A Perspective on Agricultural Credit for 2020

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I. Introduction:

Agriculture is the main occupation in the Indian economy, engaging about 68 per cent of the population. There has always been a strong correlation between the performance of this sector and that of the overall economy. In order to achieve 8 to 9 per cent growth in Gross Domestic Product (GDP), agriculture sector need to be a decisive driver, despite its reduced share in GDP from 58 per cent (1950-51) to about 18 per cent (2008-09). Further, the much needed food security is reflected in the abundant buffer stocks of grains build up out of the surplus agricultural production. Over the years, there has been a significant shift from the subsistence level of production to market oriented production. Diversification and commercialization in agriculture have resulted in shifting of cropping pattern from traditional crops to new crops and new markets.

In all these, institutional credit played a very important role in the development of agricultural sector. As a result of credit, Indian agriculture developed over time and showed all signs of resilience to natural shocks like droughts and famines. It acted as a means to provide control over resources to enable the farmers to acquire the required capital for increasing agricultural production. It enabled the farmer to go for short-term credit for purchase of inputs and other services and the long-term credit for investment purposes. Credit also played an important role by facilitating technological upgradation and commercialization of agriculture. The success of Green Revolution in Indian agriculture to a large extent laid on institutional credit support to agriculture in terms of expansion in inputs like fertilizers, irrigation, private sector capital formation, etc. This paper is a humble attempt to assess the current perceptible trends in institutional credit to agriculture and come out with a perspective of agricultural credit for 2020. While the Section II addresses the issues pertaining to the former the Section III makes an attempt on the later. Section IV concludes the paper.

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II. Agricultural Credit - Growth Strategy and Current Discernible Trends

Agricultural Credit Delivery Strategy

The credit strategy for agricultural development in the country has been founded on the philosophy of "growth with equity". Various measures like administered interest rates, setting targets of lending to the agriculture sector, coupled with availability of refinance to the banks at softer terms, had helped in increasing the flow of credit to the agriculture sector. Stipulating targets to the banks ensured access of credit to marginal and small farmers. Loans to this group were made available at softer terms, e.g., lower down payment, longer maturity period and lower rates of interest. Such facilities helped these farmers also to adopt the new technologies of farm production. The pursuance of such strategies not only facilitated in improving the flow of institutional credit for agriculture and rural development, but it also enabled the farmers to adopt the new technologies of production, introduced with the "Green Revolution" in the Seventies.

The Agricultural Credit Delivery System (ACDS), as it shaped up during 1970s and 80s was characterized, by multi-product and multi-agency approach (MPMAA). The rationale behind such an approach was that for the economy of the size with wide diversity, multiplicity of credit products and agencies alone would induce the required development process. Under this arrangement, the farmer entrepreneur would have the flexibility to approach any of the bank branches in its area for credit support either for farm investments or for purchase of farm inputs, depending on his choice of credit needs. Moreover, each credit product was targeted to cater to the stipulated and specific production/ investment needs within that specific sector/activity. The MPMAA was carried out by agencies comprising co-operative banks, scheduled commercial banks and RRBs guided mainly by the considerations of ensuring adequate and timely availability of credit at reasonable rates through the expansion of institutional framework, its outreach and scale as also by way of directed lending.

Agricultural Credit- Perceptible Growth Trends

Over a period of time, impressive spread has been accomplished in terms of the scale and outreach of institutional framework for agricultural credit. The commercial banks have

made commendable progress in terms of putting in place a wide banking network, particularly in the aftermath of nationalisation of banks. The number of offices of public sector banks increased rapidly from 8,262 in June 1969 to 64,608 by March 2009 (RBI 2009). Another significant achievement is that in the post-independence period there was widening of institutional machinery for credit and decline in the role of non-institutional sources. The share of institutional credit, which was 7.3 per cent in 1951, increased manifold to over 66.3 per cent in 1991, reflecting concomitantly a remarkable decline in the share of non-institutional credit from around 92.7 per cent to about 30.6 per cent during the same period (Table 1). However, the Situation Assessment Survey (SAS) of NSSO revealed that the share of non-institutional credit took a reverse swing, which is a cause of concern (NSSO 2003).

