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PRESIDENTIAL ADDRESS*

Abhijit Sen†

Ladies and Gentlemen:

Let me begin by thanking the Indian Society of Agricultural Economics for the immense honour you have bestowed on me as President of this Annual Conference. This is an honour far beyond my own capabilities or effort. Let me also thank the Society on behalf of my family for instituting a prize in the name of my late father Samar Ranjan Sen to whom also you had many years ago bestowed the same honour.

In this address, I will try to highlight the matters that Agricultural Economists in India need to focus on in the coming years. Our concerns in the past have been predominantly on the issues of how to feed our growing millions, of how to provide adequate income and employment to the vast majority of our people who still depend on agriculture for livelihood and of how to do this with our limited land and water resources.

In addressing these issues, we agricultural economists not only consider the problems of capital accumulation and efficient resource allocation that all economists are concerned with, but also the implications of fixed factors of production and of uncertainties deriving from natural occurrences such as weather and pests. The existence of fixed (and to some extent non-renewable) natural resources had forced us to recognise that long-term growth cannot come from capital accumulation alone and that this requires continuous technological progress. It has also forced us to recognise that there are trade-offs between short-term growth and long-term sustainability, particularly when it comes to securing output increase through more intensive mining of our existing soil and water resources. Since nature and natural uncertainties loom large in the matters we are concerned with, we have also given more explicit consideration than most other parts of the economics profession to risk analysis, both in terms of modeling individual behaviour and in terms of the design of public policy and investment.

While these concerns are common to all agricultural economists, we in India have the added responsibility of grappling with these issues in the context of the fact that most of our people work in agriculture, we remain among the world's most malnourished nations, and that the levels of both physical infrastructure and human development are still quite appalling, especially in rural India. Our overarching focus has been and will continue to be on the role of agricultural development in

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† Member, Planning Commission, Government of India, New Delhi – 110 001.

overcoming backwardness. This is evident in the special themes chosen for discussion at this annual conference: rural infrastructure, patterns of food consumption and the special problems of North-East agriculture. These are not new themes but, as is the case with all the Society's Conferences, I am sure that we will go back having learnt something new – or at least by finding once again that even old problems have undiscovered dimensions and old questions can be approached differently.

Indeed, as we sit down to our deliberations for the next three days, we need to begin by identifying the big issues that need rethinking. And, engaged as we are on the formulation of the 11th Five Year Plan, it is already evident that there are a number of questions that will interest our profession. Some of these have to do with the old question of the role of agriculture in overall development, some are on matters of broad priorities within the agricultural sector and some are on more micro details, but all of them are related to the broad concern that I am sure all of us share – that agriculture has performed much worse over the last decade than most of us would have expected.

Moreover, this is in the background of the fact that the overall growth in Indian economy during last decade has actually exceeded expectations, with India not only emerging as one of the fastest growing economies in the world but doing so despite several unfavourable developments. Apart from the usual run of droughts and floods witnessed during this period, Tsunami brought additional devastation. The country had to face serious military conflicts in Kargil and deal with economic sanctions imposed by a few countries after the explosion of nuclear devices. The mid-nineties witnessed the East Asian crisis, which was followed by stagnation in some major world economies. More recently, the sharp increase in oil prices has exacerbated all these difficulties. Is it that these external developments were somehow more detrimental to agricultural rather than overall growth? I do not think so, although clearly poor weather and possible climate change are important factors that we cannot ignore and there are possibly other links also.

The Economic Reforms initiated in the early 1990s have obviously contributed to our improved growth performance. Several policy measures aimed at liberalisation and globalisation have been initiated after 1991. Although the trends to reduce bureaucracy and 'open up' the economy were already set in during the 1980s, the difference between then and now is that the very basis of planning and policy making which guided Indian Economic Development Since Independence is now under challenge. The earlier faith in central control on the allocation of resources, "commanding heights" to the public sector, inward looking approach and key role assigned to bureaucracy to implement development strategies have all undergone significant reversal. We do have vestiges of the old structures, and more so the old attitudes, at different levels and in different areas of the economy and polity, but for good or bad a new chapter has been opened in our economic policies and development strategies. It is something which we cannot ignore whatever might be our ideological predilections.

