–side. With a view to ensuring the supply of a minimum ration of food for every citizen the country must go on increasing the output of cereals from year to year which cannot be done simply by up-turning the extremely limited current fallows and virgin soil but also by devising and resorting to improved techniques of production, intensive farming and progressive methods of farm management. But these are not feasible under present conditions due to fragmented, uneconomic holdings of farm

land. Hence the need for conversion of the paper-plot holdings into larger ones by joint farming to get the benefits of large-scale farming. Joint farming of the voluntary, co-operative type without disturbing the individual ownership of land, as against collective farming of the compulsory and violent type involving complete ownership of land by the community as a whole has been accepted by the Nagpur Congress and it is highly in keeping with the peaceful heritage and democratic constitution of the country.

It has, of course, been argued in certain quarters that 'the prime requisite of greater production is not institutional change–though there is no gainsaying its importance–but technical change. It is conceivable that there are certain technical innovations such as the use of tractors and heavy machinery that cannot be undertaken without an alteration of the existing system of land holding but there are certainly others of equal importance that impinge lightly, if at all, on the land issue.' It has further been argued that size of the holding is only one of the factors influencing agricultural production and that the Japanese with their small holdings and intensive use of water and fertilizers have proved it conclusively that higher yield is associated more with the introduction of technological changes rather than with institutional changes. Even this school of thought has recognised the improtance of the size of the holding as a factor influencing agricultural production and has, therefore, not suggested permanent postponement of the effort for increasing the size of the holding although it has suggested the immediate increase of agricultural production by less controversial and simpler measures. This school admits that the objective of better cultivation might be more quickly attained if drive were imparted to the movement for consolidating fragmented holdings. Enlarging the size of the holding is a pre-requisite and prelude to the introduction of technological changes on a permanent basis.

It remains undeniable that the nation by accepting the ideal of a Socialist Co-operative Commonwealth has given its seal of approval to the co-operative production–agricultural and industrial. The question facing the country to-day is, therefore, not 'co-operative farming or family farming' but 'co-operative farming to-day or to-morrow'.

The idea of co-operative production is nothing new to the Indian farmer. The Co-operative Movement has been in existence amongst the farmers since the beginning of the present century. But if the past experience is any guide for assessing the prospect of the movement for co-operative farming then the picture would appear very gloomy and discouraging indeed. Extremely slow progress rather dismal failure of the Movement in the past has been admitted on all hands including the Minister for Co-operation. Investigations show that the idea of co-operation has not been assimilated by the mass even after more than 50 years of operation of the Co-operative Movement with official participation. A study conducted by the Department of Rural Economics and Sociology of the Utkal University in 1957 in the Bhanjnagar and Bhadrak Project areas –areas considered to be enlightened ones- reveals that 'the co-operative spirit has not yet begun in the villages even after 5 years of working of the Projects and that new ideas of Japanese method of cultivation have not been assimilated by the people'. Doubts have been cast about its continuance once the project work in the area is over. A study recently conducted by the Programme Evaluation Organisation of the Planning Commission shows that 55 years of official and non-official effort in the co-operative field has failed to cover even a fourth of the households in the country. Therefore, if the movement for co-operative farming proceeds at this rate it will take a few centuries to cover

the entire country with such societies. It is, nevertheless, true that with an active official machinery and party organisation the pace of the movement will be much hastened. But in no case unless, of course, a miracle happens we can hope to see the whole country covered by farming co-operatives of the type envisaged by the Nagpur Resolution atleast before the end of the present century. There is thus some truth in the criticism that 'the psychology of the peasants, their superstitious attachment to land, illiteracy, faction-ridden atmoshpere of the villages, age-old conservatism and above all dearth of capable human material to manage joint farming operations hardly provide favourable chance in the present agrarian conditions to give practical shape to the Resolution on a country-wide scale in the near future and for a long time to come'.

Organisation of farming co-operatives on a country-wide scale pre-supposes and warrants a psychological revolution among the peasants and this can be achieved by either or both of mass education and careful approach through institutions and persons in whom the peasants have faith and confidence. The first method is very slow to work and will take long years for materialisation. The second method puts us in the dilemma of leaving the work to those who have little faith in the Co-operative Movement and who are the very anti-thesis of the idea of co-operative farming.

The Committee investigating into the working of the co-operatives in Himachal Pradesh has found that societies have been created to barter to a trader for agreed payments, its name, including the rights under any licences, permits, privileges e. t. c. granted by the Government to the institution as a co-operative. This malpractice is true not only in one region or in one form of co-operatives but studies will show that this criticism is applicable to a large number of co-oeratives all over the country. The Programme Evaluation Organisation of the Planning Commission while studying the working of the co-operatives in the country recently has also recorded similar findings. The Organisation found that there are many malpractices prevalent in the co-operatives, that their committees are dominated by big and middling landlords and that money-lenders and money lender-cum-landlords occupy position of power and manipulate operations of the co--operatives. Very unfortunately for the country, however, it is this moneyed class that exerts influence and commands the respect, faith and confidence of the illiterate mass. Any bid to materialise the Resolution leaving the work of organising the entire peasantry into farming co-operatives in the hands of this moneyed class which is opposed to the very idea of co-operative farming and which will hesitate in the least to stab the Movement at its back will, therefore be the surest way of carrying on a very costly experiment with a foregone and foreknown conclusion of failure as the ultimate result. It would amount to inviting failure and killing the little confidence of the people in the Movement. This will have the most unfortunate effect of nipping the Movement in the bud and plunging the agricultural economy of the country in uncertainty for long years to come.

Therefore, the surer method of attaining success through mass education, although very slow to work, should be preferred if we sincerely think of making farming co-operatives a living reality. In the intervening period no effort should be spared to increase agricultural production by adopting measures, preferably through service co-operatives, that impinge lightly on the land issue.

THE COMING CENSUS

By : MAHESH CHAND

LAST time we wrote about the comparative position of a possible draft census questionnaire, 1961 *vis a vis* the 1951 questionnaire. We do not yet know which institutions are helping the Registrar General in designing and pre-testing the questionnaire except one or two, whose identity came to be known during the symposium on census held at the last Indian Science Congress. However, we understand that the draft referred to last time by us is being improved upon.

Bicycles & Torches

The questions about bicycles and torches stand deleted definitely.

Nationality

There has been some talk to include a question on Nationality to find out the number of non-Indians in this country. It may be a Home Ministry fad and instead of trying the census way it should already have alternative and less costly way of getting that information.

Household Questions

Taking up the questions likely to be asked of the household, let us indicate that the question about the name of each individual is not necessary particularly as where ladies' names are involved, respondents are likely to get irritated and respond less-effectively. It may be that as before enumerators may be instructed not to press for the names, particularly of ladies, but why not consider dropping it altogether.

Tenure

Since the abolition of intermediary rights in the different States and in view of the political-cum-national decision to implement the abolition and land-reform legislations definitely within a year or so, one doubts the real efficacy of a question about amount of land owned/held directly from the state. Instead the question may be worded to find the area falling under the various categories of right-holders now existing in the different States. As we all know while U. P. has Bhoomidar, Sirdars and Asamis, Bihar has another series of categories and Bombay, yet a third. The answer to such a question regarding such classification of land as on a certain date is, in the temporarily settled areas already supposed to exist in the land records and such records shall get prepared on an ad hoc basis through the census questionnaire. It is however to be worried that in so far as Lekhpals and Patwaris are going to be enumerators, such information if copied down from the existing land records may turn out to be a repetition of the existing unchecked and admittedly not-quite reliable written information.

Size of Holding

It is also worth using the opportunity to get a one-point idea about distribution of size of holdings by asking what is the area taken on tenancy and crop-sharing. Evidently such a question is meant to apply to tillers of land who get land from others (say to *Asamis* in U. P). Or, could it also apply to Bhoomidars and sirdars ? Prima facie it should so apply but the danger then will be that many Bhoomidars who might have *de facto* given land on crop-sharing would return it as under own cultivation. There should then result some double-classification of land if the non-owner crop-sharers give the exact area taken on crop-sharing. It is likely that they may not do so for fear of losing land even on crop-sharing basis. But if they brush aside this fear,

then the total area shown under tenancy should, in all likelihood exceed the total of area under the preceding question (mentioned in the last paragraph).

Agricultural Labour

The coming census may be used to collect another important agricultural statistics viz, the number of whole crop-season hired workers during the last (i) Kharif and (ii) rabi crops. True this will not give an idea of the shortage of agricultural labour felt at the time of certain agricultural operations. Also, in view of the increasing tendency even among the upper social classes (such as Brahmins and Kshattriyas) to cultivate land themselves, such a question loses in importance as compared to a question 'what is the maximum number of hired workers empolyed *at a time* during the last one year and for what agricultural operation?' Yet it shall be a useful information from which we may calculate the agricultural potential for hired labour employment.

Another question, which comes to one's mind, is about the spatial distribution of land under the ownership as also tenancy rights of a household. The farther the location is from the residence of the household, the greater the case in future for abolishing the rights to have such land, as such rights are very likely to result in non-owner cultivatorship in some form or other. In any case we will get an aggregative indication of a minimum of proportion of land under non-owner cultivation.

House-hold Industry

Simultaneously there is need to find out the household industries, meaning thereby industries carried on in the household. Industries may be classified as 'handicrafts' and 'others' but will 'household' imply that the industry so classified is carried on at *home*? Or, can a household industry be carried on away from home? Again, will household industry mean production which is necessarily exchanged or will it include such household production which is consumed in the household itself. If yarn and cloth are produced at home for home-consumption, will it mean the existence of a household industry? One may argue that if agricultural production constitutes an industry, irrespective of where the products are consumed a similar treatment should be accorded to the aforementioned example of yarn and cloth.

It will simultaneously imply that we will classify as household workers persons who are thus engaged in the above mentioned example. This may be objected by some but we fail to see lack of logic in this. We may classify household workers as those engaged in market industries and non-market industries.

Just as we have mentioned the counting of hired workers employed for a whole crop-season, hired workers employed for a whole period of a seasonal industry may be counted per household. It must be clarified that if a household has two seasonal industries, the relevant number of hired workers would be the total of such workers in each of the two industries.

Individual Schedule

Coming to information regarding each individual in the household, it appears that the following topics are definitely going to be included :—

1. Relation to head
2. Age
3. Marital status
4. Birth place
5. Religion
6. Scheduled caste/tribe
7. Mother-tongue
8. Literacy
9. Highest education received
10. Employment status
11. Economic status
12. Sex.

(*to be Continued*)

A CASE FOR CHANGE IN OUR BASIC APPROACH TOWARDS AGRICULTURAL PLANNING

By : J. K. MISRA

EVERSINCE the dawn of human civilization, food-grains have been the main source of our subsistence, and agriculture our mainstay. But despite all efforts on the part of our planners and people, the problem of food-shortage still haunts us in its stark acuteness, assuming every hour a gloomier picture on our national horizon.

The shocking rate of record-rise in our population has been adding fuel to fire, and is a constant drain upon our slender national resources. The demographers in their liberal estimates predict an unwieldy population of about 480 millions by the end of the second-plan-period. To plan for enough food for feeding these teeming millions in the years coming is indeed a stupendous task. Obviously, well over 100 million tons of food-grains—the estimated output of the current bumper crop being somewhere near 70 million tons—should be our target of production during the third Five-year-plan.

The Centre has already given a clarion-call to the States to achieve the production-target of 110 million tons by the end of the year 1966. The best brains of the country have rightly been vexed at this naughty problem of the day, for unless the indigenous production is stepped up to cope with the requirements within the country itself, the centuries-old gospel of Malthus is bound to have its application, if nowhere else, atleast, in this under-developed economy of ours.

Obviously, the gigantic third five-year-plan of the magnitude of 10,000 crores of rupees must assign top-priority to this most vital constituent of our national economy. A sum of Rs. 1,200 crores has, therefore, been proposed for the development of our agriculture during the third plan-period with a view to pitch up the production from an anticipated output of 75 million tons in 1961 to 110 million tons by 1966—an increase of atleast 50 percent over the planned level of production to be attained by the end of the second plan-period.