Table 1: Relative share of borrowing of cultivator households from different sources

(Percentages)

Sources of Credit	1951	1961	1971	1981	1991	2002
A. Non-Institutional,	92.7	81.3	68.3	36.8	30.6	38.9
of which						
Money lenders	69.7	49.2	36.1	16.1	17.5	26.8
Others*	23.0	32.1	32.2	20.7	13.1	12.1
B. Institutional	7.3	18.7	31.7	63.2	66.3	61.1
of which						
Cooperatives Society/ Bank	3.3	2.6	22.0	29.8	23.6	30.2
Comm. Banks, etc.	0.9	0.6	2.4	28.8	35.2	26.3
Others@	3.1	15.5	7.3	4.6	7.5	4.6
C. Unspecified	--	--	--	--	3.1	--
Total	100.0	100.0	100.0	100.0	100.0	100.0

*includes traders, relatives/friends landlords, etc., @ includes Government, etc.
Sources: RBI, (1999) *All-India Debt and Investment Survey, 1991-92-Salient Features*, Reserve Bank of India Bulletin, May and NSSO (2003), *Situation Assessment Survey of Farmers,2003*.

Notwithstanding their wide network, co-operative banks, particularly since the 1990s lost their dominant position to commercial banks. The share of co-operative banks (13%) during 2008-09 was less than three fourths of what it was in 1992-93 (62%), while the share of commercial banks (33% to 80%) including RRBs (5% to 9%) almost doubled during the above period (Table 2).

Table 2: Institutional Credit to Agriculture

(Rs. crore)

Year	Financial Institutions							
	Coop. Banks	Share (%)	RRBs	Share (%)	Comm. Banks	Share (%)	Total	Per cent Increase
1	2	4	5	6	7	8	9	10
1985-86	3874	55	–	–	3131	45	7005	–
1986-87	4207	52	–	–	3809	48	8016	14
1987-88	4420	52	–	–	4009	48	8429	5
1988-89	4851	53	–	–	4233	47	9084	8
1989-90	5082	52	–	–	4719	48	9801	8
1990-91	3408	39	–	–	5438	61	8846	-10
1991-92	5800	52	596	5	4806	43	11202	27
1992-93	9378	62	831	5	4960	33	15169	35
1993-94	10117	61	977	6	5400	33	16494	9
1994-95	9406	50	1083	6	8255	44	18744	14
1995-96	10479	48	1381	6	10172	46	22032	18
1996-97	11944	45	1684	6	12783	48	26411	20
1997-98	14085	44	2040	6	15831	50	31956	21
1998-99	15916	43	2538	7	18443	50	36897	15
1999-00	18363	40	3172	7	24733	53	46268	25
2000-01	20801	39	4219	8	27807	53	52827	14
2001-02	23604	38	4854	8	33587	54	62045	17
2002-03	23716	34	6070	9	39774	57	69560	12
2003-04	26959	31	7581	9	52441	60	86981	25
2004-05	31424	25	12404	10	81481	65	125309	44
2005-06	39404	22	15223	8	125859	70	180486	44
2006-07	42480	18	20435	9	166485	73	229400	27
2007-08	43684	18	24814	10	175072	72	243570	6
2008-09	36762	13	26724	9	223663	80	287149	18

Note: Commercial Banks and RRBs were clubbed together up to 1990-91.
Source: Economic Survey, Government of India, Various issues.

The efforts to increase the flow of credit to agriculture seems to have yielded better results in the recent period as the total institutional credit to agriculture recorded a Compound Annual Growth Rate (CAGR) of around 23 per cent during 1998-99 to 2008-09 from 15 per cent during 1988-89 to 1998-99. In terms of total credit to agriculture, the commercial banks recorded a considerable growth (from around 16% to a little over 28%), while cooperative banks registered a fall (from 12.6% to 8.7%) during the above period (Table3).