However, although our economic reforms have accepted liberalisation and globalisation, a distinguishing feature has been a sequential and cautious approach to reforms. Triggered by the balance of payments crisis of 1991, it was natural to institute reforms in the foreign trade sector in the first place. Such reforms also became necessary with our acceptance of a world trade regime governed by the rules of World Trade Organisation (WTO). Reforms in the foreign trade sector were followed by domestic reforms, i.e., doing away with a large number of centralised controls and regulations as well as different forms of restrictive trade practices; in other words, dismantling of ‘permit quota raj’. These were followed by reforms in the financial sector, with more autonomy being extended to the financial institutions. The entry of foreign capital was liberalised and made less discriminatory. Of course, this is in some ways a caricature of the reforms process, which was much more blurred with overlapping measure in different areas. But the underlying sequence is clear.

Yet, policy makers in our country have so far resisted the “comprehensive approach” to reforms, attacking all sectors in one sweep. As in sequencing, the slow pace of reforms was not a part of pre-planned design. Several ad-hoc decisions were taken, and as is expected in competitive politics, several compromises were made. The main reason for following such a sequential and cautious approach were the compulsions of a democratic, multi-party, polity where consensus building is required before any drastic step can be taken. One fact, however, is clear, i.e., India did not suffer from major dislocations as have been faced by several other countries opting for ‘comprehensive’ and ‘swift’ reforms, such as sharp declines in gross domestic product (GDP) and employment, raging inflation and collapse of institutions. On all these counts, we have come out more or less unscathed. Not only has our growth of GDP been quite impressive, this has been achieved along with the containment of inflation – to the point where 5 per cent has become the new Lakshman Rekha. An abiding question must be whether this reforms trajectory, either in its overall content or in its cautious, sequential approach, has somehow ended up discriminating against agriculture. I shall not attempt to answer this directly, but let me note that an expectation from reforms was that the reduced industrial protection, which has largely been achieved, would actually trigger faster agricultural growth by removing negative protection.

Unfortunately, this has not happened, even though in fact Indian agriculture was otherwise seemingly well poised at the end of the 1980s. Starting from the late 1960s, in a period of two decades, a severely food-deficit country had achieved food self-sufficiency and was on the verge of emerging as an important exporter. The performance in non-foodgrain crops was not as impressive, though most of these also recorded substantial increase in production. Throughout this period, growth in agricultural production surpassed population and the performance was all the more remarkable as the increase in production was almost entirely due to increase in productivity, expressed in terms of yield per net area sown. Because of the rise in productivity, and fairly realistic price policies, real prices of foodgrains decreased and real agricultural wages increased. In a country where a large section of the population spends a substantial amount of its consumption expenditure on food, this was effective in reducing poverty. Also, the regional limits of the original green revolution were finally pierced in the 1980s and agricultural development had started to spread to regions considered agriculturally backward. For example, 1980s productivity growth in eastern India, and particularly in West Bengal, was comparable to what Punjab had achieved earlier.

But the growth of agricultural GDP, which averaged 3.5 per cent per annum in the 1980s, not only did not increase subsequently – after continuing at about this rate till 1996-97, it has plummeted to 2 per cent or less in the last two Plans. Moreover, careful analysis by a number of scholars shows that the productivity gains achieved during the 1970s and 1980s could not be sustained right from the early 1990s. This deceleration in productivity, as signified by the yield per hectare, occurred in practically all crops and in a majority of regions and, in fact, there was virtual stagnation in yields of non-foodgrains. Serious droughts in the earlier years of the present millennium were of course an accentuating factor, but underlying causes were obviously deeper.

