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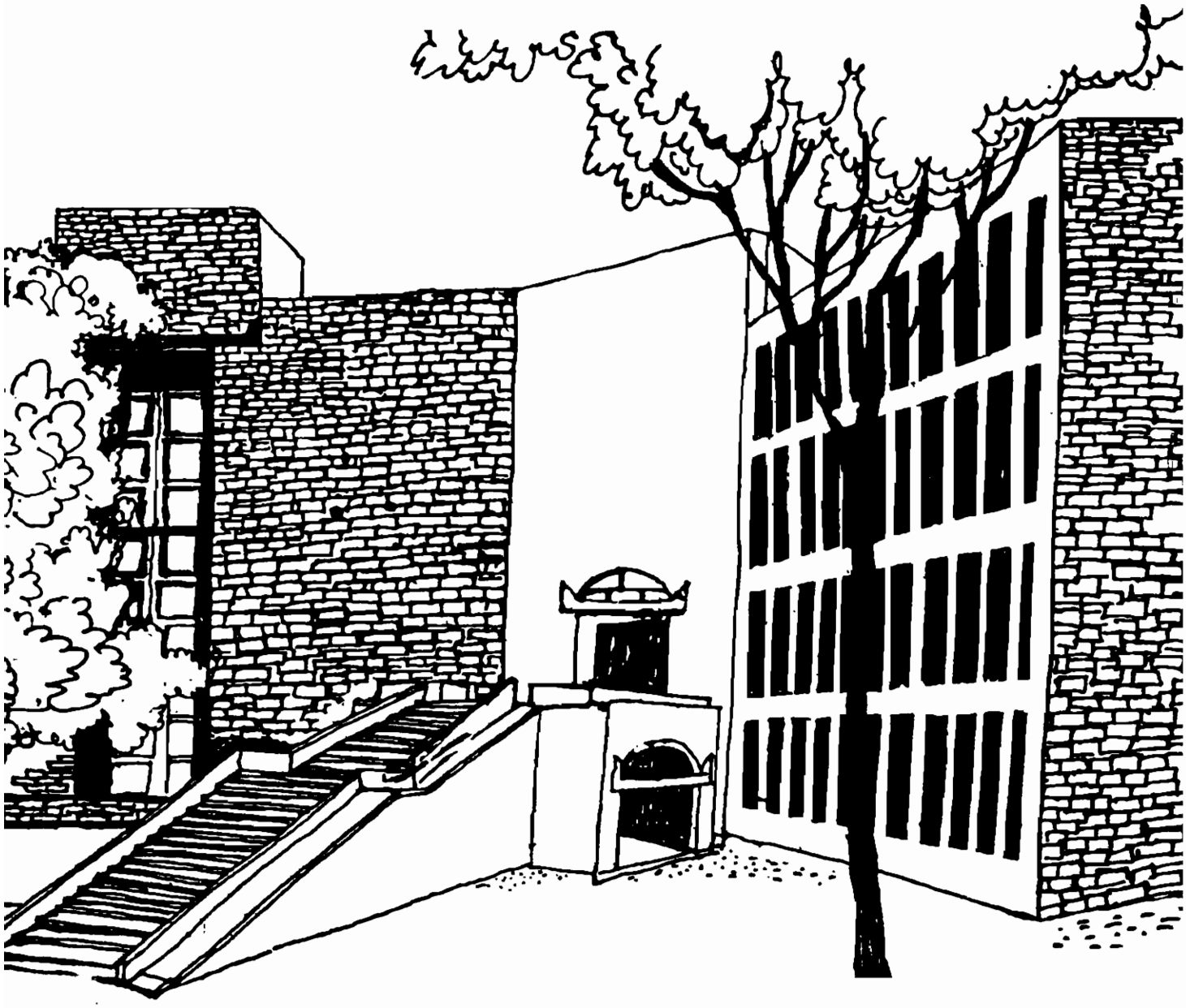

CATALYSING INDIAN AGRICULTURE

By

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Catalysing Indian Agriculture

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For agriculture in his last budget the Finance Minister has rightly addressed to major cumulative pitfalls of previous budgets during the macro-reform period. He should continue with this for the ensuing budget. But in doing so he should catalyse agriculture.