Table 3: Growth (CARG) in Institutional Credit to Agriculture
(1988-89 to 1998-99 & 1998-99 to 2008-09)

No.	CARG(%)/Period	Coop. Banks	RRBs	Comm. Banks	Total
1	1988-89 to 1998-99	12.6	19.9	15.9	15.0
2	1998-99 to 2008-09	8.7	26.5	28.3	22.8

II. Perspective Credit Plan for Agriculture by 2020

The agriculture sector has witnessed a transformation since Independence and the country has graduated from the state of being a net importer of foodgrains to a state of not only having self-sufficiency in foodgrains production but also a net exporter. Besides, a large measure of resilience to weather aberrations has been built into the Indian agriculture mainly due to the expansion of irrigation infrastructure and adoption of improved technology of production. Foodgrains production registered a record level of 230.7 million tonnes during 2007-08, a significant increase from the level of 51 million tonnes during 1950-51 growing at a CAGR of 2.7 per cent. Dairy sub-sector accounted for two thirds of the value of output from the animal husbandry sector and total milk production touched to 104.8 million tones during 2007-08. India is the seventh largest producer of fish in the world and is second in inland fish production. Despite these impressive gains, productivity levels as also the growth in yield levels in agriculture continue to be lower than those obtained in many countries of the world (Table 4).

Table 4: Comparative Yield Level of Rice & Wheat (India & Other Major Producing Countries

(Kg./ha.)

Crop	Country/Year	2003	2004	2005	2006	% change '06' over '03'
Wheat	China	3932	4252	4275	4455	13.3
	France	6250	7579	6989	6741	7.9
	India	2610	2713	2602	2619	0.3
	USA	2972	2903	2902	2825	-4.9
Rice	China	6061	6309	6251	6265	3.4
	India	3118	2976	3152	3124	0.2
	Indonesia	4543	4536	4575	4772	5.1
	Vietnam	4639	4855	4883	4891	5.5

Source: Tenth Five-Year Plan 2002-07, Sectoral Policies and Programmes, Chapter 5.1(Volume II).

With globalization and trade liberalization, the sector is expected to meet the domestic demand and also take advantage of its competitive edge, in terms of price and quality. This would entail bringing about an improvement in the production efficiency, through

expansion of the boundaries of the existing production, resource use efficiency, better post harvest management and putting in place an effective processing industry. Consistent with this expectation, the adoption of modern technology in agriculture and allied activities is essential, which in turn hinges on the volume of investment, both in the private and public sectors. The demand for investments in the private sector is to be largely met by the formal credit institutions.

The value of output of the agriculture sector (including fisheries) is targeted to increase at an annual rate of 4.1 per cent during the Eleventh Plan period (2007-2012). The quantity of capital investment required for achieving desired rate of growth in GDP could be estimated by capital output ratio. The 'capital-output ratio', defined as the ratio of capital stock to the total output in an economy at a given point of time, is generally used in determining the rates of savings and investments, given the growth rate of an economy. The Incremental Capital-Output Ratio (ICOR) shows, *ceteris paribus*, how much additional output is produced by an additional unit of capital. The higher the ICOR, higher will be the number of units of capital be required to produce an additional unit of output. Thus, it indicates the efficiency/productivity of capital in the economy.

Working Out the Projections of Credit

During Tenth Plan, ICOR for agriculture was estimated at about 1.99. However, it would be naive to plan agricultural growth with low ICORs (Alagh, 1997). In a few states, where agriculture is well developed, all infrastructure facilities are available and extension services are of higher order, the ICOR could be lower as compared to less developed states. On the basis of gross capital formation in agriculture in the past, ICORs were estimated at 1.59 and 4.05 during Eighth and Ninth Plan, respectively. Therefore, the capital output ratio for the present exercise has been assumed as 4.05 (Table 5).

Table 5: Composition and Structure of Growth

	Eighth Plan		Ninth Plan		Tenth Plan		Share of GDP (%)	
	Growth Rate(%)	ICOR	Growth Rate(%)	ICOR	Growth Rate(%)	ICOR	2001-02	2006-07
Agriculture	4.69	1.59	2.06	4.05	3.97	1.99	24.7	20.5
Overall	6.54	3.43	5.35	4.53	7.93	3.58	100.0	100.0

Source: Tenth Five-Year Plan 2002-07, Sectoral Policies and Programmes, Chapter 5.1(Volume II).