That nonetheless fairly rapid growth continued in the early 1990s was the result mainly of much higher measured growth in fruits and vegetables which, besides issues of statistical accuracy of the actual extent of shifts to higher value crops, was qualitatively different from the earlier pattern. Analysis of this period 1992-98 shows that growth - especially that due to diversification – was more in the relatively dry regions where initial yields were much lower and land relatively less scarce. Since terms of trade did improve till 1997-98, and this occurred simultaneously with a world commodity boom, the 1992-98 spurt in growth from sources other than crop-specific land productivity may indeed have been related to price factors associated with trade liberalisation. As pointed out by some analysts, private investment in agriculture actually increased in the 1990s, breaking an earlier complementary relation with public investment, and in fact private investment has continued to increase right up to the latest data available, both absolutely and as share of agricultural GDP. In other words, we cannot rule out that reforms did have some of its expected positive outcomes, although clearly these positive aspects were not sustained beyond the world commodity boom, nor did they extend beyond crop shifts to restoring yield growth. In fact, the agrarian distress after the late 1990s is concentrated precisely in regions and among farmers who gained most from the area shifts during 1992-98. With hindsight, this should not be entirely surprising to those familiar with the research on price and non-price factors that in the earlier years was such an important part of discussions in our conferences. But we should simultaneously note the disjunction that this implies between private investment and output growth.

To us economists, the relationship between investment and growth is so fundamental that most explanations of the recent growth deceleration are still in terms of inadequate investment. It is for example true that a fall in public investment from nearly 3.5 per cent of agricultural GDP in the 1980s to about 2 per cent during the 1990s caused overall agricultural investment to decline by about 1 per cent point of agricultural GDP despite increasing private investment. This has been a major focus of critics of the reforms process and one which, having been accepted in government, is now being reversed. Plan expenditures of the Centre and States on agriculture and irrigation have already increased more than 60 per cent in real terms since 2004 and public investment in agriculture is likely to reach and probably cross the 1980s level of 3.5 per cent of agricultural GDP this year. In fact, current trends in plan expenditure along with instructions to banks that have successfully doubled agricultural credit in the last three years mean that old fashioned throttles are now sufficiently open to reasonably expect that the public investment ratio cross 1980s levels during the 11th Plan, and that there will be enough financial resources available for total agricultural investment to reach 16 per cent of agricultural GDP. In other words, if resources for investment were the only constraint we should be optimistic about reaching 4 per cent agricultural growth provided the ICOR in agriculture could be constrained to around the same levels as for the economy as a whole.

The problem is that this assumption on ICOR, which till recently would have appeared eminently feasible, is no longer so. The NAS series with 1993-94 as base shows agricultural GDP growth between 1996-97 and 2003-04 to be 1.7 per cent per annum and reports average investment in agriculture as 6.9 per cent of GDP during the period, implying an ICOR of 4.1. This is almost double the corresponding ICOR of 2.1 (from 3.5 per cent growth and 7.3 per cent investment) obtained from the same series for 1980-81 to 1996-97. Further, investment projections for the 11th Plan above are not from this 1993-94 NAS series but from the new 1999-2000 series which reports much higher investment in agriculture (almost entirely on account of higher private investment) at 11.9 per cent of agricultural GDP during 1999-2004 as compared to 7.2 per cent from the 1993-94 series. On this basis, the ICOR in agriculture over the last decade has been well over 6.

From the point of view of the 11th Plan, this means that to attain 4 per cent agricultural growth as planned will require efforts not only to increase investment but even more to reduce the ICOR substantially. The questions here are: why has the ICOR increased so much after the mid-1990s? And what can we do to reduce this? These are issues to which I shall return, but let me note now that if current ICOR levels in agriculture persist (roughly 50 per cent more than for the economy as a whole), there can be reasonable doubts regarding agriculture's comparative advantage for India and whether we should at all be planning to double agricultural growth.

