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A HISTORY OF CREDIT PROGRAMS SUPPORTING AGRICULTURAL MECHANIZATION IN THE PHILIPPINES

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INTRODUCTION

On the one hand, in its broad definition, agricultural mechanization embraces the manufacture, distribution and operation of tools, implements and machines for land development, agricultural production and primary postproduction processes. It has three main sources: human, animal and mechanical.[1]

On the other hand, credit for agricultural mechanization, in its broad scope, may be classified into three categories, namely: (1) agricultural credit for on-farm animal and machinery users including postharvest equipment operators; (2) industrial credit for agricultural manufacturers, distributors, dealers, parts outlets and repair shops and specialized training institutions, and other entrepreneurs who have set up physical facilities and organizations to produce goods and services required for agricultural mechanization; and (3) trade credit for agricultural machinery importers and distributors to finance distribution costs such as cost of materials, labor and services, tax markups, sales administration and other business expenses incurred by manufacturers, distributors, dealers, parts outlets and servicemen.

CREDIT PROGRAMS

There are bank and non-bank sources of credit for farm mechanization, with the latter mostly made up of machinery dealers and

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landlords. However, the major sources of financing for agricultural machinery especially during the last two decades have been banks, which promote credit programs established for the acquisition of agricultural machineries.

The 1950's

As early as the 1950's, credit programs for agricultural mechanization were already being implemented by the government. This was through the Agricultural Credit Administration (ACA)[2] which since its establishment in 1952, had been extending loans for rice and corn mills as well as warehouses.

However, it was the Development Bank of the Philippines (DBP) that was the main source of medium- and long-term financing of farm machinery in the 1950's. It granted loans for the acquisition of farm machinery as part of its agricultural loans, and this was an important component of its development banking operations.

There was no specific credit program for the acquisition of work animals. However, the acquisition of work animals was made possible through facility loans but data for such loan purposes are not available.

The 1960's

ACA continued extending loans for the acquisition of rice and corn mills and building of warehouses. DBP, on the other hand, suspended its support for farm machinery acquisition in the late 1960's due to lack of funds.

The sales of the various farm machineries serve as a good gauge of the demand for these equipment. Table 1 shows the actual sales of the different agricultural machineries. However, there are no available data on sales of hand and animal drawn tools while data for engine sales are available only for the years 1977-80. Data on the sale of irrigation pump and farm processing machines are available only for the years 1978-80.

Four-wheel tractors were used on a large-scale basis as early as in the late 1940's and early 1950's. In 1960, 36 percent of the 5,000 owned tractors were located in the Western Visayas and Pampanga provinces where the sugarcane areas were concentrated. The growth of the sugar industry marked by increases in the prices of sugar exported between 1962 and 1964 increased the sale of four-wheel tractors. However, a slump was observed in 1965.

TABLE 1
ACTUAL SALES OF AGRICULTURAL MACHINERIES BY TYPE AND YEAR, PHILIPPINES

	Type of machine				
Year	*Four-wheel tractor*	*Power tiller*	*Engine*	*Irrigation pump*	*Farm processing machine*[a]
1960	588				
1961	813				
1962	994				
1963	863				
1964	950				
1965	607	1,505[b]			
1966	664	1,932			
1967	1,531	3,058			
1968	1,630	1,873			
1969	1,358	910			
1970	974	475			
1971	1,083	680			
1972	1,120	1,408			
1973	1,517	3,120			
1974	1,655	6,720			
1975	2,143	11,077			
1976	1,074	8,937			
1977	1,318	9,209	10,107		
1978	1,266	7,803	40,526	4,331	3,169
1979	1,224	5,379	65,115	4,106	3,914
1980[c]	433	2,298	15,159	1,488	2,181

a. Includes rice huller, rice, mill, thresher, drier, corn grinder, corn sheller, picker and feed mill/hummer mill.
b. Cumulative total of power tillers sold from 1960 to 1965.
c. Includes sales from January to August only.
Source: SGV and Co. and U.P. Business Research Foundation, Inc. 1980.

The first sales of power tillers or hand tractors were in 1960 (Porter 1974). Limited units were imported from Japan and Great Britain. These tillers, however, were neither widely adopted nor used extensively in the early 1960's.

On November 2, 1965, the first major credit program for farm machinery acquisition, the First Central Bank: International Bank for Reconstruction and Development (CB:IBRD) Rural Credit Project, was signed. This project (worth U.S. $5.0 million, excluding domestic counterpart), which was carried out through rural banks, helped increase the sales of tractors and power tillers from 1966 to 1968. The scope of financing covered farm mechanization (four-wheel tractors and power tillers), irrigation pumps, fisheries development and livestock (poultry and piggery). Most of the four-wheel tractors and power tillers acquired through the First CB:IBRD Rural Credit Project were imported, with the sugar industry benefitting the most from the project. Sales of two- and four-wheel tractors declined in 1969 because CB:IBRD funds were exhausted.