Based on the capital output ratio and predetermined growth rate of 4.1 per cent the volume of investment required has been worked out. The investment will include both private and public sectors in the agricultural and allied sectors and for backward and forward linkages. Credit from formal credit institutions facilitates capital formation in the private sector/household sector in the agriculture. Once the magnitude of private capital formation is known, the share of credit in it could be worked out. The projection of credit is based on certain assumptions as mentioned below.

- Perspective Credit Plan is based on 4.1 per cent growth for agriculture GDP by 2020 (2009-10 to 2019-20). The base year GDP (1999-2000) level was Rs.142915 crore. Capital output ratio as estimated during Tenth Plan (4.05) is assumed as constant.
- Technological change, research and other factors (total factor productivity+ total input productivity) remain constant over the period.
- Growth of GCF has been taken as 20.3 percent of GDP agriculture. GCF from private sector has been assumed at 77.8 per cent of total GCF for agriculture (average of the share of private capital formation during 1999-00 and 2007-08).
- The private investment to be supported by bank credit is assumed at 63.33 per cent (as per Working Group Report on Agricultural Credit and Co-operation, Tenth Plan).
- Projected figures for crop loan has been computed on the basis of ratio of private investment and input cost (1:3.2) and correlation coefficient (0.98) (Table 6).

Table 6: Public and Private investment in Indian Agriculture (1999-2000 prices)

(Rs. crore)

Year	Gross Capital Formation	Public Investment	Private Investment	Ratio of (4) to (3)
(1)	(2)	(3)	(4)	(5)
1999-00	43473	7716	35757	4.6
2000-01	39027	7155	31580	4.4
2001-02	48215	8746	38297	4.4
2002-03	46823	7962	38861	4.9
2003-04	44833	9376	35756	3.8
2004-05	49108	10267	38309	3.7
2005-06	54905	13219	41320	3.1
2006-07	60762	18755	42007	2.2
2007-08	79328	22107	57221	2.6
Avg.	51830	11700	39901	3.8

Source: Govt. of India, (2007-08 & 2008-09), Economic Survey

- Induced investment in Thrust Areas like, irrigation, rain-fed farming, waste land development, soil/water conservation, animal husbandry/dairy development and fisheries, etc. is assumed at @ Rs. 30,531 crore annually.

- Complementarity between public and private investment at 3.7.
- Consistent with RBI's objective of 6.0 per cent inflation on a tapering basis assumed for projecting credit plan.

The private sector investment in agriculture and use of inputs for raising the crops are highly correlated, the value of correlation coefficient, estimated on the basis of data for 2003-04 to 2007-08, being as high as 0.98 (Table 7). Projections of the required short-term credit has been made on the basis of ratio of investment to input cost (3.2).

Table 7: Ratio of Input Cost to Private Investment

(Rs. in crore)

Year	Private Investment	Input Cost	Ratio of (3) to (2)
(1)	(2)	(3)	(4)
2003-04	35756	120198	3.4
2004-05	38309	123185	3.2
2005-06	41320	129272	3.1
2006-07	42007	134579	3.2
2007-08	57221	143561	2.5
Average	42923	130159	3.2

Sources: Column (2), Govt. of India, (2007-08), Economic Survey, February
Column (3), Govt. of India, (2008-09), National Accounts Statistics, CSO, September

However, the projections are only approximations and have many limitations such as the limitations of data on capital formation itself as published by CSO, the proportion of private capital formation in the total capital formation remains constant, complementarity between public and private investment, etc. The credit flow for agriculture and allied sectors during the Tenth Plan period (2002-07) was estimated at Rs.7,36,570 crore. The credit estimates for the Tenth Plan were designed keeping in view the desired agricultural growth rate of 3.9 per cent estimated for the Plan period.

For the present exercise, the credit estimates for the Ten-year period were designed keeping in view the desired agricultural growth rate of 4.1 per cent and based on other assumptions as mentioned in the above paragraphs. The total credit flow for agriculture and allied sectors during the ten year period (2010-2020) had been estimated at Rs.48,12,250 crore (Table 8). In order to achieve 3.9 per cent growth rate in agricultural GDP during the Eleventh Plan, the 'Working Group on Outreach of Institutional Credit and Cooperative Reforms' made credit projections for agriculture and allied activities by using different models.