Although my gut reaction, as I am sure of most of you, is that we cannot afford to let agriculture languish, this is not a flippant question. As economists, it is our duty to ask whether we are putting our resources to best use and we need to be clear why we have the gut reactions that we do. The rising ICOR, and independent evidence of lowered input responses and slowdown in total factor productivity, all suggest that we have been ignoring longer-run issues – such as depletion of soil and water resources and inadequate anticipatory and strategic research to address these and overcome genetic barriers – tasks which can be tackled only through very determined efforts at the community and public sector levels. With ICOR no longer less in agriculture than in the economy as a whole, attempting to double output by simply doubling investment without such long-run focus may mean committing resources beyond what is warranted by comparative advantage. Moreover, the actual outcome during much of the last decade – of rising private investment despite declining returns raises questions regarding not only the sustainability of such investment but also of whether the nature of this investment is consistent with the larger sustainability of our natural resource base.

Issues of long-term comparative advantage, i.e., region-specific choices across crops and/or livestock activity, between agriculture and non-agriculture, and also between natural resource conservation and growth, are matters that were neglected in the past. For example, “green revolution” targets were set entirely to meet foodgrains self-sufficiency and Indian planning has since attempted to match growth of agricultural output to likely domestic demand. Implicit in this was an assumption that not only are long-run costs of domestic supply lower than of imports, but that domestic demand would grow rapidly enough for agriculture’s profitability to be maintained. However, an important development since the Ninth Plan has been that demand for agricultural output has grown much less than earlier projections. Data from both National Accounts and National Sample Survey show stagnant or declining per capita consumption of most food items (not just cereals) after 1997, mirroring the marked deceleration in agriculture during the period. Even more significantly, this occurred despite fairly rapid growth in non-agriculture that was accompanied not by shortages but by decline in relative prices of almost all agricultural commodities. This, along with the higher ICORs, contributed to lower farm profits, higher farm debt and the now acknowledged agrarian distress.

For many of us, the present agrarian distress appears to be enough reason why we should take immediate steps to increase agricultural growth. Implicit in this is the correct idea that not only has slow agricultural growth caused rural incomes to fall well behind the growth elsewhere in the economy, recent years have seen much larger fluctuations in output prices around a declining trend and Indian agriculturists face lower returns and larger uncertainty. Obviously, not all growers in all regions faced a similar situation. There were groups of producers who benefited from state policies on pricing and subsidies. There were also pockets where productivity growth could be sustained. But the fact that on an average both price and productivity levels were depressed, suggests that in terms of loss of income, some groups have suffered more than is reflected in the average declines in income and output. I think we will all agree that these vulnerable groups – mainly, farmers in dry land areas, agricultural labourers, marginal and small farmers all over the country and, commercial farmers who went in for heavy doses of purchased inputs and then lost out - deserve much greater attention.

However, we also need to face the hard cold fact that the concerns above are about income and income stability and not about output growth per se. The latter would of course lead to higher incomes for producers if prices did not fall as a result of higher output and if input-output ratios did not rise. But as discussed above, these can no longer be taken for granted and in fact farmers' demand all over the country, particularly in the most distressed areas, is less for output enhancing measures than for price support either directly or through restrictions on imports. Moreover, as far as agricultural labourers and marginal farmers are concerned, their incomes are related to output mainly through the higher labour demand that higher output can create. And this is another area in which agricultural growth has not delivered in recent years. The total employment elasticity of output growth during 1993-94 to 2004-05 (using NSS daily status data) was only 0.17, much less than the corresponding elasticity of 0.45 in non-agriculture, and wage labour demand from agriculture has actually declined absolutely, particularly after 1999-2000. The inescapable fact is that not only is a rupee of investment in agriculture now yielding less output than in non-agriculture, labour demand per unit of marginal agricultural output is negligible and there is also a demand constraint which means that declining prices associated with higher output can restrict its income impact.