'The target for additional production of food-grains in the Second Five-Year Plan is placed at 10 million tons, i. e., an increase of 15 percent from 65 million tons in 1955-56 to 75 million tons in 1960-61. As a result the consumption of food-grains in the country would increase from the present level of 17.2 oz. to 18.3 oz. per adult per day : [1] As against this, Rs. 357 crores—15.1% of the total outlay of the plan—were devoted for Agriculture and Community Development in the first plan, whereas 568 crores of rupees—11.8 percent of the total outlay—were allotted under this very head in the Second Five-Year Plan. Under this head, Agriculture includes Agricultural programmes, Animal Husbandry, Forests, Fisheries, Co-operatives and miscellaneous, and the Community Development stands for National Extension and Community Projects, Other Programmes, Village Panchayats, and Local Development Works.

So far as the basic approach of our planning is concerned, it is stated, the first plan gave top-priority to agriculture, whereas in the case of second the emphasis shifted in favour of an industrial base. In the third plan, it is now again considered essential, in view of the failure of agricultural policies and un-expec-

[1] Second Five-Year Plan Report

tedly higher percentage of increase in the mouths to be fed, to reverse the gears once again in favour of an agricultural base. More precisely speaking, to lay a sound Agro-industrial base is the aim of our third plan.

But is it, indeed, a plan biassed towards agriculture ? is the subject for us to discuss. Will the third plan really usher us into a sound Agro-industrial base, leading to the realization of our food-targets ? is another question of importance. If not, have we some suggestions to offer for agricultural development and its basic approach? is the most pertinent of all questions.

Let us examine, as to how far has the plan policy in agriculture been a sound one-both in conception and actual working. So far as the soundness of a policy is concerned, it may be safely judged on the arbiter of its working results. In the first five-year-plan, the governments were complacent over the achievements of the targets prescribed even well before the expiry of the plan-period. The crops were bumper. As a result, the prices shrank, and the actual cultivator was hit hardest by the precipitate slump, the Government simply onlooking as a passive spectator.

If we just cast a glance over the price-index of food-grains, it is hardly that the same trend has maintained itself over a considerable period of time. The prices vary substantially from place to place, from year to year and month to month though the production-statistics have always exhibited a rising tempo of production. As a matter of fact, if we critically visualise the things, it is quite clear that the Governments' policies regarding agriculture have lacked vision, and are a further pointer towards planlessness in the matter of agricultural production as a whole.

The result has been that the prices have been more a matter of speculation than a sound base of economic-development, for no scheme of planned progress can have a sustaining effect, unless it provides a sound base of stable price-level over a reasonable period of time. The policies of the State on this score have been a total failure. The wheat, as for instance, that was quoted at over Rs. 30 per maund only a little time ago, is currently quoted at about 12 rupees per maund in the same Mandi of Ujjain, an important Mandi in the Malwa-belt of wheat-production.

Secondly, the increase in production-whenever it actually takes place-is more a bounty of nature than the achievements so loudly acclaimed by the various developmental departments, over which crores of the sweated money of the tax-payers is so lavishly spent like water. If it is a good monsoon, a clement weather and a favourably normal behaviour of temperature, there is a satisfactory crop-harvest, and the Government clamping down its propaganda-machinery attributes it to its well planned agricultural manoeuvres.

But the truth lies just the other way, for if the policies were right and programmes a success, there should have been no recurrence of wide-spread scarcities of such a colossal magnitude so often and on. At the best, it can be said of the governments that they have totally failed in protecting our agriculturists from the inclemencies of Nature and vagaries of weather. The State Development departments have indulged more in publicity and propaganda than in doing some really solid and palpable work. And it is here where the shoe pinches in all its bitterness.

It is here that the Governments have failed in expending judiciously the money, and canalising properly the best of our energies to secure necessary safe-guards-the bitter realities having escaped atten-

tion they deserved. It was for this reason that just after sounding a very optimistic note on the agricultural front at the expiry of the first plan, we stepped in the second one, shifting the base in favour of the industrial development at the cost and neglect of our agriculture, which is basic of the basic industries. And soon after, we found ourselves in the throes of all round scarcity looming large over our heads, and the price-level setting up an un-precedented record in the annals of living memory in the year 1958—just at a time when we were in the middle of the plan, and passing through the most crucial period of our history.

Further, the undue reliance on our statistical data for the purpose has done havoc in the miscalculations of the official policies and their achievements. The various departments of development calculate the increase in production not on actual estimates of actual output, but from their modus operandi. The increase in the yield and output is presumed according to certain yardsticks prescribed by the authorities for the purposes of calculations. As for instance, the supply of a unit of manure, water and seed is presumed to result in a fixed standard increase irrespective of the fact whether the requisite quantities supplied actually reached the fields or not, whether they did respond the way desired or had just a reverse reaction, there is none to worry about.

Even in the matter of actual collection of statistical data, the source of collection at the base is the village Patwari, Lekhpal or call him by whatever name you please. This self-sacrosanct architect of the destiny of the rural masses, engrossed in the heap of his own complex problems, and addicted to meting out routine dealing to every affair, has little time and energy to spare for the data he has been assigned to collect and report with any measure of accuracy. The quality of the entire work depends upon his individual whims, bias and the rough-and-ready-made answers he has got in the store of his mind. And it is upon this base of our statistical information that the mighty superstructure of our planning for agriculture is reared up. The results must, obviously, be disastrous.

As an instance to corroborate the fact in reference, the author during the course of his official assignment came across the production data of eggs for a district. *The fact that the production maintained itself exactly at 10,00,000 eggs over a period of a decade offers no smaller a tribute for the person providing them. What a wonderful sense of family-planning and planned parenthood, indeed! Where fair sex fails, fouls succeed!*

On one occasion—the author remembers—on expressing surprise over disparity in the data of rainfall recorded for a station from two different sources of information, the man in-charge of the record with a characteristic sense of privilege and a high sense of prestige remarked: 'Look here! You are to rely only this Department's, the Department of Land Records, figures, even if they are nasty and absolutely false. The Govt. recognizes only ours as authentic'.

Similarly, during a recent exchange of thoughts with a University-Professor, and a friend of mine, I was told of an interesting anecdote about the collection of the data of donkeys in a district. One of the intelligent officers with a view to un-ride the worry from the fore-head of the boss provided ready-made figures by sheer figment of imagination. When informed on askance of the simple technique of calculation of the figures adopted by the officer, the good humoured boss remarked: 'Well done!—but you forgot to add two more numbers—yours and mine—to complete the picture.'

The author on another occasion took the privilege of taking into confidence a village-level worker of one of the ten best adjudged blocks of Indian Union—I mean the Behjam Block of Dist. Kheri in Uttar Pradesh. He disclosed as to how the villagers in certain selected villages were coaxed for the purpose to impress best the visitors including foreigners, and it was in this art particularly that the success and the prize of the Block lay.

The fact remains that in many a cases, and to some extent in almost all the cases, the progress of the developmental schemes flourishes on the face of the paper—the physical targets of achievements being not commensurate to the expenditure involved. The data of achievements are inflated to suit convenience and the purpose of the field-workers. Obvious should it, therefore, be that this type of planning can cut no ice so far as our agriculture is concerned. And the result, as we witness, is crisis in agriculture. The need of the hour, therefore, lies in the rationalisation of the entire fabric of thought on such a complex problem of agricultural planning, more so in the matter of production of food-grains.

Further, the schemes included in the first and second plans have been top-heavy in their working, resulting in avoidable wastage of a lot of our resources that were frittered away rather on propaganda and show-schemes than spent in concentrating on solid and quick-return yielding ventures. I have been rather surprised on many an occasion to find during my investigations in various States of India that the number of pits dug and the quantities of compost turned therein, the Kuchcha roads built and repaired, the numerous repairs done to the wells, culverts, roads and others, were nothing but cooked versions of fake existence.

The third five-year plan-if it at all is serious to accomplish any thing near its desired goal-must take a serious note of it. It is high time that a permanent body of efficient, honest and capable persons is instituted to have a real appraisal of the day-to-day developmental activities at the village-level. This will atleast assure of a clearer and truer picture of the prevailing state-of-affairs before the nation. Also that well considered priorities must be fixed for the village-level programmes, with all emphasis for the intensification of measures on only a few selected items, say, irrigation, fertilizers and seeds, giving up the rest to be done by the people themselves. This is bound to result in substantial increase in output of food-grains.

So far as the question of emphasis towards agricultural bias and base in the third five-year plan is concerned-top-priority to Agriculture should have been the right approach in right direction-the 12 percent postulated investment of the total capital outlay of the third plan makes not much of the difference, as against the provision of 11.8% in the second plan, and 15.1 percent in the first one of the respective capital outlays. This does not warrant any appreciable change in the structural pattern of investment as compared to that of the second plan.

If all goes well with the Second Plan-let us hope so-the outlay of Rs. 568 crores is expected at the best of attaining the dubious target of additional 10 million tons. At this rate of output of food-grains, Rs. 1,200 crores proposed for the third plan, a slice just twice as big as that of the second plan, may not be capable of fetching some four-fold increase in the additional output expected from the Second Plan, if the third plan is also allowed to go the second plan-way.

Obviously, the doubling up of the tempo in outlay–output ratio as compared to that of the preceding plan–a miraculous achievement, aimed at, indeed, will necessarily imply a deviation from the approach and techniques employed in the second plan. The realization of the food–targets of the third plan with limited resources may need even acrobatic performances. This brings home the necessity to make available 100 percent of the plan–allocations for agriculture at the village–level for the developmental purposes to ensure the realisation of the postulated targets within the stipulated time–limit. With all sincerity of purpose and the co–operation of the administrators, if we succeed in straining every ounce of our energy and resources, it may not be impossible–though up–hill a task it is–to realize our goal on the food–front.

For this purpose, the village has to be our base for launching operations on various village–level projects, best suited to the genius and circumstances of each particular unit concerned, the village–schemes with their annual break–ups, initially working as the links of a specific component of a chain–each specific component being completed over the span of a plan–period–which components forged at different intervals of time are themselves to be beaded into a final complete chain of so many varied links–finally presenting a composite picture looked at from a long period perspective.

The break–up of Rs. 1,200 crores at even rate of distribution over 5,58,189 villages gives an allocation of Rs. 21,500 approximately per unit of village during the third plan period. According to the data available for the year 1953–54, the total net area sown of 315.058 million acres of land, spread over 5,58,189 villages, means about 565 acres of area sown per unit of village on average. Now, our primary unit of planning with a sum of Rs. 21,500 is the village–unit of 565 acres of sown land under various crops, food–grains as well as commercials.

'The Second Plan provides for additional irrigation of 21 million acres by 1961. At this rate of expansion, it is hoped that the country will have irrigation–facilities for 100 million acres by 1966.[2] Making due allowances this way for these irrigated lands, there will still be left some 350 to 400 acres of cultivated land per village without any irrigation–facilities whatsoever, even by the end of the third Five–Year Plan. It is obvious that much of the success of the realization of the targets for food production in the third plan will to a large extent depend upon providing this unprovided land with irrigation–facilities, which in themselves are the strongest security against the onslaught of Nature and vagaries of weather. Further intensification measures in agriculture—which alone can lead us out of the mess—need irrigation as its first pre-requisite.

Naturally, if we can plan additional irrigation-facilities for about 300 acres of land over and above the normal provision in the plan under this head for every unit of village of average size, we may conveniently turn the corner on the food-front by raising 110 million tons of output at the average rate of 12 maunds of yield per acre, the present average being about 8 maunds per acre, without needing additional land for the food-crops. This necessitates the tapping of all possible water-resources available at the village-level by whatever means possible, of course, suited to the needs and the circumstances in which each village has been placed. The development of minor irrigation-projects, capable of giving

2 Agriculture and Animal Husbandry in India: Dr. M. S. Randhawa, D. Sc., I. C. S.

immediate and quick return, by making use of the local resources and techniques on a rationalized pattern for short period, to be switched on later to fully rationalized long-term large-and-medium-sized projects of multi-purpose nature in a wider perspective of 20 to 25 years next ultimately, is the only sound alternative left with us, for 'The total annual flow of the river waters in the country is estimated at 13·56 million-acre feet, of which only 10 percent at present is used for irrigation'.[3] These water-resources, when fully harnessed by means of large multi-purpose dams and projects, would be capable of unleashing enough of water and power potential required for the revolutionizing of Indian agriculture.