Table 8: Perspective Credit Plan (both Investment Credit & Production Credit) for 2020

(Rs. Crore)

Periods	GDP Agrl @ 4.1%	GCF Agrl. ICOR =4.05	Pvt. Invt. (@ 77.8% of GCF Agrl.	Pvt. Invt + induced Invt.	Invt. Credit (@ 63.33% of pvt. invt.	Prodn. Credit (6)*3.2	Total Credit (6)+(7)	Total Credit#
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2009-10	603743	122560	98048	128579	81429	260573	342002	362522
2010-11	628496	127585	102068	132599	83975	268719	352694	375619
2011-12	654264	132816	106253	136784	86625	277200	363825	389293
2012-13	681089	138261	110609	141140	89384	286028	375412	403568
2013-14	709014	143930	115144	145675	92256	295219	387475	418473
2014-15	738083	149831	119865	150396	95246	304786	400032	434034
2015-16	768345	155974	124779	155310	98358	314745	413103	450283
2016-17	799847	162369	129895	160426	101598	325113	426711	467249
2017-18	832641	169026	135221	165752	104971	335906	440877	484964
2018-19	866779	175956	140765	171296	108482	347141	455623	503464
2019-20	902317	183170	146536	177067	112137	358837	470974	522781
Total	8184618	1661478	1329183	1665024	1054461	3374267	4428728	4812250

Total credit calculated after adjusting for inflation @6.0 per cent on a tapering basis.

The working group kept in view the emphasis on financial inclusion, agricultural diversification and commercialisation, strengthening of RFIs in the light of the implementation of the recommendations Vaidyanathan Committee and amalgamation of RRBs, etc. Across the models, the total credit flow to agriculture during Eleventh Plan ranges between Rs.15,03,468 crore to Rs.19,59,524 crore (Table 8).

Table 8: Agricultural Credit Projections for the Eleventh Plan

(Rs. Crore)

No.	Methodology	2007-08	2008-09	2009-10	2010-11	2011-12	Total
1	Instt capacity	245182	301464	373756	463693	575429	1959524
2	PLP Projections	206156	262098	333478	424634	541150	1767516
3	Trends Basis (Agency-wise)	232629	266871	301113	335354	369596	1505563
4	Agri Credit to Agri-GDP	227214	270129	318735	373694	435737	1625509
5	Term Structure-wise	268130	299355	334012	372464	415112	1689073
6	Capital Resource Based	234912	280663	330474	384342	442266	1672657

Source: Working Group on Outreach of Institutional Credit and Cooperative Reforms, Eleventh Five Year Plan (2007-2012), Planning Commission, Government of India

Sectors requiring Adequate Thrust by 2020

The thrust areas identified for immediate attentions for augmenting output in the agricultural sector are irrigation, rain-fed farming, wasteland development, soil and water conservation, animal husbandry/dairy development and fisheries, etc. Assuming a public investment of the order of Rs.4,388 crore annually, and given the complementarity between public and private investment, the requirement of investment annually in the private sector has been worked out. This will be an incremental investment. The share of institutional credit in the incremental private sector capital formation has also been estimated there from, on the basis of the assumptions made by Working Group on Agricultural Credit and Co-operation for the Tenth Plan.

Irrigation

Availability of adequate, timely and assured irrigation is the critical determinants of agricultural productivity. To meet this requirement massive investment is called for. Beginning with Rs. 441 crore as investment in irrigation in the first plan (1951-56), the same reached to a high of Rs.95,743 crore in Tenth plan (2002-07). However, the share in total plan expenditure has decreased from 23 per cent in the First Plan to 6.3 per cent in the Tenth Plan. Despite a quantum jump in the amount about 16.12 million ha. is still to be brought under irrigation to achieve the full potential of irrigation from major and medium irrigation (MMI). Assuming expansion in irrigation at the rate of 1.5 million hectares per annum over next 10 years from the MMI, it would require more than Rs. 50,000 crore which exceeds total outlay of Eighth Five Year Plan (Rao, 1995). Any slackness in the irrigation related investments in the coming years is likely to imperil the growth of the crop production.