These observations have implication for another old relationship that many of us have in mind when we argue for higher agricultural growth – that this is a powerful force that reduces poverty more surely than corresponding growth in non-agriculture. Evidence on this matter was quite strong up to the mid-1980s, in part because our closed economy ensured that periods of higher agricultural growth were also periods of low food price inflation. However, the evidence since then does not support this conclusion so strongly and suggests that rural non-farm employment and the independent effect of relative food prices may be much more important determinants of poverty reduction than agricultural output growth. Thick sample NSS data on this cannot be conclusive because of the comparability problems associated with the 1999-2000 data, but it is quite well known that poverty reduction was much more during 1977-78 to 1987-88 than between 1987-88 and 1993-94 although the latter period had higher agricultural growth. Similarly, thin round NSS data show no poverty reduction between 1990-91 and 1997, a period of relatively high agricultural growth, but fairly significant reduction from 2000-01 to 2004 when agricultural deceleration was most marked. In all these comparisons, the lower poverty reduction associated with high agricultural growth appears to have been because of stagnant non-farm employment and higher food price inflation. As far as more recent NSS thick round data is concerned, poverty reduction between 1993-94 and 2004-05 is now known to have been less than earlier reported between 1993-94 to 1999-2000, but nonetheless the reduction between 1999-2000 and 2004-05 was certainly no less than between 1993-94 and 1999-2000 and on some evidence it could have been much more. Again, higher non-farm employment and lower food price inflation would seem to have reversed normal expectations on rural poverty based on the fact that agricultural growth decelerated from 2.9 per cent to 1.8 per cent between these two periods.

Whatever our predilections, these observations should make us realise that some very major equations have changed in recent years and we can longer be confident that higher agricultural growth alone would relieve the agrarian distress that we see today. It would not be wise to draw conclusions from what was fairly well established for the 1970s and 1980s. While the performance of agricultural sector then in terms of aggregate production and poverty reduction was quite satisfactory, some of the glaring weaknesses of Indian agriculture could not be rectified. With the passage of time, the situation on these has got aggravated. The weaknesses include:

- the unfinished agenda on land reforms;
- continued low value and uncertain production in the dry areas;
- declining productivity of the ‘modern’ inputs in advanced areas;
- degradation of the natural resource base of land and water; and
- inefficiencies in support systems, including research, extension and credit.

In addition, we must not forget that where we have failed most in our post-Independence development is that we have been extremely tardy in developing our human resources through better health and education and we have lagged massively behind in being able to offer non-agricultural employment so as to relieve the pressure on land.

The 11th Plan will need to deal with all of these in a concerted and massive manner, and the Approach Paper to be released shortly has already outlined a vision. Besides a major commitment to human resources development and a definite view that it is employment in non-agriculture rather than in agriculture which will have to be the focus, there is a clear understanding that knowledge gaps regarding natural resources and agricultural potential must be filled at the level of agro-economic zones. But in addition there are two issues that are directly relevant to the topics that we are going to be discussing at this conference: food demand and rural infrastructure.

Since agriculture’s immediate problem is demand, and improved distribution the only way domestic demand can increase beyond what is implied by low current income elasticity, the Approach has flagged equity more generally. In this context, it is important to note of agriculture’s synergies with other flagship schemes of government. For example, besides providing resources for land and water conservation, the Employment Guarantee Programme can increase growth of agricultural demand by about 0.4 per cent per annum.[1] Similarly, it should be noted that the main reason why agricultural demand has slowed down is that the food share in household budgets has been squeezed by rising expense on fuel, conveyance, medical costs and education.[2] Bharat Nirman initiatives on village electrification and connectivity, the National Rural Health Mission and Sarva Shiksha Abhiyan have potential to reverse the squeeze by restoring public expenditure in these areas. In particular, local demand for milk, eggs and horticulture can be expanded very significantly and immediately through school meals and ICDS without much additional infrastructure if child nutrition is made an even greater priority.