The Second CB:IBRD Rural Credit Project amounting to U.S.$12.5 million (excluding local counterpart) was approved on June 4, 1969. It was basically the same as the First Rural Credit Project, except that storage and processing facilities and on-farm transportation facilities were added to the scope of financing. The impact of the second CB:IBRD loan agreement, however, was felt in the early 1970's. At this point in time, in spite of a major credit program for agricultural mechanization, no policy framework on the directions of farm mechanization had been formulated.

The 1970's

Even with the implementation of the Second CB:IBRD Rural Credit Project, tractor and power tiller sales decreased in 1970 by 28 percent and 48 percent, respectively, due to the peso devaluation. However, sales improved in 1971. It was also during this year that the first DBP-IBRD Grains Processing and Storage Project was implemented, in recognition of the second generation problems arising from the technological breakthrough in rice and of the need to improve and modernize postproduction processes.

The Philippine National Bank (PNB) also implemented the Rice Drier Financing Program in 1973. The main objective of the program was to complement the Masagana 99 (M-99) production program by providing financing for the purchase of a rice drier.

But in spite of these programs for the acquisition of postproduction equipment, most studies in the early 1970s on farm mechanization were centered on the issue of the benefits of two- and four-wheel tractors. In 1972, sales of power tillers increased by 52 percent primarily because of the invention of low-cost IRRI-designed power tillers.

The impact of the oil crisis in 1973 was blunted by the sky-rocketing prices of sugar in the world market. Sales of large tractors continued increasing in 1973 and 1974. And with the invention of locally-built power tillers, sales of the machine kept on increasing in 1973 and 1974.

The Third Rural Credit Project, which amounted to U.S.$22 million, was signed on June 17, 1974. This added new subloan categories such as farm machinery repair shops, reconditioned trucks, fishmeal plants, woodencraft plants, fishpens and small dairy farming. Stock savings and loan associations were also accredited to provide additional lending channels to the farmers.

Sales of tractors and power tillers reached their peak in 1975. During this year, there was a breakout of the hoof and mouth disease which led to special financing programs for agricultural mechanization by the LBP and DBP. In that year alone, the former financed the acquisition of 2,900 power tillers or 26 percent of 1975 total industry sales. DBP, on the other hand, made possible the acquisition of 600 four-wheel tractors or 28 percent of total sales. However, the bulk (64 percent) of the tractors sold was financed by the Third CB:IBRD Credit Project (Table 2).

On August 6, 1975, the President issued a memorandum which authorized ACA to purchase hand tractors in bulk for resale to farmer beneficiaries of the agrarian reform program. This led to a special program of facility loans for hand tractors in 1976. In this program, ACA granted loans only for locally assembled hand tractors particularly those with eight- to ten-horsepower engines. Due to the poor performance of the borrowers in the repayment of the secured loans, the program was terminated in 1977.

The second DBP-IBRD Grains Processing and Storage Project was started in 1976 even though the first one was still being implemented. It was also in 1976 that LBP's second credit program for agricultural mechanization, the Integrated Estate Development Program (IEDP), was instituted. This program aimed to increase farmers' productivity and income so that land reform beneficiaries could improve their socioeconomic status and their capacity to meet their obligations under the agrarian reform program.

During the second half of the 1970's, research and development

TABLE 2
TRACTORS AND TILLERS FINANCED UNDER THE CB: IBRD LOAN PROGRAMS, 1966-78

Year	*Number of loans released*		*Percent of CB:IBRD loan release to total industry sales*	
	Tractors	*Power tillers*	*Tractors*	*Power tillers*
1966	72	126	11	7
1967	560	724	37	24
1968	265	228	16	12
1969	54	34	4	4
1970	150	42	15	9
1971	251	109	23	16
1972	472	330	39	23
1973	534	322	35	10
1974	641	377	38	6
1975	1,398	805	64	7
1976	46	52	4	0.5
1977	100	95	9	1
1978	458	619	47	6
Total	5,001	3,863	30	7

Source: SGV and Co. and U.P. Business Research Foundation, Inc., 1980. CB:IBRD Farm Mechanization Study.

of postharvest facilities began. Local production of postharvest facilities and technological outputs from research institutions increased the demand for such farm machineries, especially threshers.