But in the meanwhile for the short period, there is no other go than to rely upon these minor schemes of irrigation, if we really are sincere to raise the food commensurate to the rise in our teeming millions. Obviously, this means planning at the village-level to tap the local resources of water, with a simultaneous planning of National Water Resources on large-scale, looked at from a perspective of say, 20 to 25 years next. To attain this objective, tube-wells, Persian Wheels and Pumping Sets are to be installed in the villages to suit the local convenience and resources during the third—plan period—the aim being to provide each village with irrigation-facilities for the area under crops.

The author during the course of his findings in the western, central and eastern regions of Uttar Pradesh has been more than convinced that a tube-well with an electric motor or a small oil-engine, taking all possible measures of austerity, of course, can be installed for an investment of Rs. 10,000 or so on average. This tube-well may be capable of providing irrigation-facilities for an area of 300 to 350 acres of land generally. Obviously, wherever practicable, 50 percent of the allotted resources of Rs. 21,500 per village may be utilised for sinking of these tube-wells, or other means of irrigation. Similarly, Persian Wheels in villages, where they are more economic in installation and operation, may be tried.

During the course of a rural survey conducted for the purpose by the author in the year 1949 at village Dhoondhali, Chandpur-Bijnor, in Uttar Pradesh, the author was very much impressed with a Persian-Wheel costing about Rs. 500, and capable of irrigating about $1\frac{1}{2}$ acres of land per 24 hours of working, fitted on a Kuchcha well, costing another Rs. 150 or so-the life-span of the Kuchcha well normally being three years. Wherever, this type of practice is feasible, it should receive the top-priority in its implementation in the villages, for it is the most economic device both in capital outlay and operational cost per unit making use of the local resources to the greatest possible extent and to the advantage of the village-community. In the belts where Kuchcha wells are not workable, emphasis should shift to the Persian-wheels fitted on to the Pucca wells, which can be built at an economic cost say, at about a thousand of rupees normally.

The large-sized power-run tube-wells are recommended in the areas where electric power is available, or where it is more economic to do so on other grounds. Wherever, tanks, ponds, lakes, pools, and other reservoirs-lying neglected or abandoned at present-are available, and have gone in disuse for want of necessary equipment, power-driven pumping sets may immediately be installed for making the best possible use of these so far wasted resources. Water so collected in these pools, as also the one drawn from

3 Dr. RANDHAWA : Agr. & Animal husbandry.

sub-soil is considered more nourishing for the growth of the plants than the waters available through other channels. This way, if an investment of ten to twelve thousand of rupees is made on various irrigation-schemes outlined for each village-the particular means to be adopted depending upon the conditions and circumstances obtaining in each village-it is quite feasible to cover almost every acre of land under crops with irrigation facilities.

The Service co-operatives that are expected to spread their net-work throughout the nook and corner of the country by the end of the Second Plan period, may conveniently be entrusted with the task of implementation of these schemes at the village-level in the third Five-Year Plan, of course, with the active co-operation of the entire village-population. These co-operatives, if properly manned, may also succeed in raising equal amount of finances from the local populace, which augmented with the States' allocations may turn the very face of the country-side, if used sagaciously and worked with vision and mission. This experiment is capable of All-India application, with, of course, suitable amends to be made for the varying conditions of various regions of the country. The irrigation-facilities so envisagd on a conservative estimate are expected to yield 25 percent additional output on average.

Now, the remaining 50 percent of the resources, say, a little over Rs. 10,000 turned after making provision for irrigation-facilities for each village of average area, must be specifically earmarked for the provision of adequate supplies of chemical fertilizers, green manures, and such similar things in the areas of their scarcity. Improved implements worked by bullocks and other cattle to bring about improvement in the tillage of soil may also be arranged for, both on credit and for cash payments, as may seem reasonable under the given set of circumstances. The institutions to look after these services should necessarily be Village Co-operatives already envisaged during the Second Five-Year Plan. A judicious combination and proper planning of water, organic and in-organic manures, other things remaining same, are in themselves capable of raising the output by 50 percent under normal conditions.

The importance of quality-seed and fine tilth are of prime importance in themselves. Any scheme of agricultural rationalization can ill-afford to neglect them or underrate their importance. But for the present, it is enough to educate, guide and persuade the farmer in the bètter use of these resources, that he already possesses. Improvements on these scores, viz., seeds and cattle, can be ushered in through proper insight, and better planning in the use of the existing resources already available with the cultivators themselves, thus, avoiding the unnecessary locking up of the extremely scarce finances of the State, awaiting fulfilment of more important tasks as explained earlier, viz., those of irrigation, and fertilizers, etc., which the peasants left to themselves are incapable of embarking upon, owing to the lack of their resources and the heavy stakes involved therein. Moreover, if money can still be spared after doing full justice to the priorities tipped earlier, it may conveniently be spent to ensure better seeds and better tilth.

The ploughing of the soil to a fine tilth, pedigree seeds, irrigation, and manures—if worked in unison, and used in fine balance—are capable of increasing the output by 50 to 100 percent, as compared to the general average obtaining at present. If we gird our loins, and work in all earnestness, the target of 110 million tons of food-grains is quite capable of attainabiliy by the end of the third plan-period.

ELEMENTARY EDUCATION IN ANDHRA PRADESH

By : GOPAL RAO EKBOTE

IN the 'Republic' Plato wrote that "if by a good education, the citizens be made reasonable men, they will readily see through all the questions; this is fundamental to the stability of the State." Likewise Aristotle in his 'Politics' recognised that the permanence of constitutions or stability of the State can be assured by adopting education to their forms. It is now fully realised that the worth of a State in the long run is the worth of the individual composing it and that is why public education today is news. It is discussed in the Press, on the platform, on the radio, in our living rooms and at our dining tables. It looks as if our people had decided to undertake a vast and searching reappraisal of their educational system, a re-appraisal which is at the same time unsystematic and far-reaching in its consequences.

For most of us profoundly concerned with education this is a good thing. The public schools are the public's schools, and to the extent that people are interested in their schools and informed about them, policies for public education will be sensible and sound. Nevertheless it is for this very reason that one may justly ask whether the public is raising the most basic questions and discussing them in their most fundamental forms.

Over nine years ago, we adopted a Constitution which amongst other things promised free and compulsory, education to all children upto the age of fourteen. The time limit set for achieving this target was 1961—end of the Second Five-Year Plan. With only two more years to go the target seems to be unattainable. We realise that we are a long way from our goal. We have now decided to break our promise to one generation of our children; we are putting off another generation by yet another promise.

That is not all, we had also promised to reform our system of education. We had promised to change it from a rather meaningless bookish type to one which would have bearing on the actualities of life and which would help in moulding better citizens. We had in pursuance of this, decided to introduce the system of basic education approved by the father of the nation. Unfortunately the traditional system has not as yet yielded place to the new, although few traditional schools have been converted into basic schools. Both quantitatively and qualitatively we appear to be lagging far behind.

Yet there are other unfulfilled promises. Neither the secondary nor the University education fulfils the role we had envisaged 12 years ago when we became free. The standards of learning have declined. These and several other questions continue to agitate our minds.

Our primary education stood neglected for a considerably long time. The great defect of the Government policy adopted in 1835 was, that no attention was given to primary education. Energy was concentrated solely on secondary and higher education, Government funds almost entirely expended on it and it was supposed that the education so imparted would filter down by a natural process to the lower classes. The anticipated filteration did not take place, and there was a rapid expansion in the number of higher institutions quite out of proportion to that of primary schools.

The Dispatch of 1854 sought to remedy this by laying highest emphasis on pri-

mary education. Some expansion of primary education followed. But as the introduction of the grants–in–aid system coincided with the establishment of the Universities, the main effect of the system was seen in secondary education. A disconcertingly large number of secondary schools grew up with the sole object of preparing candidates for the Matriculation Examination. These schools were badly equipped, but the demand for them being great, they were able to support themselves on fees and so it was easy for them to dispense with the standard of efficiency imposed by the Government's grants–in–aid. It naturally affected the University education.

With the Education commission of 1882–83 began that period of reaction in Government policy which was brought to an end only after independence. As a matter of fact, with the exception of a few brief periods, such as that of Despatch of 1854, the practice of the Government, has never tended to encourage education as such, but rather to create a body of Indian clerks and petty officials who would serve the cause of British administration. As a result of the policy introduced in 1854, the demand for education was showing signs of developing into the mass demand that it is today. So, it is all the more regrettable to find that the Government put on the brakes, instead of meeting the demand generously and directing it into proper channels.

In spite of this deterioration the Commission of 1882 advocated the extension of the system and recommended the withdrawal of the Government from the collegeate education as well. Following the new policy the provincial governments withdrew as rapidly as possible from secondary and collegeate education except for the maintenance of a small number of model institutions. Primary education was relegated to the Municipalities and local bodies, which besides being poor had just come into existence. Most of the evils which still exist in the educational system are traceable to the reactionary attitude of the Government that began with 1882–83.

The overwhelming variety in respect of primary education is the immense scale of the problem. In 1885 Sir C. P. Ilbert, after recalling the great advance made between 1853–1882 said "And yet, after these figures the stern fact remains that education has succeeded in reaching only some 10% of the male population at all." His conclusion was "the task of the future is giganitic but not impracticable."

Three quarters of a century have passed since he wrote and on the eve of our Independence hardly 36.3% of the children in age group 6-11 attended schools and literacy as a whole stood at the lowest level of barely 14.6% (excluding age group 0—4). After Independence we have made some progress in the expansion of elementary education, but we are still far from reaching the goal laid down in the Constitution. Although on account of various reasons we are compelled to cut down our immediate target of 6—14 years of compulsory education to 6—11 years and that too to be fulfilled by the end of the Third Five-Year Plan, even this reduced target, it is feared, may remain unfulfilled.

By the end of the Third Five–Year Plan we have to provide educational facilities to nearly 5.5. crores of children in India in the age group of 6—11 years which is more than double the number of children who were receiving education in 1956–57. The education of girls is lagging very much behind that of boys. The percentage of girls of the age–group

6—11 years attending the school during 1956-57 was only 35.4% whereas that of the boys for the same age group was 73.7%. This meant that the enrolment of girls was even less than 50% of the boys' enrolment which was a disheartening fact in view of the intrinsic importance of women's education in national life.

In Andhra at the beginning of Second Plan period out of 27,45,933 boys 15,04,176 were in school, belonging to the age group of 6—11. In other words in 19,067 primary schools 54.8% of the boys were at school and in Telangana there were slightly over 7,000 primary schools with an enrolement of 5,04,285 boys of this age group, the percentage being decidedly lower than Andhra.

During the Second Plan period it is proposed to increase the enrolment of children of the age group 6—11 by about 15% which would mean that 2,19,000 additional children will be provided with primary education. Assuming that this will happen, even then about 11 lakh students still remain without the facility being provided to them.

Assuming further that we go with the speed of the Second Plan, it will require at this rate 4 more Five-Year Plans to enable the children of 6-11 years age group to go to school. It will thus be seen that if the number of boys at school continued to increase even at the rate of increase that had taken place in the last ten years and there was no increase of population, several generations would still elapse before primary education can be universally diffused in the State. In face of the vast area of the problem what has been still untouched the contrast between done and the doctrine of free compulsory education is grotesque.

The main cause is, no doubt, that numerical progress must be made downwards and that every step down is attended by greater and greater difficulty and expense. When we began to devote our attention to the general furtherance of primary instruction we had in the first place to deal with a portion of the population who were accustomed to and valued education and who lived in populous and easily accessible parts of the State, and they were aided by a more or less widespread system of indigenous schools. In such circumstances progress was comparatively easy.

These favourable conditions have now been to a great extent exhausted, and the portion of the problem which remains to be dealt with is far harder. The benefits of education have now to be conveyed to the poorer ryots, the lower castes and the wild tribes who have from time immemorial lived without instruction. In many cases the illiterate portion of the population lives in scattered villages and in parts of the State in which the means of communications are still indifferent. To establish small schools in such localities for an indifferent or unwilling population cannot fail to be difficult and expensive task. But not only the area over which primary education has still to be spread considered, but unless all the lessons of the past are to go for nothing, the quality of primary education has to be well considered also before any forward movement on an extra-ordinary scale is further planned.

In the face of these facts, our Education Minister was compelled to be more realistic in his speech during the budget session. He stated: "the Government of India have taken a firm policy decision to introduce universal free and compulsory education for children of the age group 6—11 years by the end of the Third Five-Year Plan. In pursuance of this far reaching decision, the Government of India have drawn up a time

table to be followed by the Centre and the States in order that all preparations may be made in good time for starting the scheme at the beginning of the Third Five-Year Plan.