Of course this is not the only way to increase demand. Exports are an obvious solution to low domestic demand, and reduction of distribution costs (i.e., post-harvest losses and margins for transport and trade) can increase even domestic demand. In recent years, government has in fact focused much more on the need to create modern supply chains and processing capacity than to tap potential rural demand. This is because corporate interest in urban and export demand for perishable foods is now sufficiently high for profitable opportunities to be seized without much budgetary commitment. Both the Centre and the States are giving much higher priority to marketing infrastructure than in the past, although this too is not matched fully on the policy side. For example, States are still slow on suggested APMC reforms. And programmes and procedures of the Ministries of Agriculture, Commerce and Food Processing have yet to converge adequately either to increase substantially the share of raw produce processed or to generate enough exports to add significantly to overall demand.

However, it should be noted that, although there are delays, APMC reform and the unified Food Act are broadly on course and the scope of the Essential Commodities Act has also been curtailed very substantially. The pace of further movement on these depends on legislative and procedural detail, and it would be counter-productive to seek shortcuts on these. In the meantime, there has been movement on the financial side, with particularly rapid development of commodity exchanges. Despite continued complaints over existing taxes and subsidies, corporate entry into the sector has increased significantly over the last five years or so, through contract farming and new supply chain models. If, nonetheless, overall impact on the agricultural sector is insignificant, this is due mainly to the very small base from which such initiatives began.

But, another problem could well be comparative advantage issues mentioned earlier. How profitable are agriculture exports at current productivity given huge subsidies elsewhere? Do corporate players really have solutions to benefit farmers, especially in backward regions, or even the competitive advantage to take on existing networks of trade? Will mobilising corporate effort and financial clout improve natural resource utilisation and increase demand quickly enough to dent the current agrarian crisis? If not, should government cut taxes or provide other forms of implicit subsidy to further support corporate effort and exports, rather than use resources differently?

Agricultural economists need to discuss these questions fully. The trade-offs involved are important for the 11th Plan strategy. Further, there is widespread dissatisfaction with the post-WTO policy response, which many farmers feel has failed in terms of public support and exposed them to undue risk by linking agriculture too closely to world markets and affluent tastes. The issues raised are less about external linkage as such, and more contextual. Who should bear costs of adjustment and risk? Are incentives in this link compatible with proper natural resource management? Does catering to the rich offer agriculture better medium-term prospects than creating demand to meet the much larger domestic need? Although causality can be debated, it is certainly true that the agrarian situation has worsened post-WTO, particularly after quota removal. It is also true that some public support systems that were more effective before (in extension, quality input supply and co-operative marketing and credit) are near collapse and corporate alternatives favoured by present policies show only isolated success so far. Given this context, we should stress informed analysis, rather than reiteration of entrenched positions.

Let me end by making two additional observations. First, if there are indeed trade-offs with corporate investment, where will resources for improved infrastructure beyond Bharat Nirmaan come from? We need to put the issue of subsidies squarely upfront and note that many subsidies are in fact degrading natural resources and could be better used in developing rural infrastructure which could also help in creating more non-farm employment. Second, the more controversial issue of land reforms.

A necessary condition for almost any definition of inclusive growth in India is that the gap between per worker incomes in agriculture and non-agriculture should not widen further. Bur even if problems of productivity and demand are somehow tackled to attain 4 per cent agricultural growth without further loss in terms of trade, this gap would continue to widen with 9 per cent overall GDP growth unless the agricultural workforce is reduced absolutely. Although the main issues here are skill generation and how to ensure adequate growth of non-agricultural employment, it should also be noted that the shift has already begun and is impacting agriculture itself.

NSS data show that the number of workers in agriculture grew at 1.5 per cent per annum in the decade to 1997 but has subsequently fluctuated without any trend. Also, days of employment per agricultural worker have declined. This shift coincided with deceleration and crisis in agriculture and reflects responses to it; to seek non-agricultural employment and cut labour costs. One aspect is demographic. Withdrawal from farming has been concentrated among young men, while unpaid family work by women has increased significantly. In 1997, 25 per cent of all self-employed agricultural workers were males below age 30 and only 21 per cent females over age 30. The corresponding numbers in 2004 were 20 per cent and 27 per cent. This ageing and feminisation of the workforce on Indian farms is likely to accelerate but, although some pilot schemes exist, this has not been mainstreamed into agricultural policy.