On the other hand, sales of agricultural machineries used for land preparation fluctuated in the second half of the 1970's. In 1976, sales of tractors and power tillers decreased because of the exhaustion of the Third CB:IBRD Rural Credit Project and the delay in the implementation of the Fourth CB:IBRD Rural Credit Project. Machinery cost increased during that year, too. Towards the end of 1975, the price of sugar in the world market dropped; consequently, the demand of sugarcane growers for tractors decreased, and arrearages on the repayment of machinery loans began to be felt.

Sales improved in 1977 mainly because of the release of funds (U.S.$36.5 million) for the Fourth CB:IBRD Rural Credit Project. Because of increasing demand for mechanical threshers and driers, these two items were included in the scope of financing along with chain saws, processing and marketing facilities for abaca, coffee, cacao, citrus and ipil-ipil and plantation crop development and rehabilitation for abaca, coffee, citrus and ipil-ipil.

Since 1978, however, sales of power tillers and tractors have been declining. The increasing cost of these equipments as well as the oil crisis in 1979 and a protracted slump in sugar prices were the major reasons. By this time, locally built two- and four-wheel tractors were already proliferating, with quality and lack of standardization emerging as a problem.

Two other projects, the Second Rural Development Land Settlement Project and the Cooperative Marketing Project, were initiated in 1978 to support agricultural mechanization. In 1979, the IBRD granted LBP a loan of U.S.$16.5 million intended for financial assistance in the expansion of small-scale rural credit activities for agrarian reform beneficiaries. This loan currently funds subloans on farm mechanization as well as other viable projects under the IEDP and similarly supervised credit schemes of LBP. Under the said credit schemes, the LBP grants loans for: (1) power tiller and accessories; (2) four-wheel tractors, implements and other attachments; (3) irrigation pumps and engines; (4) wells and distribution works; (5) complete development of irrigation systems; (6) sprayers, dusters, weeders, etc.; (7) ricemills, cornmills, feedmills; (8) storage and processing facilities; (9) threshers and combines; and (10) driers and silos.

Most of the credit programs for agricultural mechanization have been addressed to farmers and end-users. Only two specific programs (Fourth CB:IBRD Rural Credit Project and IEDP) financed local manufacturers.

Although all credit programs mentioned helped in the promotion of agricultural mechanization, the CB:IBRD credit program appeared to have made the biggest impact, especially in the sales of four-wheel tractors. The number and value of loans granted by the CB:IBRD program for farm machinery are shown in Table 3. The highest number and amount of loans granted was during the Third CB:IBRD Rural Credit Project. Table 4 shows the percentage distri-

TABLE 3
CB:IBRD LOAN GRANTS FOR FARM MACHINERY AS OF JUNE 30, 1980
(In ₱000)

	Rural Credit Project[a]								*Total*	
	First (1966-68)		*Second (1969-73)*		*Third (1974-77)*		*Fourth (1977-80)*			
	No.	*Value*	*No.*	*Value*	*No.*	*Value*	*No.*	*Value*	*No.*	*Value*
Four-wheel tractor	2,080	₱ 18,851	1,694	₱ 92,910	1,952	₱180,226	688	₱100,432	9,749	₱457,140
Power tillers			942	12,477	1,191	24,547	1,202	27,597		
Irrigation systems and wells and distribution works	279	982	318	2,912	233	2,719	40	875	870	7,488
Sprayers, grain driers, threshers and other farm machineries	38	236	43	763	63	1,371	46	2,133	190	4,503
Rice mills	–	–	–	–	–	–	345	23,095	345	23,095
Total	2,397	20,069	2,997	109,062	3,439	208,963	2,321	154,132	11,154	492,226

a. First Rural Credit Project covers IBRD and CB funds only while the Second, Third and Fourth Rural Credit Projects cover IBRD, CB and RB/SLA funds at prescribed proportion; value of loans in thousand of pesos.

Source: SGV and Co. and U.P. Business Research Foundation, Inc., 1980. CB:IBRD Farm Mechanization Study.