"For our part, the education department, in close consultation with the Ministry of Education, is examining the problem of introducing compulsory primary education for children of the age group 6 years throughout our State in 1961-62 and extending it to the next higher age group year by year, in order that by 1965-66 all children of the ages 6—11 years may be enrolled in classes I to V of primary schools.

"A realistic estimate of the cost of the scheme for our State comes to Rs. 27 crores, which is twice the entire cost of the education sector of the Second Plan. Obviously the State Government will not be able to find the resources without a great deal of assistance from the Centre and we have informed the Government of India accordingly. After we hear from the Government of India, the Council of Ministers of our State will examine the whole question and take a policy decision."

This statement of the Education Minister leaves the problem where it is. As the situation stands, it does not seem possible to provide educational facilities even at the end of Third Five-Year Plan to all the children belonging to the age group of 6—11 years. But what is even worse, it has not been possible as yet to draw up a practicable programme which would achieve it within the foreseeable future. This is a very unsatisfactory state of affairs. It is the bounden duty of every responsible citizen to seriously consider the situation and take all such steps which would improve the conditions and make it possible for our State to fall in line with other States in at least providing educational facilities to the age group 6-11 at the end of Third Five-Year Plan.

Art.45 of the Constitution although had set a clear target of expansion of educational facilities for the children upto 14 years of age, it has proved to be impracticable because the target was set without estimating its cost and without making a policy decision that the needed resources can and should be made available. Similarly although numerous reports have given many suggestions to improve the content, quality and utility of education at different levels, but these suggestions can neither be accepted, nor rejected until they are ascertained to be financially feasible. Likewise other requirements such as trained teachers etc., have also not been properly ascertained, nor provision for the same has been made. If we wish to place the development of education on a genuinely planned basis, it is essential that we reckon our capacities to fulfil these targets.

It has now been very clear that our State as a whole is educationally backward in general and Rayalseema and Telangana in particular are more backward. If equality of educational opportunities had to be provided to all these regions in order to ensure uniform progress we have to pay more attention to these backward regions without making the advanced areas suffer in their normal progress.

In some cases we are even behind the national targets; while at the end of Second Five-Year Plan the national target for the age group of 6-11 is 62·7%, our target is slightly higher i. e., 66%, but whereas the percentage of the school going boys would be 86.9%, that of the girls will be only 46.6%. In the age group of 11-14 the national target being 22.5% whereas our

achievement will be only 17.3% and that too we will have 27% of the boys and only 7.6% of the girls.

Similar is the case with the age group of 14–17 whereas the national target fixed is 11.7%, that of ours is 10.2% with girls very much low in numbers. When we compare our educational position with that of Madras and Bombay, we find that we are lagging very much behind. The condition of the girls' education is still worse, while Kerala will achieve cent percent enrolment in 1960–61 in the age–group of 6–11 years as far as girls are concerned, Madras will have 63.6%, Bombay 63% and our State will have only 46.6%.

In our twelve years of freedom we have clearly made progress. The First and the Second Five-Year Plans have made progress necessary. No vested interests in the country can really stop the march of time or of education. We would all agree that anyone who attempted to do this and to put the hands of the educational clock back, would be beating his head against a stone wall.

What we are not happy about is the slow pace at which educational development is taking place. Let us therefore persuade our Government to make a policy decision to have free and compulsory education for all children upto the age of eleven by the end of Third Five-Year Plan and then help the Government in implementing this decision successfully. What steps if taken we would be able to improve the situation we will consider in the next article. After all there is no danger in facing difficulties, but much in running away from them.

"CO-OPERATIVE FARMING–INVESTMENT STRUCTURE"

By : A. N. RAJAMANI

Nagpur Resolution

IT is almost a certainty now that the Government of India has finally taken upon its shoulders the burden of implementing the Nagpur Resolution of the Congress Political Party on the establishment of co-operative farming societies throughout the country so as to be the ultimate agricultural pattern of the economy. This decision by the Government and the ruling party is a bold decision in that it is sought to be put through amid so many opposing forces without and dissidents within the party. Leaving apart the controversy raging around it, the economics of the problem–on which it is strongly advocated–may be examined in detail. But it is proposed to analyse now only the investment structure of co-operative farms, which is the basis for their full blossoming to usher an era of plenty and prosperity.

Size of Investment

The initial investment is as much a cause for sociological inspiration among the peasants to work more in order to earn more, as it is a definite factor making for proliferation of capital as the end-product on farms. And this initial investment will have to be necessarily large in co-operative farms on account of: 1) Their being large in size ; 2) Big results expected to be achieved in the shortest possible time consistent with economy ; 3) The introduction of better farming activities ; 4) The rural parts

being already credit–shrunken owing to the effects of so many land reform legislations ; 5) All farms having been under–invested with capital up–till–now ; 6) The improvement in the society's employment potential calling for increased investment ; 7) The probable upward revision in wage structure; 8) A possible change in the method of cultivation from the traditional plough to mechanization; 9) The necessity for creating a fund to serve the purpose of a shock–absorber et cetera. The amount of investment will have, therefore, to be large in a co-operative farming society to begin with.

Direct & Indirect Types

But such investments may either be direct or indirect from the standpoint of the co-operative farming society concerned. Direct investments are those made from out of the financial resources of the society itself. Indirect are those from outside agencies such as the government(s), land mortage banks, district co-operative central banks, and the like. If, however the society is functioning as it is in the communes of China or the collectives of Russia, then, in such cases, the difference between direct and indirect investments are lost because this function of the society no longer vests with it but it is vested with the government of the day. At any rate, for all practical purposes, both of these types are merged into one in as much as the society is eventually responsible to clear off the debts with interest charges. Which type of investment predominates over the other will, however, be an index of the society's strength or determination to forge ahead in spite of obstacles, if any, and its ability to keep its personality intact.

Source of Investments

There is also the fundamental problem of the sources of investment of the co-operative farming saciety. From the point of view of the society, the source for funds may either be private or public, or internal or extenal. The internal sources are : 1) Funds pooled by the members themselves ; 2) Sale of excess or out-of -date tools and implements ; 3) Plough–ing back savings of members ; 4) Loans from members themselves on nominal interest and so on. The external source consists of : 1) Government loans and grants ; 2) Loans from co-operative credit institutions ; 3) Raising public loans. The government help may be of any form: 1) Monetary help, viz. Grants and loans with or without or with nominal interest ; 2) Supervision : (Free) services of supervisors, auditors, agricultural extension officers or demonstrators etc; 3) Covering the co-operative farming areas with community development blocks. Surplus human labour can also be profitably employed in creating capital in the farm itself along the lines suggested by Prof. Nurkse. This means not only fuller and economic utilisation of human labour but also it reduces the necessity of or the scramble for external capital.

Credit Policy

But as regards the credit aspect of assistance from external agencies towards the building up of a sound invesmtent structure for the farming society, there appears to be a certain contradiction in policies. Co-operative farming connotes requirements of very large funds. Village co-operative institutions are by nature and circumstances suited only for small loans to be accommodated to individual agriculturists. This individual business is ruled out in co-operative farming societies, Perhaps, co-operative tenant farming society may be an exception to this. Hence, when a co-operative farming society is established, there is need for simultaneous incorporation of

co-operative credit institutions with large funds at their disposal. For instance, the branches of State Bank of India itself will have to take up the job of provision of credit to co-operative farming societies or in the alternative the district co-operative central banks must directly deal with them. As such against the background of increasing number of co-operative farming societies, no useful, practical purpose will be served by opening small village credit institutions.

Development of farms

As a matter of fact, the investment structure varies in shape and dimension in accordance with whether a given area is developed or not. If a co-operative farming society were to start working in a place of already developed or progressive farming operations, better farming would not be the need of the hour. It should be enough if the society came in just to coordinate the various service points so as to effect economies of scale. Hence, the needed investment would be less. But it may not be so in non-developed or unprogressive areas. It may have to begin from scratch, that is, it may involve radical alterations with regard to the systems of cultivation or implements used or crops raised or consumption of seeds and manure, or the land itself may be capable of changing complexion, that is, from punja to nunja or from dry to wet lands, under the influence of any new irrigation canals. In other words, it may be conclusively said that the rate of investment is in inverse ratio to the degree of development of a farm. And this is abundantly true of a co-operative farm by virtue of its encompassing a pretty large acreage. As a matter of fact, not all plots in the co-operative farming society are of the same soil fertility and enjoy equal amount of rainfall. As such investment requirement will vary within the society itself. This is in the same way it differs among so many co-operative farms. Therefore, before a co-operative farming society is incorporated in a particular village, the investment requirements over and above what are already available must be investigated thoroughly, for, that alone ensures unhampered progress of the society when it gets into working.

Locational Influence

For the same reason, the volume of investment required changes with reference to the situation of the proposed co-operative farming society. Whether a society is established right in the midst of a rural tract or is located near an urban tract makes a definite difference. Invariably in the case of the former, overhead costs on such items as communication, and expenditure on education and propaganda in the ideals of co-operative endeavour as the elevator of mankind may be more. Even warehousing conditions may be unsatisfactory. The urban tract is well placed in the matter of propagation of knowledge, especially of different ideologies, and other conveniences such as warehousing and marketing. Thus the rural co-operative society is in an unenviably incommodious state in respect of these costs. It is also true to point out that costs on transportation – assuming that good communication exists in both the tracts– will be much more for the rural than the urban co-operative society. The reason is obvious. Hence, the locational influence is tremendously imposed on the investment structure on the co-operative farming societies in the rural parts. A corollary from this is, that, the greater the distance of a society from the nearest point of urban tract, the greater will be the volume of capital resources depending on its development.

Size of the Farming Society

Further, the co-operative farming society itself may vary in size with reference

to the size of the villages, number of members and land extents covered. If the size is immoderate or at least forced to be so due to certain circumstances– may be few employable people and large acreage necessitating import of labour at considerable cost or a large number of people with not so large an acreage giving rise to so many problems–then, in such cases, the cost on managerial and other staff will be pretty large. Very large ones will need a well paid, permanent and numerically strong staff suited to tackle different works. It means more and more of investments. If the co-operative farming society undertakes provision of amenities such as schools or roads or reorganizing the housing conditions, it enlarges the scope of the functions of the society and accordingly needs the services of experts in town planning etc. Besides, if the society embarks upon the project of development of cottage and small scale industries within the society area for the sake of the society members, it calls for a good amount of capital investment with simultaneous expansion in special training centres related thereto. Thus the size of the society determines the type of programme needed and it decides the volume of outlay.

Policy of Mechanization

Supposing a farming society happens to be established in a place of labour shortage, and that too facing the formidable task of reclamation. In such a context, the cultivation system may have altogether to be on a different form from what it is in a farming society holding readily cultivable lands. That means, special implements are required. Especial skill must be drafted to use them. Or in the alternative the available labour hands must be imparted the type of training essential to operate the machines. Above all, an inevitable time–lag, between the starting of reclamation operation and fructification thereof in the garb of actual production must be allowed. In addition, in the absence of readily available servicing stations for the machines, they must be established, together with keeping in store replacement parts, oil etc. Therefore, a farming society which is perforce to adopt the policy of mechanisation, must be prepared to invest a good deal of capital in advance and make supplicatory appeals to Nature to play her part fully and well.

Influence of Polity

The problem of investment arises in only such cases where co-operative farming societies are of the democratic type, that is, those which are formed with the consent of the people at large and of their own volition. If, as already observed, a society partakes of the characteristics or the nature of the basis of the collective farms of the U. S. S. R. or communes of China, then the entire significance of its investment structure is utterly lost: for, it is the government (s) which is the author of such societies and on whose discretion and direction alone the quantum of investment depends for its structural composition and strength. Indeed, in such cases, pro farma blue prints of investment structure cannot be ruled out. The point is, the problem of investment is no longer a concern of the society, it is that of the government. In countries like the U. S. A. it is the exclusive concern of the societies themselves albeit they get external assistance or not, whereas in a country like India, it is the concern of both the people and the government. Even in a democratic country, if the government is very powerful and the massas very poor, by the extension of State aid, the farming societies may run. But in the process of receiving aid, they may also receive the 'Kiss of

Death.' That is to say, even though on paper they function as independent units, they lose their strength and personality. In other words, it will be much easier for the government to control a small number of large co-operative farming units than a large number of peasant proprietorships. Therefore, in a democracy too, this political consequence need not be discounted.