Another response is mechanisation. Labour productivity (GDP/day) accelerated during 1999-2004,[3] even as output decelerated. This mitigated low output growth and terms of trade loss for richer farmers, but caused workdays demand for agricultural casual labour to fall by 20 per cent. Although casual non-farm employment grew quite rapidly, total days of employment per casual worker fell and largely neutralised the increase in wage rates. In sum, there is exit from agriculture at the bottom also, through seasonal migration and otherwise, but push factors mean that current outcomes for the poor are more insecurity than more income from growth diffusion.

Planning the efficient and equitable shift of labour from agriculture to non-agriculture requires consideration of land issues. The obvious aspects are tenancy, women's land rights and protection from insecurity. Land use efficiencies will increase with labour mobility, but labour mobility will itself be impeded unless tenancy is legalised with proper registration of rights of the tenant and landowner. Access to credit and other facilities may suffer as farming becomes more feminised, unless women's rights to land are defined properly to deal with competing demands within households for the collateral from land. Also, with temporary long-distance migration bound to increase, the worst insecurity will be among those who, lacking fallback livelihood at home, need to move with children denying them even the education and health facilities they would have access to in their own villages.

In fact we must again face the land issue squarely as we recognise explicitly the need to reduce agricultural workforce. Otherwise, it could become the excuse to dilute existing ceiling laws, conjuring visions of "efficient" large farms. Such dangerous, false ideas need to be pre-empted. There is no evidence of economies of scale beyond what current ceilings allow, land hunger is unabated, and land per agricultural worker will remain below one hectare for over a decade even if non-agricultural employment grows 6 per cent per annum. Only a positive message, that stresses equity and puts land reform back on the agenda, will make it possible to move on more difficult issues involving efficiency, such as tenancy. This, and proper registration of land rights, is also almost a precondition for dealing effectively with the encroachment and non-participation that currently plague watershed and wasteland development programmes. With the National Rural Employment Guarantee Act in place, there is scope to step such programmes massively to address not only natural resource regeneration but also, through direct employment and improving productivity of even tiny plots, provision of enough livelihood options for the poor to diversify their occupations without jeopardising the capability of future generations.

More generally, we need to ask a historical question regarding how the movement away from land is best carried out: the British enclosure pattern or the Japanese Meiji restoration? Neither is of course directly relevant to India but we as economists should not forget history. We are at a point in the development process at which agriculture has become highly capital intensive because of undue mechanisation, in part due to relative prices but also driven by the unwillingness of the younger rich to work on the land. We also have a very large number of young people who are less educated, but have some idea of agriculture and the material risks involved in cultivation. This group is willing to put in labour and is hungry for land, so there is an important mismatch. Corporate involvement in agriculture is unlikely to absorb either the small and the marginal farmers or the landless labourers. This number is large and will remain large for over a generation, and failure to address the productive employment opportunities of this group is likely to have severe socio-political consequences. While it is necessary to build up the economies of scale which can come either from government or corporates, it is even more crucial to ask at this juncture, which direction we should choose.

NOTES

1. This is on basis of full roll-out of EGA to reach an expenditure of about Rs. 40,000 crore at the end of 11th Plan, assuming that about half the incremental consumption would be on food.

2. Both NSS and NAS show food share in total consumer expenditure down 6-8 percentage points since 1990-2000 and the share of the four items above rising 4-6 percentage points. NAS shows both real price and real per capita spending fell for food while both price and quantity rose sharply for the four items.

3. However, labour productivity decelerated if defined as GDP/worker, rather than GDP/day. Choice of how labour is measured can thus lead to differences on agriculture's total factor productivity. But there is unanimity that land productivity decelerated and output response to non-labour inputs fell.