Private investment in irrigation is in structures (wells, overhead tanks, check dams, ponds, etc.), and water lifting devices such as electric and oildriven pumpsets, persian wheels etc. A deceleration in the rate of growth in well irrigation is attributed to utilization of near full potential of irrigation under minor sources (Dhawan, 1996). Some of the states have been showing symptoms of quick depletion in the water table, thereby further enhancing the cost of withdrawal of water. The lowering of water table has

manifold implications on investments. First, fixed investments in wells and subsequent investments on well deepening goes up. There is simultaneous rise in the operating costs, such as on energy, maintenance of water lifting devices, etc. Lowering of the water table also results in the decline of yield of water per well resulting in the rise in unit cost of water lifted. Therefore, improving utilisation of existing irrigation potential, promoting water conservation and efficient water management and expansion of irrigation facilities are to be given the priority for raising agricultural output.

Various other water application devices particularly sprinklers and a variety of micro irrigation systems that come under the drip irrigation sets are gaining prominence in water-scarce and rain-fed areas. As per Eleventh Plan document, out of the 69 MH net irrigated area in the country, only 0.5 MH under drip and 0.7 MH under sprinkler has been achieved (GoI 2007). Maharashtra has 46 per cent of the area under drip in the country followed by Karnataka (21%), Tamil Nadu (14%), and Andhra Pradesh (12%) Therefore, there is an extensive scope for expansion of various micro irrigation systems in the form of sprinkler and drip irrigation networks in the irrigated areas of the low rainfall zone. Eleventh Plan document suggested that while sanctioning new irrigation projects, it would be made obligatory for project authorities to implement micro irrigation in at least 10 per cent of the command area. Assuming an investment of Rs. 1,000 crore per annum under this segment at all India level it may require private investment of the order of Rs.3,800 crore.

Rain-fed Farming

About two-third of the net sown area in the country is rainfed area. It contributes about 40 per cent of the total agricultural output and about 90 per cent of the production of country's oilseeds and pulses. Given the level of productivity achieved in the irrigated areas, much of the increase in the foodgrains production has to come from these areas. Options available for rainfed farming were generally confined to seed-centred and/or agronomic/management practices based technology. These approaches, however, did not yield the anticipated results on account of several constraints such as inadequate extension/technical back-up, misplaced emphasis on only the physical aspects of the

technology options, etc. Rainfed farming based on watershed approach is considered to be viable alternative. The success of the Pilot Projects under the Indo-German Watershed Development Programme [IGWDP] in Maharashtra indicates that such models could be replicated in other states also. Assuming an annual investment of Rs. 1,000 crore by government on various projects for making rainfed areas more productive and given the complementarity between public and private investment (1:3.8), it will require private investment of about Rs. 3,800 crore.

Waste land Development

The country has about 24.5 million ha. of waste land and 16.6 million ha. of fallow land having the scope for being brought under cultivation. Sizeable proportion of this large unutilised area could be converted into arable land through soil amendment and introduction of crop choices and moisture conservation measures, development of facilities for life saving irrigation wherever feasible. Assuming that an investment of Rs. 20,000 per ha. is required for reclaiming this land, if an ambitious target of bringing about 2 million hectares per year is fixed, an investment outlay of Rs. 4,000 crore would be required each year. Assuming complementarity between public and private investment (1:3.8) it will lead to a private investment of Rs. 15,200 crore. This will bring about around 20 million hectares into productive use over a period of 10 years having potential to produce around 40 million tonnes of cereals.

Soil and Water Conservation

Soil and water conservation are essential for sustainable production. Thus larger investments are required for preparation and adoption of a scientific cropping plan (land use plan detailed by every survey number) based on land capability to minimise soil erosion and loss of moisture, adoption of full package of agronomic practices and alternate land use in tune with the new technology. Over the years there is rise in incremental costs of land and water development schemes. Studies show that costs are up to Rs. 30,000/- per hectare, as compared to a third of such costs in earlier projects. In case of an watershed development project in the "command" of an irrigation project with limited assured supplies, where the cost of harvesting 19 inch of assured water supply

was around Rs. 29,000/- per hectare (Alagh, 1997). Such projects cannot be funded by public sector alone. Private sector should come in a big way for investing in such projects and also in other infrastructural projects which is presently provided by the public sector. Assuming total planned expenditure on soil and water conservation at Rs. 2749 crore (planned budget estimate for 2008-09) and given the complementarity between public and private investment (1:.3.8) it will lead to a private investment of Rs. 10,446 crore. In the irrigated areas, managed ground water exploitation, conjunctive use and drainage, have all been identified as activities with high rates of return (18%) and are also environmentally sustainable, thus expanding the scope for incremental private investment (Alagh, 1997).