Planned Economy

The problem of the influence of polity motions us to the consideration of investment structure in a co-operative farming society working in a planned economy. The sectoral investment outlay in a planned economy is entirely dependent or conditional upon the prior allocation of such resources by the Planning authorities. As between two successive plans, the pre-determined outlay on the agricultural sector, or for that matter on co-operative farming societies proper, may rise in absolute terms, but may not mean much relatively to the rise in other sectors. In that case, co-operative farming societies, especially those which expect a large part of their activities to be backed up and financed by the government, may fail to yield such targets as may be desirable to keep the other sectors and the non-agriculturists well-fed. That means, the investment structure of a co-operative farming society stands to be affected to a large extent by planning itself. In short, in a democratically planned economy, the greater the financial soundness of a co-operative farming society measured through internal resources, the lesser the extent to which its investment structure is altered by the decisions of the Planners. In non-democratic countries, owing to the operation of all negative accelerators for expeditious capital formation, the co-operative farming societies become practical nonentities on financial grounds —they have no independent footing.

Nature of Crops

Investment is also shaped by the nature of crops raised. If it is a farm of paddy and wheat, the investment needed will be much less than in the case of a co-operative farm where sugarcane is raised. Again, if in a co-operative farm, paddy and sugarcane are raised alternately, then, there is an inevitable interregnum in-between when the land may be left as current fallow, that is, ploughed and harrowed, but left uncropped for a year for the soil to recoup. This indicates that there will be a heavy depreciation in cost structure relating to tools, implements, vehicles etc. If this is, beside a permanent managerial staff, it is surely to draft more out of the society's funds. The financial situation will be very pitiable if the society has not been able to raise any funds even after some years of working. May be, the off-season crops on a very large scale as is possible in a co-operative farm are always easy income-bearers on account of their demanding the least attention from and husbandry by the farmers. Raising of any type of crop ultimately depends on the type of soil in a particular place, and so, both of them have their say on the investment structure.

Fluctuations in Money Value and Seasonal Aberration

It is more often than not the effects of changes in the value of the medium of money and the failure of monsoons or too much of rains spoil the game in agriculture. If it is a period of depression as it happened in the 'thirties' it may well be that the attraction for large investments in agricultural sector is completely dissolved. In the case of draught or inundation too, the investment is damaged. At any rate, the latter is out of the society's hands to be controlled. As regards the former, if it always happens that the government

maintains a particular ratio between the price levels of the agricultural and non-agricultural products, allowing for marginal fluctuations in the value of money and push-up or lift-down in price levels of commodities, then, the sharpness of their impact on the society's investment may be blunted considerably. But one remarkable feature about the co-operative farming societies is this: That the element of risk is equally shared by one and all. The purpose behind crop insurance is admirbly in action here. So much so, if even a considerable part of the co-operative farm is damaged, there will be something left for society to proceed with and feed the members. In other words, investment is not entirely lost. The remaining could be used as the nucleus for further and added investment in future. The same conditions of changes in price levels and seasonal vagaries, on the contrary, would have landed the private farmers in penury and destitution.

Effects of Rationalization

It requires no special emphasis that rationalization is the undertone of co-operative farming activities. Within the farming society itself, there are primary, secondary and tertiary sectors of activities. Rationalization sends away very many human hands out of action from the primary agricultural sector. If, however, the scope of farming activities is enlarged, then, the thrown-out-hands can engage themselves in the secondary and tertiary sectors within the society itself. As such, one possibility is that as regards wages, it need not come down just because of rationalization. But for the enlargement of the scope of functions of the farming society, the dismissed labourers would have been ready to offer their services for a song. But now they will not do so. Because of such activities in the society, the total wage bill may go up a sizable volume of investment. In addition to this general effect, it may be said, as a consequence of rationalization only proven and efficient labour hands will be retained and so the wage paid to them may be considerably large, even larger than those road-builders in the society who were the victims of such a policy. In places of labour shortage, the effect of a policy of specialisation of farming operations need not be detailed.

Individual vs co-operative

The overall investment capacity of a co-operative farming society is definitely greater theoretically speaking than that of any private individuals or private farms. The reason is this: There are many items of capital which may be pooled or integrated at the point of formation of the co-operative farming society. It may be in the form of: (1) Capital goods, viz. implements, transport vehicles, buildings-warehousing etc. (2) Capital as such, funds, (3) Capital installations: Wells, irrigation canals etc. (4) Capital in the form of draught animals: livestock, and (5) Capital in the shape of fertilisers, other forms of manure etc. In individual or private farms, investment might be deficient in one or many of these itsms. But in co-operative farms the deficiency in one place may be more than compensated by the surplus in another place. This does not mean that at the point of formation of the farming society, the investment will be enough in all farms. After the formation, the total pooled investment must be spread over according to the individual needs of the different plots. At any rate, the investment per acre should at best be sufficient and well-rounded, if not more and to a surfeit degree in the co-operative farm than in a private farm.

Investment Psychology

The reason for this difference lies in the poverty of the rural people in as much as the wealthy is driven away under the stresses and strains occasioned to them by and emanating from various pieces of land reforms. The rate of return may not be the criterion for investment to a welfare state government on principle. But it is the point which either makes or mars investment structure from the point of view of the private farmer. The same is true when he takes a decision to integrate his piece of land and capital with those of others to launch a co-operative farming society into being. His lack of interest, if not of positive disinterest, in lands belonging to the other members of the society pulls him back from investing for one thing, and for another the theme of co-operation may push down the rate of return on investment made : for instance, his share in the produce might be less because when the total produce from weak soils, then, on the average, his share becomes less. As such though theoretically investment must be higher on a co-operative farming society, in actuality it may not be so compared to the private farm. Therefore, it becomes the duty of the government(s) to step in the place of private individuals and make large investment in the society. This is as much the concern of the government as expeditious and favourable results are expected of the society.

Investment Criteria

The principle on which investment is made in co-operative farming societies may or may not differ from those on private farms. In the latter maximum production with minimum investment will be the motive and overriding consideration. In other words, private profit motive will exert the highest degree of prudence and economy so that investment-output ratio will always tend to be the largest. This may not be the consideration in a co-operative farm. It may be based more on the size of farm than on the need of farm, more on the theoretically scientific basis than the capacity of the farm to absorb. In other words, any ideological exuberance is likely to walk-over considerations of economy and prudence. This proclivity appears to be more so in the context of unstable rural leadership and undefined relationship in rural brotherhood. In fact, there could also be some difference on the principles of investment as between a communist and a non-communist country. In the former, rapid industrialisation is the motivating force, whereas in the latter that may not be the immediate line of thought of the authorities, they may care more for people's welfare, that is to say, they will endeavour to effect some delicate balancing between economic and social efficiencies. As such the element of human outlook may be absent in the former giving rise to rigorous principles for the conservation and promotion of investment purely on economic terms. Any principle either on a private or a co-operative farm will have to adjust itself to human values so that the investments made will also yield the greatest happiness in terms of increased production and social comforts.

Farm Efficiency

Any amount of investment in a co-operative farming society will not be of any use unless and until the society gets going in the right course with regard to the assimilation of the ideal of co-operation as the code of salvation for all. It must be conceived as the basis of all one's activities wherein it could possibly be applied without reserve and with

profit. In fact, it is this spirit of rural brotherhood that will dispel all misgivings concerning the success of the co-operative farming society and thus serve to bring out the best of all to the immense advantage of the society. In other words, there will be a psychological transformation, which, by virtue of its being able to enthuse the workers to work earnestly and efficiently, will exploit the capital investment to the fullest possible extent and degree. As such, investment for its fruition is always dependent on farming efficiency.

If supposing such a psychological transformation does not materialise or unfortunately disaffinity sets in, that spells disaster for not only the capital invested, but also it plunges the nation in the sea of low agricultural production with all the attendant evil consequences. This result is the inevitable consequence of either gross inefficiency or calculated concealment of efficiency on the part of the farmers for some reason or other. Although compulsion may drive them to some distance on the path of efficiency, they will fail to reach the destination of self-motivity or self–generation of the maximum degree of efficiency which is but the sine qua non for making full use of investments made.

Because of this direct relationship between efficiency on co-operative farms and full utilization of capital invested, it is imperative that cordiality must supplant rigidity and spontaneity to supersede authority between the workers and management on the one hand, and the government and the members on the other. The importance of this relationship is many times more significant on a co-operative than on a private farm by reason of the sheer magnitude of the investment involved. Investment structure is thus a function of farming efficiency.

Growth of Investment

In an agricultural economy which is geared primarily to the expansion of the induistrial base and whose contour is cut to suit the cloak of co-operation, the growth of agriculture is very much related to the size of recurring invesments made in it. Primarily it has not only to fend for itself, but, it is called upon to defend the entire economy, thus ensuring an unhindered progress of the nation. This means that the growth of agriculture is coexisting with the growth of other industries whose growth is a derivative of the growth of agriculture. As such the further leaps of growth in a co-operative farming society are conditioned by further capital investments made in that, although it may or may not soon reach the point where any further doses of investment overreach the saturation level. Therefore, how far and in what way and in which proportion of it, the rural marketable surplus or surplus capital of co-operative farming societies–which have a great capacity for surplus on so many economic reasons theoretically–is ploughed back into the society itself, will tell upon the further progress of the society. This means the growth of investment in a farming society relatively to the surplus of capital engendered–measured either in grains or in any other suitable valuation–paves the way for the growth of co-operative farming society.

A related matter of note here is that in the farming society is merged a number of people big and small. Any rigid appropriation of all the surplus from the farming society even cutting down the consumption level of the members of the society will end up not only in dissatisfaction leading to commotion but will signify a collosal disaster. If investment growth gets barred and stunted, it means,

the disruption of so many members simultaneously, whereas nothing of this dimension will happen on private farms as both the number of persons and funds affected will be individually small, bearable and manageable.

Size of Profit

When the unit of farming increases the volume of investment grows suitably. When the size expands, the scope for economies also widens. When the cultivation unit is enlarged, augmentation of production is predicted. This is purely a theoretical approach. Sociological possibilities constituting retrogression in production are discounted. As such, it may be assumed that, as a consequence, with every increase in the unit size of farm, profit increases – profit increases in aggregate terms, not necessarily and only in terms of per unit size viz. so much per acre. For it is easily understandable that the Law of Diminishing Returns begins to operate in a given unit after an interval. Hence, thereafter there will not be scope for production to rise and diseconomies will follow the trail of any additional investment. Thus a ceiling on profit in relation to investment on a given unit of land results automatically after a certain period. Whereas aggregate profit in relation to total investment on a co-operative farm may increase indefinitely, subject to the fixation of any maximum size of the farming society, the profit structure on investment made on a given size or unit of cultivation or a given portion of the co-operative farm does not bulge out after a certain time interval. Therefore, profit always bears some relationship through the size of the co-operative farm on the investments made on it. The ratio of profit to investment is, therefore, bound to alter with reference to the size of the co-operative farming society.

Reaction of the Tenantry

In the fixation of any minimum wage together with the operation of any legislation carving out of a large share of the crops in favour of tenants, the sheer magnitude of such things in a co-operative farming society will make the owner-members invest less than what would they have done in the absense of such laws or agrarian enactments. This reduction effected by landlords in investment may or may not be made good by the tenants with their increased income. But the possibility is they will not make good the slice of reduction in investment. The reason is this : Till now they were leading a miserable life what with the pitifully low income. Consequently their consumption level was low. Now their income is increased and the first charge on the increased portion of their current income will be to satisfy their consumption requirements fully out of it, and if anything is left over in the increased portion after such expenditure, that, they may spend for acquiring some amenities like better clothing or better housing or for better education to their children. Hence, land reforms operating in favour of the tenantry and the landless without completely eradicating the institution of landlords, that is, leaving them under regulations and restrictions, are apt to adversely affect the investment structure in co-operative farms composed of both the landlords, and the tenantry and the landless.