Social Science literature offers blurred ideas for this. Some recommend land reforms. Some others recommend favourable terms of trade. Yet some others recommend technological change. But the question is what needs catalysing? To a prudent pragmatist what matters most is growth in agricultural output. This is because unless the cake is large enough, poverty can not be alleviated, besides the fact that agricultural growth and absolute poverty are compatible objectives. It is also because a hungry can not wait indefinitely to throw away rural land oligarchy. It is in this sense also there is an acute need to identify routes through which agricultural growth may be achieved. There is also a similar need to identify sharply focused public policies for this.

Eminent literature on agricultural economics suggests three routes; extensive farming, intensive agriculture (i.e. using more of the same inputs), and scientific knowledge based new technology along with new inputs and/or products (such as HYVs, better controlled irrigation-water, scientific use of fertilizers, new seeds/crops) in which this technology is embodied. Prof. M.L. Dantwala called these as three options for "strategy" of agricultural growth.

Viewing these three routes as "strategic" options does not preclude the concerns of a radical or that of an ampathetic. Not only does this provide a room for land reforms or price incentives but also enables identifying "more focused" policies to achieve the chosen "strategy".

The third option of technological change is most preferable for it is both a necessary and sufficient condition unlike land reforms or price incentives or credit. It is

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necessary for it averts a trap into Ricardo's Law of Diminishing Returns. It is also sufficient for it increases agricultural production at reduced unit-cost/price in real terms which benefits the poor most. Moreover, extensive farming is no longer feasible as most land frontiers are exhausted. And, intensive agriculture increases agricultural production at diminishing productivity, besides creating pressure on natural resources.

Technical change is different from intensive agriculture in that it envisages combining "knowledge" as an "input" with "all the complementary inputs" in which it is embodied. Following illustrations are relevant to elucidate this distinction.

(1) Seeds being broad-casted versus line-sown

(2) Fertilizers being broad-casted versus placed as required with the help of seed-cum-fertilizer drill

(3) HYVs being solely used versus combined with appropriate fertilizers and organic manure dosages

(4) HYVs and organic and inorganic nutrients being used in land with soil and moisture stress versus combined with appropriate soil and moisture conservation works

(5) Irrigation-water being flooded on the farm or released through canals with drainage and applied through field-channels or through more efficient mechanical pumping devices

Each of these illustrations also underpins that technical change must be both seed and resource-centered.

Four broad public policies required are: public expenditure/investment, reorganization of implementing institutions, pricing of farm inputs and produce, and land reforms. More desirable policy directions on these will enable realizing the full potential of delicencing, dereservation, and decontrol in general that the farm input and agro-processing industries have.

Public Expenditure "on" and "for" Agriculture: This includes the government expenditure "on" agriculture and allied activities, irrigation and flood control, fertilizer and food subsidies, and rural development programmes like IRDP and JRY. Such expenditure "for" agriculture also includes such other avenues as electricity, fertilizer industry, petroleum, roads and bridges, (primary) education, foreign trade, and export market development.

Both these expenditures as a percentage of total public expenditure must be stepped up "aggressively" as land as well as total factor productivity have a decelerating trend suggesting thereby that initial gains of the Green Revolution have been lost. Moreover, during recent plans absolute and relative share of this expenditure are lower in constant prices as envisaged as well as actually incurred. Lastly, higher rate of agricultural growth is now targeted compared to the past.

Both the central government and state governments must prioritize this public expenditure for (1) extension services as extension worker to farmers ratio of 1:800/1000 is highly inadequate, (2) agricultural research to evolve new agronomic practices and more suitable location-specific new varieties as its public expenditure never formed internationally recommended norm of 2 per cent of agricultural GDP, (3) expansion of public sector seed industry especially for self-pollinated crops for which availability of new seeds is in short supply, (4) expansion and modernization of canal irrigation and farm electricity as both of which are in short supply and of poor quality, (5) watersheds in semi-arid and arid areas where soil and moisture stress is high, (6) modernization of public sector fertilizer industry, (7) manufacturing by existing farm input industries hand and bullock-drawn farm implements whose modern designs have been developed, (8) equity-capital support to state-level cooperative credit institutions and RRBs, (9) poverty alleviation programmes that are better integrated with location-specific sectors like agriculture, dairying, fisheries and village industries, (10) selective assistance for post-harvest technology and institutions for oilseeds, cotton, paddy, horticulture, milk and fisheries and (11) rural roads.