Animal Husbandry & Dairy Development

There exists vast scope in expanding animal husbandry and dairy development activities in the rain-fed and drought-prone areas. As the country has the largest cattle and buffalo population in the world and also ranks first in goat population, strengthening this sector will not only contribute substantially to the GDP but also offer enough scope for generating employment and supplemental income of small and marginal farmers in these low productivity areas, thus improving access to more food. Strengthening various infrastructural facilities directly or indirectly affecting the sector can largely, accelerate the growth in this sector. Genetic up-gradation of cattle and buffalo population through expansion and improvement of breeding facilities, opening more artificial insemination (AI) centres in remote and inaccessible areas will vastly strengthen the quantity and quality of breedable animals. Assuming total planned expenditure on animal husbandry and dairy development at Rs.6,260 crore (planned budget estimate for 2008-09) and given the complementarity between public and private investment (1:.3.8) it will lead to a private investment of Rs. 23,788 crore.

Fisheries

India produces about 5.53 million tonnes of fish at present. However, this is only 66 per cent of the total production potential of 8.4 million tonnes, thus having immense scope for strengthening the sector. Further, while in the case of marine fisheries nearly three

forth of the production potential has been exhausted, that of inland fisheries is only around 50 per cent. Thus there is enormous scope for augmenting production potential as well as enhancing the productivity of inland fisheries.

It has been estimated that the existing reservoir fishery resources is capable of yielding more than 2 lakh tonnes of fish per annum as against the average production of around 30,000 tonnes. Thus, the potential can be achieved, adopting scientific practices. Reclaiming the fallow derelict water bodies, water logged areas, lakes and bells etc. for culture of air-breathing fishes will increase domestic production. Seed and feed are critical inputs for the development of fisheries sector. The production of quality seed through R & D efforts should be strengthened. To strengthen the sector adequate attention will be required for creation of shore based infrastructure facilities such as fishery harbours, landing centres with cold storages, iceplants, fish processing facilities and marketing infrastructure for inland fisheries, thus necessitating larger doses of public and private investments. Assuming total planned expenditure on animal husbandry and dairy development at Rs.1,404 crore (planned budget estimate for 2008-09) and given the complementarity between public and private investment (1:.3.8) it will lead to a private investment of Rs. 5,335 crore.

Cold Storage and Post Harvest Management

For accelerating investments in the cold storage and rural godowns, a new capital investment subsidy scheme (CISS) has been implemented by the Ministry of Agriculture, GOI, since 2000-01, with NABARD as the nodal agency to oversee the implementation of such scheme. The scheme created cold storage and rural godown capacity worth 73.5 lakh MT and 208.2 lakh MT, respectively (Table 9).

Table 9: Progress in Cold Storages and Rural Godowns under CISS

(Rs. crore)

No.	Particulars	No of Units	Bank Loan	Subsidy released	Capacity Created (lakh MT)
1	Cold storage	1791	1556.9	413.3	73.54
2	Rural Godowns	16593	2307.3	513.5	208.24
	Total	18384	3864.2	926.8	281.78

Source: Annual Report, NABARD, 2008-09

For furthering private investments, banks need to extend credit support for identified private investments under AEZs. Special thrust may be given for development of post-harvest and marketing infrastructure for horticulture products, which has been identified as one of the thrust areas for purveying credit. With a view to encouraging private investment, subsidy is being made available under National Horticulture Mission (NHM) as also under the Scheme for Development / Strengthening of Agricultural Marketing Infrastructure, Grading and Standardization. The possibility of financing small godowns for foodgrain may also be explored near the producing centres / villages.

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