TABLE 4
PERCENT DISTRIBUTION OF CB:IBRD LOAN GRANTS FOR FARM MACHINERY AS OF JUNE 30, 1980
(In percent)

	Rural Credit Project								*Total*	
	First (1966-68)		*Second (1969-73)*		*Third 1974-77)*		*Fourth (1977-80)*			
	No.	*Value*	*No.*	*Value*	*No.*	*Value*	*No.*	*Value*	*No.*	*Value*
	Percent									
Four-wheel tractor			56.5	85.2	56.8	86.2	29.6	65.2		
	86.8	93.9							87.4	92.9
Power tillers			31.4	11.4	34.6	11.8	51.8	17.9		
Irrigation systems and wells and distribution works	11.6	4.9	10.6	2.7	6.8	1.3	1.7	0.6	7.8	1.5
Sprayers, grain driers, threshers and other farm machineries	1.6	1.2	1.5	0.7	1.8	0.7	2.0	1.4	1.7	0.9
Rice mills	–	–	–	–	–	–	14.9	14.9	3.1	4.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: SGV and Co. and U.P. Business Research Foundation.

bution of the CB:IBRD loans granted. The percentages of the number and value of loans granted for four-wheel tractors declined tremendously during the Fourth CB:IBRD Rural Credit Project while those for the power tiller increased significantly.

The relative ease of processing subloans under the CB:IBRD credit program and the attractiveness of chattel mortage in terms of ease and value of resale have, in no small measure, probably contributed to the prominence of tractor purchases in rural communities. Low collateral requirements allowed small farmers to invest in large tractor units; and because of the liberal terms, more farmers invested in large tractors which could not otherwise have been bought. These encouraged dealers to market larger tractors. However, this resulted in excess power and reduced cost effectiveness of tractor investments by farmers, especially rice and corn farmers (SGV and Co. and U.P. Research Foundation, Inc. 1980). To compound these problems, the farmers also had difficulty in repaying their loans.

Terms and Conditions of the Credit Programs

Table 5 shows the terms and conditions of the major financing institutions on mechanization. All the institutions grant loans to farmers although the characteristics of the farmers that each institution serves vary. Real estate and chattel mortgage are the common collaterals. Except for PNB, all the institutions offer medium- and long-term loans. Interest rates range from 12 to 21 percent. The service charge is about 2 to 3 percent, while the penalty for past due loans ranges from 3 to 8 percent per annum.

Policies Affecting Agricultural Mechanization

Up till the end of the 1970's, there was no comprehensive policy to give direction to the development and growth of agricultural mechanization. However, certain policies, which affect the importation and manufacture of farm machineries and the processing of specialized farm services utilizing machinery, were implemented.

a. *Tariff and Customs Code.* The current tariff and customs code charge 10 and 30 percent ad valorem rates of duty on imported farm machineries. A 10 percent ad valorem rate of duty is imposed on agricultural machinery currently not manufactured in sufficient quantity in the country. The tariff rate serves as a revenue duty (basic rate) used to raise funds for the government and is nonprotectionist in nature. On the other hand, the 30

TABLE 5
LOAN TERMS AND CONDITONS OF MAJOR FINANCING INSTITUTIONS ON FARM MECHANIZATION

Loan Policy	CB – IBRD	ACA	LBP	DBP	PNB
1. Eligible borrowers	1. Farmers cultivating not more than 50 hectares 2. Operators of cottage industry 3. Agricultural cooperatives	1. Compact farms 2. Compact farm members cultivating not less than 3 ha. irrigated land 3. Compact farm association 4. Landowners/ bondholders 5. Integrators	1. Agrarian reform benefici- aries 2. Small farmers (less than 7 ha.) 3. Farmer associations	Individuals, partnerships and corpo- rations	1. Farmers who availed themselves of produc- tion loans from PNB under M-99 and who are willing to sign jointly 2. Individuals willing to go into custom drying activities and who qualify under existing policies of the Bank
2. Loan limit	Maximum of ₱1 million	80% of project cost	Depends on actual needs of project	Based on actual needs of project but not exceed- ing loan value of collateral	Based on actual cost but not to exceed ₱3,300
3. Collateral	Real estate mortgage Chattel mortgage	Real estate mortgage Chattel mortgage	Deed of assignment Real estate mortgage Chattel mortgage Government bonds	Real estate mortgage Chattel mortgage	Farmers-joint and several signatures of co-borrowers and chattel mortgage Independent operators- first lien on real estate property; first lien on the rice drier, equipment; acceptable co-maker

Table 5 (Continued)

4. Maturity	3-15 years	Maximum of 10 years	Depends upon the cash flow and economic span of project	7-14 years	Maximum of 26 months
5. Manner of payments	Annually	Annually	Quarterly, semi-annually	Semi-annually	Every harvest season
6. Interest rate (per annum	Agrarian reform beneficiaries – 12% others – 14%	10%	Short-term loans: 1st priority borrowers: Rediscounted – 12% Not rediscounted – 14% 2nd priority borrowers 14-15% Medium term loans: 1st priority – 15-16% 2nd priority – 16-18%	Loans of ₱170,000 and below – 15% loans above ₱170,000 to ₱1.7 million – 18% loans above ₱1.7 million – 21%	Depends upon existing bank regulations
7. Service charge (per annum)	Agrarian reform beneficiaries – 2% or ₱150 whichever is lower Others – 3%	2%	Regular borrower – 2% Agrarian reform beneficiaries – ₱150		
8. Penalty for past due loans (per annum)	5% of amortization principal		3% of amount due	8% of amount due	

[1] FAO Committee on Agriculture, 1979.