Cultivation Technique

The success of any co-operative farming society is primarily measured by the increase in agricultural productivity—productivity measured either in terms of labour or acreage. The governing policy with regard to the cultivation technique to be adopted in co-operative farms define the unit of measurement of agricultural productivity and it decides on the volume of investment to be made and the return thereon. If a policy of mechanization is adopted it may change the entire signi-

ficance of the agricultural economy. It may not only pay back soon the investment made in it through many times more increase in agricultural production but also ere long put the agricultural economy on an export footing. In addition to its nullifying the need for complicated agrarian reforms, it makes possible rapid industrialization. This means the initial investment procreates a final investment many times its size. If the governing policy is to recognize the validity of of the old techniques of cultivation suitably improved or modified–as for instance the Japanese method of cultivation–still productivity increases, perhaps not to the same extent to which the other technique does, and it also does not require so much of investment. In other words, the application of technology to cultivation operation makes the difference on the returns on capital. Turkey and India are the best examples.

Conclusion

To conclude, investment structure in a co-operative farming society is influenced by a variety of forces operating inside and outside its field of activity. But the fact remains, they tend to consume a lot of capital by this and that. Hence, if co-operative farming is to become the agricultural pattern for the entire economy, the investment amount needed will have to be assessed properly at a prior date after a thorough enquiry. If such societies are formed on land taken over as surplus from the landlords after the fixation of ceiling, the total compensation payable to all of them by the co-operative farming societies become the first charge on the investment structure. Not only that: They add to the investment burden of the society on a long-term basis.

Since the success of a farming society rests not merely on agricultural productivity but also on the periodical replenishment of capital, any policy of wholesale organization of co-operative farming must be implemented only after the financial implications in it are enquired into and understood well. And as far as possible, investment structure must be flexible, not rigidly tied down to the details of spending items, so that as and when any emergency arises, it could be looked after immediately. Thirdly a co-operative farming society should be enabled by the formation of easy rules and regulations to tap the internal capital resources to the fullest possible extent so that its dependence on others is minimised, thus making it perfectly possible for it to preserve its personality intact. Fourthly a large degree of latitude should be given to the men in the field to reach decisions on cultivation operations consistent with the requirements of the weather, soil, crop etc. without any rigid formula on these ; for otherwise, investment may fail to ripe fully. As increased production is the need of the hour, the management of the farming societies must take care to put investment primarily in agricultural development and they must wait for sometime before asking for allocations for the secondary and tertiary sectors within the society area.

INDIAN AGRICULTURE AND CO-OPRATIVES

By : Dr. PREM NARAIN SAXENA

AGRICULTURE has always been the principal industry in the world. Agriculture is the occupation of the majority of workers throughout the world. Its various products represent in value the greater part of human labour and the exchange of its products against industrial products forms indeed the basis of National and Inter-national trade. 'Of all the professions, agriculture is best' says an Indian proverb. It has always had the pride of place in our country's economy. For more than two thirds of our people still depend on agriculture and it is not an occupation, but a tradition and a way of life. The prosperity of country depends on the prosperity of Indian cultivators.

Any programme aiming at a large increase in agricultural production must take note of the comparatively small unit of production, the absence of full control over yield and quality, lack of complete division of labour, want of co-ordination, co-operation and combination, the fact that form is not only the basis of the peasants economic activities but also his home. Add to these the distance from urban centres, the universal conservative nature of the farmer, the long time elapsing between the sowing and selling process, the peculiar problems of rural finance and thus we find a very distressing situation of Indian agriculturists.

As late as 1889 Dr. S. A. vocleker of the Royal Agricultural Society expressed the belief that Indian agriculture is neither backward nor primitive and that when agriculture was manifestly inferior it was more generally the result of absence of facilities than of inherently bad system of cultivation. Truly speaking the Indian cultivator is well conversant with the practice of cultivation, but his means are narrow and facilities few. His ignorance is a hindrance in his way for organised self help.

The employment of the co-operative principle for the solution of Agricultural problems has met with considerable success in the western countries. It unfolds a new avenue of approach towards the problem in India. Despite setbacks in the past, probably the greatest hope for the Indian cultivator lies in the development of co-operatives.

Unfortunately India has not many remarkable achievements in the field of co-operative movement. The history of co-operatives is literally strewn with wrackages of past attempts and it is a record of faulty organisation, ignorance of business knowledge and general inefficiency which converted in many instances a seeming success into hopeless failures and put a brake on enthusiasm and progress. But now since the National Government took over charge, there are signs that the country has turned the corner, the task of rebuilding damaged structure and of extending the system of co-operatives has been taken up once again with renewed vigour and energy.

The idea of co-operatives in the field of agriculture is of recent origin and it would not be wrong to say that the idea is still foreign to vast areas of land in the country. However, there is little doubt that in the midst of these failures and general stagnation a few bright patches have appeared during the post-independence period.

Co-operative Movement

Credit goes to Lord Curzon for introducing the co-operative societies Act

1904. Its primary objective was the organisation of co-operative credit societies and supply of cheap and facile credit only. Even in this sphere, the movement had its limitations. It was expected that the co-operative credit societies would supplant the notorious and much accursed village money-lender, but so far it has proved only a dream of the people who are not in touch with realities. Again another act was passed in 1912 and this was more liberal. This Act had provision not only for the formation of Central Credit Societies but also for the formation of co-operative institutions of almost all types and for all purposes. Within two years of the passing of this act the number of societies rose to 13,523 with a total membership 659,838 and working capital of Rs. 7 crores. In 1919, the Government of India passed an Act and co-operation was transferred to the provincial Governments and they had the option to have separate acts for the co-operative organisations in their respective Provinces. As a result of this some of the Provinces did the needful as given below :—

Bombay	.. 1925
Madras	.. 1929
Bihar	.. 1935
Bengal	.. 1940

The co-operative legislation was also passed in the Indian States :—

Gwalior	.. 1918
Hyderabad	.. 1913
Kashmir	.. 1937
Mysore	.. 1918
Travancore	.. 1937
Baroda	.. 1927

(The other Provinces & States were still governed by the Co-operative Societies Act, 1912)

In 1941 there were about 19,649 agricultural non-credit societies in India. In 1950-51 i. e. exactly after a decade the total number rose to 33,815 in India.

Thus we find that the progress of co-operation was slow. At the end of 19 5-56 there were only 2,40,395 co--operative societies. Out of these 66% were credit societies and confined their activities to the grant of small advances. Although even this activity was hardly significant, because money-lenders supplied nearly 75% of finance to the Indian agriculturists. In non-credit activities the role of co-operative movement was very insignificant one till that time.

In recent years the co-operative movement has gained new significance. The Government of India, appointed an All-India Rural Credit Survey Committee in 1951 to undertake a comprehensive survey of the credit position and the co-operative movement in rural areas. The Committee emphasised the fact that co-operatives were the most effective means for achieving the economic and social advancement of villages and made the following recommendations :—

(1) State partnership, including financial partnership in the share capital of co-operatives.

(2) State partnership, including financial partnership in the scheme of processing and marketing on a co-operative basis and for the development of storage and ware-housing.

(3) State partnership, including financial partnership in a programme for the organisation on a co-operative basis of such of the other economic activities as farming, irrigation, provision of seed and manure, transport, dairying, live stock-breeding and cottage industries.

(4) Integration of and the State's financial participation in an important sector of commercial banking in order that the State partnered, country-wide banking institution so formed may be charged to do its best to help the deve-

lopment of rural and co-operative banking.

(5) Recognition of the importance of training a new type of personnel altogether.

(6) Recognition of the consideration that rural savings are best movilised, through, and in association with productive economic activities.

Taking its cue from the Rural Credit Survey Committee's report Government has assigned a new role to the co-operative sector by proposing its extention into farming, marketing, and processing. Recently co-operatives have been prominently mentioned in relation to the scheme for State trading in food grains. The second five-year Plan contemplated spectacular effort in the co-operative field, particularly agricultural co-operation.

The Programme

In order to strengthen the co-operative sector, the second Plan visualises higher State assistance, as well as bigger State participation in the functioning of co-operative organisations at different levels. At the base the primary credit societies will function. They will be large sized and will serve groups of villages. Each of them will have a membership of about 500, a minimum share capital of about Rs. 15,000 and a working capital of about 1.5 lakhs (Rs). By 1960–61 it is proposed to establish 10,400 such large sized credit societies. These societies are to be federated into co-operative central banks at district level, and these in turn are to be affiliated to an apex co-operative bank at the State level.

The rural credit societies are to be connected with primary marketing societies, serving a mandi area. A target for long term, medium term and short term credit has been fixed at Rs. 225 crores.

Other objectives

In addition to loans, the credit societies will also provide members with their requirements for cash. The societies will also collect crops for disposal through the marketing societies. Primary marketing societies are to be federated together in an apex marketing society serving the State as a whole. The benefits of co-operation are to be extended to the vast number of medium and small cultivators and share-croppers, who have so far been neglected as non-credit worthy. Loans will also be available on the basis of production programmes and anticipated crops. To ensure their proper use, loans will be given in kind in the form of seeds, fertilizers etc. Members of the credit societies will be persuaded to market their produce through primary marketing societies.

At the same time large numbers of warehouses and godowns are proposed to be set up. These will provide an important link between the activities of credit and non-credit societies. A central warehousing co-operation and 13 warehousing corporations for States will be in charge of the work. Provision has also been made up in the Plan to develop processing on a co-operative basis, especially in sugar production, cotton ginning, oil crushing and jute bailing.

Reorganisation of the co-operative movement is being accompanied by expansion, which is set out in the Plan as given below :—

Rural Credit

Number of large sized societies	... 10,400
Target for short term credit	...Rs. 15 crores.
Target for medium term credit	...Rs. 50 crores.
Target for long term credit	...Rs. 25 crores.

Marketing and Processing

Number of Primary marketing socs. to be organised	...	1,900
Co-operative sugar factories	...	35
Co-operative cotton ginning factories	...	48
Other co-operative processing societies	...	118

Storage

Godowns of marketing societies	...	1,500
Godowns of large sized societies	...	4,000

The targets for co-operative planning as mentioned above are being achieved through reorganisation scheme of both existing and new societies. It is hoped to raise the membership of the co-operative societies to about 16 million as compared to 7.8 million in the beginning of the Second Five-Year Plan.

Official Assistance

As a part of the reorganisation scheme the State Bank of India is to open 400 new branches under its branch expansion programme. Many branches have already been established. A sum of Rs. 52 crores has been allotted under the Plan for the development of various schemes. In addition the Reserve Bank of India will provide 25 crores for the development of rural credit. This development and expansion programme is the joint responsibility of the Reserve Bank of India, State Bank of India, Government of India and the National Co-operative Development and Warehousing Board.

Achievements (Rural Credit)

The Reserve Bank of India has established in 1956 a National Agricultural Credit (long-term operations) Fund and a National Agricultural Stabilisation Fund, to which it contributed Rs. 20 crores so far. By 1960-61 it will have a capital of Rs. 35 crores. Another important direction in which the Reserve Bank of India has assisted is the development of integrated scheme by way of grants-in-aid to State Co-operative Banks. The Reserve Bank sanctioned at a concessional rate of interest, an amount of Rs. 3,394,000 for long terms and Rs. 157,000 for medium term loans upto march 31st 1957. Out of this total amount state co-operative banks have drawn Rs. 3,190,61 and Rs. 122,21 respectively. The Reserve Bank of India Act was also amended, so as to provide for multi-unit-co-operative societies to enable speedy development. As a result of this assistance it is estimated that 3,019 large sized co-operative societies have been established upto 31st March 1958. During 1958-59 it is proposed to organise 1798 more such societies, each of which will cover about four or five villages. Thus the co-operative societies will account for 10 to 12% of the total credit as against 3 percent in 1951. The Reserve Bank has already sanctioned a sum of Rs. 607 lakhs to State Governments to enable them to subscribe to the share capital of various co-operative institutions.

Increase in Membership

The membership shows a phenomenal rise from about 6 million in 1955 to 11 million in 1957-58. A rise is also noticeable in the short, medium, long term loans issued by the societies. These have increased from Rs. 53 crores in 1955-56 to Rs. 70 crores in 1956-57 and a total of about Rs. 100 crores in 1957-58. It it expected that this figure will be as high as Rs. 140 crores during the year 1958-59. Thus co-operative societies alone will account for about 18% of the total borrowings of Indian farmers.

Marketing

In regard to co-operative marketing there were 35,818 societies in India with a total membership of 43.95 lakhs. Above these primary societies there are the

central marketing unions, which amounted to 2,233 in 1954-55. At the State level we find marketing federations serving as apex institutions. Their number in 1954-55 was 17 only. During 1956-57 as many as 251 marketing societies were set up. They received Rs. 76.66 lakhs as assistance.