Reorganization of Implementing Institutions: All the four major public institutions for agriculture, namely, agriculture and cooperative department (including DRDA), irrigation (including CADA), rural electricity, and agricultural university and research institutions must be decentralized and debureacratized with adequate delegation of powers. Similar is required for the credit institutions and other organizations that serve farmers. Secondly, agricultural extension service needs upgradation through both training and use of modern media, besides interaction with farmers as well as farm input agencies. Thirdly, agricultural university and research institutes must collaborate with farmers and farm input agencies to evolve their research agenda to solve location-specific problems of raising agricultural productivity. Fourthly, Independent Regulatory Authority must be created for both private and public sector seed industries to make seed certification and quality testing mandatory and to accelerate seed replacement rates by the farmers. Fifthly, in both irrigated command areas and watershed project-areas farmers water cooperatives may be formed to promote participatory management, besides aggressively promoting extension service and marketing modern farm inputs and assets. Sixthly, on agricultural credit Cooperative and Banking Regulation Acts may be made more institution and farmer-friendly. Another change needed is to allow for full cost of inputs including family labour in the scale of finance for crops and unit-cost of investment. Yet another change needed is to prescribe six slabs of loan amounts, namely, upto Rs.5,000, Rs.5,001-15,000, Rs.15,001-25,000, Rs.25,001-50,000, Rs.50,001-100,000, and Rs.100,000 and above with corresponding interest rates of 10, 11, 12, 13, 14, and 15 per cent per annum. This is because under the existing three slabs most agricultural loans fall under the first slab of upto Rs.25,000 which is ill-suited to both the farmers with different farm sizes and credit institutions. All the credit institutions must promote not only farmer-level credit but also credit for farm input business and for agro-processing industries. Lastly, a committee consisting of representatives of all the line departments in the government, agricultural university, credit institutions, dairy cooperatives, farm input agencies, eminent NGOs, and farmers may be constituted at the level of state, district, taluka/block, and a group of contiguous villages to improve agricultural planning and implementation.

Pricing of Farm Inputs and Produce: On input price reforms first, upward revision in fertilizer, canal-irrigation, and farm electricity prices is long overdue. Two, such revisions may be gradual and regular rather than steep and ad-hoc And three, maximum retail prices may be prescribed for decontrolled fertilizers, seeds of the private sector seed industry, and well-irrigation water charges that are more in parity with the canal-irrigation water charges. These reforms would make subsidy more transparent and also improve farmers' X-efficiency (i.e. use as distinct from allocative efficiency).

On farm produce pricing "neutral" barter terms of trade for agriculture must be regarded a superior policy option to either favourable or unfavourable. This is because the impact of this terms of trade on agricultural output is ambiguous on account of its conflicting substitution, income and wealth effects. It is also justified as in post-reform period barter terms of trade have improved and yet growth in both major non-price factors and in agriculture significantly deteriorated, besides worsening the poverty. Moreover, aggregate agricultural supply is price-inelastic, besides responding more to non-price factors like technology and institutions compared to the barter terms of trade. All this also justifies that in determining procurement/support prices this terms of trade principle needs to be shedded. Such a price reform will reduce the food subsidy burden. Further, the procurement price may be fixed for only a few selected crops which have broad-based growth in their per hectare yield/total factor productivity. But a floor price may also be fixed considering variable costs (i.e. cost A_2 roughly) of production for those crops which have high fluctuations in their prices to achieve price stability and minimum incentives. These reforms would help check government determined prices to become "price leader" and thereby contain inflation.

Land Reforms: Consolidation of land fragments may be prioritized as it would accelerate adoption of new technology and make viability of holding better. Legitimizing tenant-cultivated farming is also needed as it would provide more enabling environment. On land ownership ceilings the existing laws must be enforced rather than make them liberal or more radical. Liberal ceilings would hurt the poor. And more radical ceilings would hurt the growth as most large farmers are mainly in semi-arid and arid areas with

low productivity. Moreover, such ceilings in a country with poor land-man ratio have physical barrier as a binding constraint. Eminent NGOs may be associated in implementing these land reforms.

To conclude, what is proposed to catalyse growth in agriculture will make GOI "techno-organizational leader" rather than "price leader" which is a "misconceived" instrument for agricultural growth and economic development in general. GOI must pro-actively adopt this leadership to influence the state governments which have agriculture and some of the infrastructure as state subjects. Realizing this would also require both GOI and state governments to adopt industrialization strategy that "prioritizes" farm input industries and agro-processing industries.