[2] Merged with Land Bank of the Philippines in 1982.

percent ad valorem rate of duty is imposed on types of imported agricultural machineries being produced in the Philippines in quantities sufficient to meet local demand (SGV and Co. and U.P. Business Research Foundation, Inc. 1980).

b. *Investment Priorities Plan.* The Investment Priorities Plan (IPP) was promulgated in 1968 by the Board of Investment (BOI). Various farm machineries were listed as preferred areas by manufacturing activity. This listing allowed both local and foreign entrepreneurs to avail themselves of the set of incentives by RA 5186 (the Investment Incentives Act) for the production of agricultural implements in the country. These incentives are mostly in the form of tax deductions that will enhance the commercial viability of preferred manufacturing activities. The BOI removes certain areas of manufacturing activity from the IPP (1) when the demand has been met by production capacities of registered firms, (2) if there is no entity for the manufacture of products listed under the Plan, or (3) when such products are found to be not economically feasible to manufacture.

c. *Agricultural Investment Priorities Plan.* The Agricultural Investment Incentives Act promulgated in 1977 provides the mechanics for drawing up an annual Agricultural Investment Priorities Plan (AIPP) which is a listing of specific agricultural activities that can qualify for incentives. The aim of the AIPP is to create a balanced development of the urban and rural sectors of the country, as well as to achieve the immediate national objective of self-sufficiency in basic food and raw material requirements.

   The AIPP indirectly affects farm mechanization by opening up incentive opportunities for the private sector to provide tractor pools, irrigation, pest control and other specialized farm services.

d. *Accreditation Scheme.* Because of the boom in sales of tractors and power tillers in 1975, and the invention of a low-cost power tiller by IRRI, there was a proliferation of locally built machineries in the second half of the 1970's. However, there was no way of controlling the quality of these locally built machines; thus, a lot of those machines were of poor quality. In October 1978, the Agricultural Machinery Distributors/Manufacturers Accreditation Committee (AMDAC) was organized. Composed of representatives from the DBP, LBP, CB and the Ministry of

Agriculture (MA), the Committee's main objective is to accredit reliable agricultural machinery manufacturers and distributors who will do business with government financing agencies which give out loans for agricultural machinery. AMDAC's policies cover company, product and price accreditation for both imported and locally made agricultural machineries.

SUMMARY AND CONCLUSION

As early as in the 1950's, loans for agricultural mechanization were extended in the form of facility loans. The first major credit program for agricultural mechanization, the First CB:IBRD Rural Credit Project, was signed in 1965. However, it was in the 1970's that many government financing institutions promulgated credit programs for farm mechanization. These institutions were the DBP, ACA, PNB and LBP. The CB:IBRD Rural Credit Project was extended.

Demand for farm machineries appears to be mostly credit supply-led although major international and local events had also affected machinery sales. The growth of the sugar industry caused sales of big tractors to rise for the period 1962-64 since the sugarcane growers needed big tractors for deep tillage. The First CB:IBRD Rural Credit Project caused the increase in the sales of tractors and power tillers from 1966-68 but most of these were of the imported types. The decline in sales for 1969 was attributed to the exhaustion of funds of the First CB:IBRD Rural Credit Project. Sales for 1970 dropped further because of the peso devaluation. From 1971 to 1974, sales improved mostly because of another increase in the price of sugar in the world market and because of the invention of locally built power tillers although this was dampened by the oil crisis in 1973. The boom in sales of farm machineries in 1975 was due to the availability of many credit programs for agricultural mechanization. The institution of these credit programs came about as a result of the hoof and mouth disease. With the exhaustion of the Third CB:IBRD Rural Credit Project in 1976, sales decreased. However, sales increased in 1977 merely because of the availability of funds of the Fourt CB:IBRD Rural Credit Project. Since 1978, though, sales of tractors and power tillers have decreased because of increased machinery costs and the second oil crisis in 1979. It was also in the second half of the 1970's that demand for postproduction facilities increased. Because of the recognition of second generation problems, researches on the development and modernization of postproduction facilities were made. Due to the favorable results of these studies, the demand for such facilities increased.

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