Processing

The development of sugar factories on a co-operative basis is worth mentioning in this field. Since the 1st Plan licences have been granted for 39 such co-operative sugar factories. Fourteen such factories have already started manufacturing work. It is expected that by 1960-61, the co-operative sugar factories will produce about 25% of the total output of sugar in the country.

Loan assistance upto a maximum of Rs. 15 lakhs per factory is made available to State Government to enable them to contribute to the share capital of sugar factories in their States. The industrial finance corporation also provides a long term loan of Rs. 50 to Rs. 60 lakhs to each factory.

Among other processing activities, mention may be made of cotton and ginning and pressing factories, oil and rice milling.

Storage and Warehousing

To facilitate the marketing of agricultural produce a Central Warehousing Corporation has been established on march 2, 1957. It has an authorised capital of Rs. 20 crores. In addition to the Central Corporation, warehousing corporations have been established in seven states i. e. Bihar, Bombay, Mysore, Rajasthan, West Bengal, Madras and Orissa. The warehouses set up by the Central Corporation have a capacity of about 10,000 tons. The achievements of the National Co-operative Development and warehousing board are shown in the following statements—

(Rupees in lakhs)

	1956-57		1957-58	
	No.	Assistance	No.	Assistance
1. Godowns by large sized societies.	376	18.37	1,053	77.34
2. Godowns by Marketing Societies	218	29.39	398	65.70

Training and Education

The Government of India had set up a Central Committee for Co-operative training in 1953. The Committee has planned out a scheme for training which is as following :—

(1) Higher personnel Training
(2) Intermediate Personnel
(3) Subordinate Personnel
(4) Block Level Co-operative Officers.
(5) Technical Staff required for co-operative marketing societies.

Besides, the All-India Co-operative Union has sponsored a Nation wide scheme for training of primary members, Presidents and Secretaries of Managing Committees of co-operative societies.

For higher personnel, All India Co-operative Training College, Poona, had been established. For Intermediate personnel the course is arranged in Five regional centres namely Poona, Madras, Ranchi, Meerut and Indore. For subordinate personnel, training is provided at 47 schools, run by various State Governments. Arrangement for training and block level co-operative officers' course have been made at eight centres namely

Hyderabad, Gopalpur, Kotah, Bhavnagar, Tirupathi, Dhuri, Faizabad and Kalyani. Special courses in co-operative marketing have also been started at the Regional Training Centres.

The progress of the co-operative organisation, in the field of co-operative education and training can be judged from the fact that the number of persons trained till June 30, 1958, under the comprehensive scheme is as the following :—

Office Bearers	...	1,499
Members and others	...	64,054
Members of Mang. commtt	...	8,026
Total	...	73,579

The total expenditure of Co-operative education during 1957-58 alone is estimated to be Rs. 52 lakhs. The Government of India, Reserve Bank of India and State Governments contributed Rs. 25 lakhs, 14 lakhs and 13 lakhs respe:tively.

Last but not the least the co-operative movement will have to bear the new burden also i. e. the State trading of food grains. Although to begin with it may be started by appointing licenced wholesale dealers, but it is quite likely that it may be entrusted later on to co-operative societies. However, looking to the progress and the assistance given by the Government it may be stated that there is no reason why the co-operative movement would not be a success.

But there are certain points which deserve the careful attention of all. Firstly the stimulus which the Government is providing for the development of co-operatives is basically against the very principle of co-operation. Because it is said that co-operatives should be a non-official organisation and that the State should interfere as little as possible. Secondly, the danger lies in the fact that State assistance to an enormous degree as at present will transform the movement more or less into an official movement.

In this connection, Sir Malcolm Darling has warned against the dangers of merely setting up more and more co-operatives without their being properly assimilated by the rural population. However, it is expected that the co-operatives will enter into a new scheme of reorganisation when the decisions of the National Development Council (Nov. 1958) are put into practice. It is quite likely that the entire process, followed during the last three years may be changed as rural co-operatives will be favoured much more than the establishment of large co-operatives, covering a group of villages.

CO-OPERATIVE FARMING FOR A BETTER TO-MORROW

By : Prof. G. S. RAJHANS

THE discussion on the feasibility of Co-operative farming in India got momentum soon after the Report of the Indian Delegation to China on Agrarian Co-operatives came to light in May, 1957. But now after the Nagpur Congress, the subject is being debated acrimoniously inside the country. Since so much has been said on the subject and in so many different ways, both by antagonists and defenders, that for an average thinker who is not proficient in agricultural economics it is difficult to conceive as to what co-operative farming actually means

and with suspicious mind he whispers to himself: Is co-operative farming not the another name of collective farming that Russia is experiencing; or is co-operative farming not the Chinese Commune in disguise ?

This confusion about the Co-operative Farming is obviously due to the fact that the term has not one and the same connotation *everywhere* on earth. Communist and democratic countries as well, have taken to co-operative farming in some way or other though as to its meaning they have differed sharply. According to Dr. Ottoschiller (Prof. of Agricultural Economics, Germany), a living authority on the subject, "The application of co-operative methods in the sphere of agricultural production can be called co-operative farming only if most of the farming procedures are carried out co-operatively". The Planning Commission believes that "co-operative farming necessarily implies pooling of land and joint management". Broadly speaking, co-operative farming can be on four lines only, viz. Co-operative Better Farming, Joint Co-operative Farming, Co-operative Tenant Farming and Co-operative Collective Farming.

Under Co-operative Better Farming system agriculturists in a village or locality combine together for the purpose of common economic needs like credit, purchase and sale of improved implements etc. or for irrigational facilities and joint harvesting etc. which would commonly benefit all the members. Under this system land is not pooled and these societies are called "Service Co-operatives". Dr. Otto Schiller aptly calls this system as "individual farming on Co-operative lines."

Under the system of Joint Co-operative Farming workers pool their land and work on the pooled land in accordance with the directions of a duly elected Committee of management. The ownership of each member in the holding continues and is recognised by the payment of a dividend in proportion to the value of his land. The produce is raised and disposed of collectively and the proceeds, after meeting all the expences of cultivation, are distributed among members. Here the members have the option to secede at any time they like, given certain conditions.

Under the Co-operative Tenant Farming system no collective ownership exists. The society owns land or gets it on lease and the land is divided into smaller holdings each of which is leased to members who work on the land as tenants of the society on the basis of a fixed rent. The profits are distributed among the members in proportion to the rent paid.

Under Co-operative Collective Farming system there is a collective ownership and collective operatorship. Members pool all their resources, lose ownership of land and get wages instead. The profits are divided in proportion to the wages earned by its members.

The last two types of Co-operative Farming are out of question since while one intends to retain the elements of old Zamindari system, the other having some totalitarian element in it is not suited to Indian soil. The Congress has pledged to come to Joint Co-operative Farming through Service Co-operatives. After the repeated assurances of the Prime Minister the question does not arise whether we should take to joint Co-operative Farming or not. The real issue to-day remains: Is co-operative farming through Service Co-operatives desirable and feasible ?

The Congress, it has been aptly remarked is following a 'very cautious' approach and there is hardly any element of radicalism in its proposals. It is a fact that the progress of Co-operative

Farming in India will be gradual. The Indian Delegation to China on Agricultural Planning and Techniques also held this opinion. But taking to Joint Co-operative Farming deliberately through Service Co-operatives is like slowing down the movement. Even Mahatma Gandhi who advocated Joint Co-operative Farmtng never liked the idea of coming to it through Service Co-operatives.

Foreign experiences show that among the countries which have adopted agrarian co-operatives, Service Co-operatives have been successful only in Japan which is following a policy of 'unrestrained capitalistic growth' and where the old financial oligarchies have again revived. Moreover, Japan is a highly industrialised country in the East and farmer gets only part time employment in agriculture and spends more than half of his time outside his farm. Thus it is doubtful if these Service Co-operatives will be of much use in an agricultural country which believes in socialistic pattern of society. Besides this, we have been experiencing Service Co-operatives of one form or other since the last 55 years and the results we have got are, of course, not encouraging. Sticking again to Service Co-operatives does not seem to be a progressive step.

It is human psychology that one feels attracted to a thing which he calls novel and which he feels to be a bit different from the beaten track. Hammering the old point with a new voice has never been found very advantageous. Emphasising the Service Co-operatives is like presenting the old wine in a new bottle. The right course will be that we must experiment with Joint Co-operative Farming without waiting for another three years. We have lost a good deal of time in discussing the theoretical aspect of Co-operative Farming and as a consequence of which we have suffered from food scarcity of unprecedented character. It is high time that we should strive for Joint Co-operative Farming demonstrating to the cultivators the benefits that would accrue from it.

Ceiling on Holdings: One of the prerequisites of Co-operative Farming is that there should be ceiling on agricultural holdings and land should be redistributed among its actual tillers. There is nothing undemocratic in the redistribution of land. A certain amount of coercion (if that is to be called coercion at all) is always there even in a democracy. One does not like to part with his income or wealth voluntarily. But measures have been taken democratically to tax income or wealth. Absentee landlordism has been put to an end quite democratically. Then why should there be any difficulty in eradicating absentee land-holders ?

India is not likely to make any headway in the course of Co-operative Farming unless the system of landholding is radically changed. Once some sort of ceiling on holdings is completed, there will be a natural tendency among the cultivators to join joint co-operative farming societies since they would feel that they can not proceed any more with their tiny pieces of land and with limited resources. The agrarian history of China and Hungary is a testimony to the fact that after a ceiling on holdings agriculturists realized their limitations and joined such co-operatives voluntarily.

Coercion :—Much has been said about the coercive element and loss of individual freedom in such co-operatives. We do not intend to indulge in that controversy. Only this much can be said that by joining such agrarian co-operatives an individual peasant will subject himself to a "group discipline" and to that extent only he will suffer from a certain loss of individual freedom. In fact, every group acti-

vity involves the subordination of the individual liberty to " group discipline " and every planned development suggests a measure of compulsion. In this connection we are tempted to quote Mahatma Gandhi who believed that " unrestricted individualism is the law of the beast of the jungle. We have learnt to strike the mean between individual freedom and social restraint. Willing submission to social restraint for the sake of the whole society enriches both the individual and the society of which one is a member ". (Harijan, 27th June, 1939). The question remains: shall we not sacrifice a little of our individual freedom in the interest of our economic development and the well-being of the nation ?

How to Begin :—Since in a democracy one learns by trial and error method only, it is imperative that at least a few joint Co-operative Farming societies should be formed without further delay. All the State governments should try to complete the work of ceiling on holdings by the end of this year. In the mean time experiments should be made in Gramdan villages, on government lands and culturable wastelands with surplus labour lying in the villages and their developments be watched closely. Wherever lands are pooled by individual cultivators voluntarily, joint farming should be encouraged. To avoid bureaucracy and bossism, offiice bearers and managers of the farms should be necessarily chosen from amongst the members only and all of them should be required to participate in the farm work for a minimum number of days.

Government should see to it that these joint co-operatives formed by voluntary members receive preference and special assistance from resources made available under agricultural production and other programmes. Particularly in the N. E S. and C. D. Project areas, facilities such as credit from Government, preference in supply of improved seeds, fertilizers, irrigational facilities and marketing and such other facilities should be provided. The Government should also adopt a policy of discriminatory taxation. In the States where agricultural income-tax is levied, it should be lessened in favour of these co-operatives and if possible, they should be made free from paying this tax temporarily.

In a planned economy, there can be no two opinions about the importance of publicity and propaganda. What miracle they can do is obvious from the execution of the two plans. Public response has been quite encouraging where publicity and propaganda played their role satisfactorily, while there are still some places in India where, for want of adequate propaganda, people do not know what planning is and what for it is being launched. Therefore, in the case of Co-operative Farming it is very essential that they should be given wide publicity. The subject should be freely discussed by all important public institutions, Parliament, State legislatures, Local bodies including Panchayats, Block Advisory Committees etc, so that attention may be focussed on the basic issues. The different stations of the A. I. R. can popularize co-operative farming through their programmes for the rural people. Practical farmers should be invited by the station directors to narrate their experiences to their fellow farmers in the regional languages. The press and the auto-visual aids can also play very significant role in this regard.

The attachment of the Indian peasantry to their land is proverbial. But it is also a fact that Indian farmers are second to none in recognising the buttered side of the bread from unbuttered one and once their doubts are dispelled and they realized that it is quite advantageous for them to join the co-operatives than to remain isolated, they would join them very willingly and with unperishable determination. The proper time has come when everyone of us should strive hard for the success of these co-operatives which would bring a better to-morrow.

SOME ASPECTS OF SOIL EROSION AND ITS CONTROL IN RAJASTHAN

By : Dr. R. M. SINGH

THE processes instrumental in excavating, denuding, transporting and depositing the soil material from one place to the other have been regarded as the processes of soil formation by soil scientists. This is a natural process bp which the old surface is removed and replaced by a new one approximately at the same rate. This may be regarded as natural erosion. If this rate of excavation or removal of old top surface increases over the rate of replacement with a new layer of soil equally productive, influenced by any agency natural or man-made, it becomes a process of accelerated soil erosion in practical sense. This has resulted in the change of civilization in course of time. The transportation of soil from one place to the other does not make any difference from the nature's point of view since the matter is never lost, but it does make a lot to the existing population dependent on the land resources where this ravaging effect takes place. The natural fertility is destroyed either by denudation or by deposition of sands over a fertile surface. This work is accomplished by both water and wind.

Characterlstics of erosion and its causes in Rajasthan

In Rajasthan soil erosion is caused by both the agents–water and wind, under the influence of man on the land. In the south–eastern parts where the soil is hilly and heavy, water erosion is common, as in Udaipur and Kotah Divisions. Due to Arravallies lands are slopy and hilly with shallow depth of soil, they are subject to severe damage during torrential rains. Cultivated lands become bare and stony with the rapid loss of top layer. Further excavation and denudation is reduced because of the stones on the surface. Therefore, the tributories of rivers and " nallahs " or waterways are V-shaped–wide at the top and narrow at the base, formed as a result of water erosion in course of time. Wind erosion in these regions are negligible because of the heavy soil type–clay which does not crumble down to powder or to loose particles during hot and dry months.

The regions consisting of central and the eastern districts are subject to severe erosion by both water and the wind. The soils in this region are light loam or sandy which are very loose in texture, and are easily disturbed by big drops of rain water and agitated during heavy down–pour. Though its abosrptive power of water is very high but during heavy rains, the precipitation exceeds the absorptive rate so that saturated soil particles are agitated and are carried away along the water streams making it turbid. This process goes on increasing in its way upto the point of discharge. Since the cutting power of water is accentuated by the presence of course–sand particles or grits, the smaller body of water flowing down to meet the larger body of water goes on deepening and widening its path and accumulates tremendous amount of water. Superfluous water running off the slope increases its velocity, thereby increasing its erosive power and carrying capacity in a definite ratio. The deep water–ways commonly called gullies are U–shaped. Since the region does not receive rain during winter and summer season, the soil particles become loose which are either picked up by wind or rolled on the ground and deposited far away from the original place. However, wind erosion is

not as serious as water erosion in this region.

About two third area of Rajasthan, lying in the west, consisting of Bikaner, Jodhpur and part of Jaipur divisions, receives very low rain–less than 15 cms. in most cases during July–September period. This amount of rain is too inadequate for production of many crops, hence water erosion is of little significance. The soils of this region are extremely light in nature–sandy. Cultivated lands have invariably Kharif crops which are harvested by the end of October, thereafter remain fallow without any proper cover. Loose sands start blowing with the approach of summer with Westerly and South–Westerly winds. The velocity of wind may assume as high as 85 miles per hour, which becomes instrumental in severe sand blowing and sand drifting. Sands invade roads, railway lines, crops and inhabitations, the removal of which from railway tracks and roads is a recurring expenditure. The smaller particles are kicked up by bigger particles while creeping and jumping so that they are sorted up by the turbulent atmosphere and thus reach a great height resulting into a dust storm. Particles nealy 0.1 mm equivalent diameter are very susceptible to wind drift and are carried away a long distance depending on the topography. A smooth surface is more conducive to drifting of sand. Sand particles bigger than 0.1 mm equivalent diameter are resistant to drifting even on smooth surfaces. Undulating surface or any obstacle like bushes, small plants, houses etc. create obstruction in their movement, hence blowing or creeping sand particles hurl against these and are deposited there accumulating in large dunes. Such dunes may assume a size miles long and upto 100 ft. high in deserts. In Rajasthan desert gigantic size of sand dunes are not very uncommon especially in Jaisalmer district.

The sorting action of wind is very instrumental in destroying a fertile soil in such arid regions. The dust particles consisting of silt, clay and organic matter are picked up, transported and deposited a very long distance and the bigger particles are left out and deposited against any obstacle creating sand dunes.

The accelerated erosion caused by water or wind is mainly the result of improper management of land in erodible areas. Removal of natural vegetation either by cutting down the forest for cleaning the land for cultivation or overgrazing to make the land naked and devoid of natural protection. Vegetation reduces the velocity of water and wind, reducing its cutting and absorbing power.

In nearly all tracts of Rajasthan free grazing is allowed. With increase in the population of livestock thereby gradual loss of vegetation, it has fallen short of requirement for grazing. This has resulted in over–grazing of the pastures. Due to shortage of fodder, trees are also lopped and are further cut down and sold as fuel in the cities. Sheep and goat rearing is very common in drier parts. While grazing they not only remove the green vegetative portion but also uproot the grasses which do not rejuvenate at all. Goats do not leave any kind of vegetation in scarcity areas. Bushes and young trees within their reach are severely lopped during summer months. Though it is a gradual process but the land is rendered free of vegetation; roots soon become ranified, thus the soil is rendered devoid of binding material–all of these are conducive to erosion and dust storm. Therefore, sheep and goats have proved a menace in the drier parts of the country. Any scheme of stabilizing vegetation cannot be a success unless free grazing is prohibited.

Faulty methods of cultivation up and down the hill on all sloping land have resulted into accelerated erosion in many parts of the State. Little care of run-off water over cultivated lands during rains, is taken, therefore, the fertile and active portion of the soil-clay, silt, organic matter and nutrients are washed out of the fields in drainage water.

Growing of cultivated crops incapable of providing sufficient cover on the land has contributed to land denudation and erosion. Clean cultivated crops like cotton, tobacco, Maize, Potatoes, Peanuts, Castor and many others do not leave enough foliage to cover the land against erosion. When he tries to eradicate weeds or create a fine seed bed, a farmer often unavoidably loosens and pulvarises the soil so that wind can carry it away. Light rains may end temporarily the danger of sand drifting, because fine particles (if the soil is not very sandy) tend to cement the soil mass together to form clods and a surface crust that resist the force of wind. But heavy rains tend to smoothen the soil surface and to leave a few loose grains of sand or water-stable grains on the surface. The topmost grains as soon as they are dry may be moved or drifted.

Conservation Practices

Before any soil conservation programme is undertaken the entire area has to be prohibited against free grazing. A system of deferred grazing may be allowed, if, at all necessary.

The amount of rain received in any part of the State cannot be considered as excessive. Since irrigation facilities in the high rainfall areas of Udaipur and Kotah divisions, are not adequate, therefore, all the rainwater could be conserved in the soil for winter crops taken without irrigation as practised in Kotah and Banswara districts. Rain-water may be conserved by bunding the fields allround with a provision to conduct superflous water outside the fields safely. If the fields in the entire catchment areas are embanked the problem of erosion on comparatively flat lands will be reduced to a minimum. These bunds may be stabilised with grasses either planted or naturally grown. The superfluous water flowing over steep slopes will have to be conducted safely through a diversion channel and discharged into a large drain or 'nallah'. These diversion channels should also be stabilised with grasses to reduce the velocity of flow thereby induce silting and to discharge clean water into the main drains. The deep water-ways viz gullies and ravines would have to be protected with massonary structures, escape dams, culverts, spillways etc. meant to reduce the velocity of water and induce silting. Plantation work on the sides of gullies and ravines, should be simultaneously started that will, further, reduce the flow of water from the sides into the gullies. In due course of time natural vegetation would cover and bind the surface soil and protect it against abrasion.

Sloping lands in the hilly parts of the State-Udaipur division should be terraced properly. Cultivation across the slope with strip cropping would conserve the moisture and reduce the hazards thereby. On comparatively flat lands, contour tillage to conserve all rain water during the rains should be done if the land is left fallow for some rabi crop, otherwise, the surface should be covered with some crop with enough foliage to provide a canopy protection. One of the important principles of soil conservation is to keep the land under vegetation as far as practicable a greater part of the year.

(*To be continued in June 1959 issue*)

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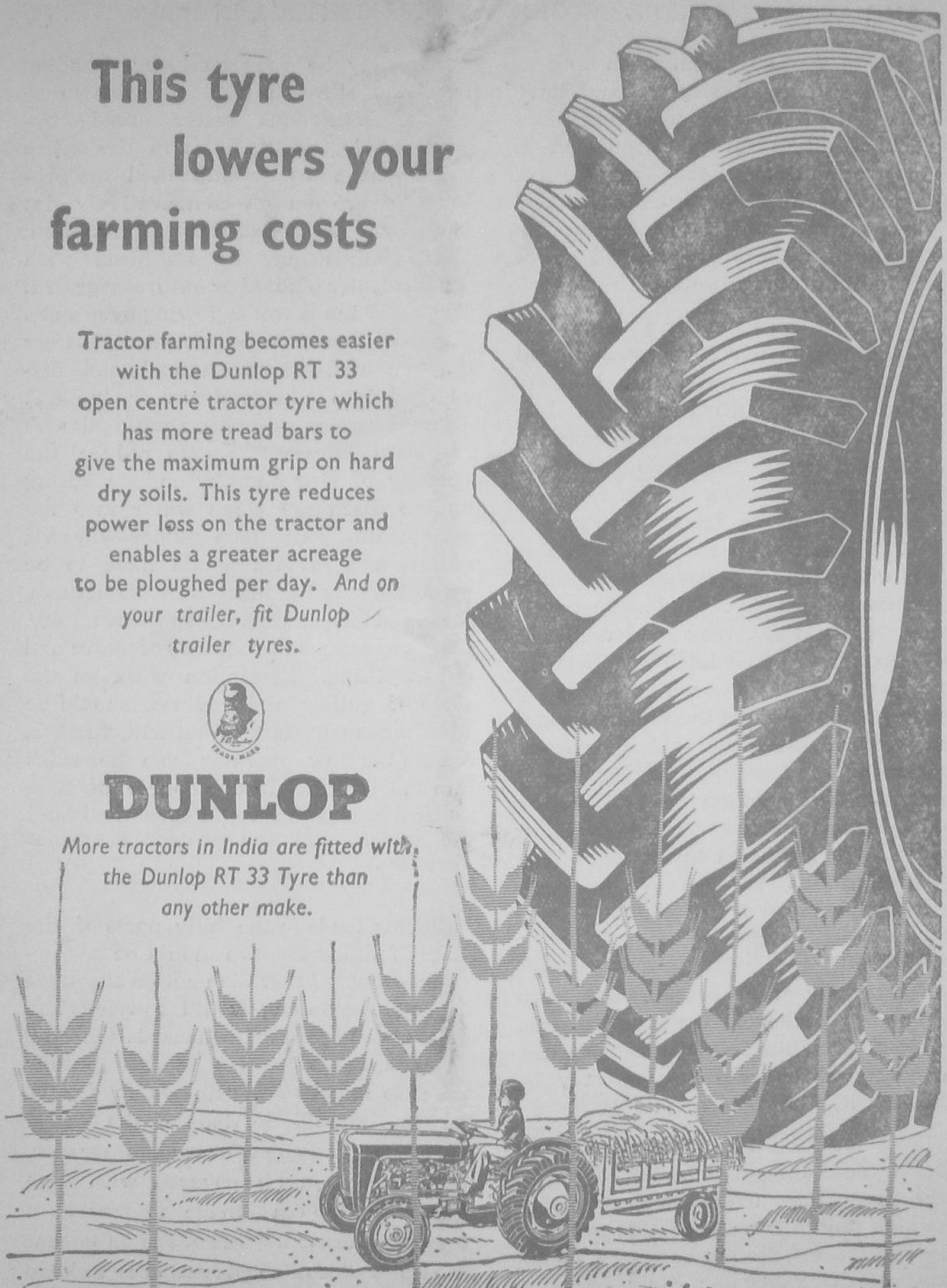

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