

A REVIEW OF PAST, PRESENT AND PROPOSED MECHANIZATION STRATEGIES IN THE PHILIPPINES

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In the world today, mechanization — especially in agriculture — occupies a special nook in the hearts and minds of people concerned with development. However, mechanization as an effective partner of progress and socioeconomic well-being still has a long way to go. A better understanding of its many ramifications can be likened to watching the interplay of the varying hues and shades of a rainbow that makes definite observations truly difficult.

Mechanization as a development tool becomes a doubly ticklish issue in the socioeconomic context of a Third World country. There is the problem of technology choice to suit local conditions while at the same time optimizing benefits for the majority of the population. Competing national priorities in the light of unabated population boom with its consequent decreasing ability for food self-sufficiency and the adverse world market conditions inevitably affect the government's decision to mechanize. The type, level, degree, scope, cost/benefit ratios, socioeconomic impacts and similar *balancing* factors of mechanization also arise. Like many other countries in the dawn of national development and modernization, the Philippines would have to delicately weigh the effects of mechanization on its national economy and its people. Social, economic and political considerations necessitate extensive studies before national policies could be promulgated.

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PAST MECHANIZATION STRATEGIES

Until about the sixties, agricultural mechanization in the Philippines referred to a great extent to animal power (e.g., carabaos) and to simple, manually operated farm tools like plows, harrows and hand implements. In many cases, these aids were used by small farmers and crafted domestically by small-scale artisans using indigenous materials. On the other hand, large agricultural estates on sugar, rice, etc., were already utilizing mechanically powered equipment. Mechanization in those times was deemed analogous to "trac-torization" and only rich landowners could enjoy its advantages. This local trend was precipitated in fact by the global promotion of "bor-rowing capital-intensive, big-scale technologies" to hasten the growth of underdeveloped countries. It can be said that little regard was placed on the social, economic and political effects of such infusions to countries like the Philippines.

Thus, mechanization in the Philippines grew naturally based on the dictums of commercial viability and profitability. Because it was cheaper to import rather than to manufacture locally, problems on quality standards, servicing, suitability, etc., gradually surfaced. The government, in general, played a passive role in introducing a suitable mechanization program in the country. Perhaps this was due to the government's preoccupation with other more important post-World War II reconstruction and rehabilitation problems. Little national thinking was addressed to prevalent misconceptions about mech-anization to preconceived ideas that such a strategy would only lead to drainage of foreign exchange in importing agricultural machinery, or worse, a fear that such would cause social problems due to labor displacement in agriculture. This passive attitude of the government continued even when a massive land settlement program was launched in the fifties that included the use of heavy equipment for land-clearing and the distribution of animal-drawn farm implements to settlers.

The national picture brightened in favor of mechanization towards the end of the sixties and during the whole decade of the seventies. This period witnessed a rapid transformation of develop-ment thrusts in favor of countryside development. On a worldwide scale, this was also true. Such mottoes as "small is beautiful," "national self-sufficiency and determination," "appropriate tech-

nology choice," etc., paved the way for the following national events that changed the concept of mechanization:

1. The Green Revolution and its accompanying packages of technologies that promised socioeconomic opportunities;
2. The growing discontent with imported, albeit unsuitable, technologies which encouraged locally developed technologies and local entrepreneurship (an example is the wide adoption of the IRRI-designed power tiller which was fabricated by both small- and medium-scale welding and machine shops);
3. The national policy shift in favor of agricultural and rural development in conjunction with small- and medium-scale industrial development;
4. The increasing awareness and appreciation of the advantages of adopting suitable technologies among members of the government bureaucracy, academe, and the private sector;
5. The worldwide easy access to existing scientific and technological knowledge accompanied by increasing participation of nations in international exchanges and collaboration;
6. The worsening position of the country in the international market which necessitates exploration of other facets of national survival, e.g., quest for export and energy alternatives to conserve the national wealth;
7. The various post-martial law period declarations that sought to hasten national growth and social equality through such acts as agrarian reform, financial assistance, infrastructure construction, etc.;
8. The voluntary decision of many members of the private sector to police themselves and to cooperate with the government, which is especially noticeable in the linkages between the commercial manufacturers/dealers of agricultural machines and the government sector.

Given all these interrelated events, mechanization in the Philippines gradually emerged as an important tool for national development. Accordingly, here are some of the strategies implemented by the government in coordination with the private sector:

1. Research and technology development on mechanization was stressed with the creation of an appropriate research commodity (agricultural engineering) in the national research system of the Phil-

ippine Council for Agriculture and Resources Research Development (PCARRD) to take advantage of fast scientific advancements here and abroad;

2. Introduction in the Ministry of Agriculture (MA) and its agencies of such programs as "Bakahan sa Barangay"; "Masagana 99"; postharvest handling/storage/marketing, extension and training programs aimed at the extensionists, target farmer-users and barangay residents in which mechanization forms an integral part and which are all aimed at increased agricultural production and productivity;

3. Strengthening of the functions of the National Irrigation Administration (NIA) for improved irrigation servicing and expanded irrigation infrastructures with emphasis on the organization of cooperatives for small farmers in order to maximize cropping intensities in all types of agricultural lands;

4. Introduction by government lending institutions of progressive credit schemes for both the local manufacturers/dealers and the target end-users to enable them to optimize their roles in agricultural development, in conjunction with private and foreign funding agencies;

5. Implementation under the overall supervision of the Ministry of Trade and/or the Central Bank, as the case may be, of joint public/private sectoral accreditation, testing, evaluation projects that highlight the cooperative interlinkages of the two sectors;

6. With the MA and the Ministry of Natural Resources (MNR) and their agencies at the helm, the exploration and conservation of the country's natural resources as well as the search for alternative energy resources were given added impetus through such programs as "Biyaya ng Dagat," reforestation and promotion of gasifiers, alcogas, biogas energy alternative, windmill and solar energy sources, etc.;

7. Intensification of international and bilateral tie-ups and technical data exchanges with agencies such as the United Nations and the World Bank, the U.S. Agency for International Development (USAID), and the Association of Southeast Asian Nations (ASEAN), resulting in cooperative undertakings, generation of funds through loans, and donations and others.

8. Inclusion of course offerings on the manufacture, operation, maintenance and management of agricultural machines in such institutions as the National Manpower and Youth Council (NMYC), U.P. Institute of Small-Scale Industries (UPISSI), Ministry of Human

Settlements (MHS). Technology Resource Center (TRC), Ministry of Local Government (MLG), and the MA.

9. Corollary to (8), the College of Engineering and Agro-Industrial Technology of the U.P. at Los Baños (formerly the Institute of Agricultural Engineering and Technology) came into being in response to the felt need to provide the necessary trained manpower in agricultural engineering. Presently, the College is host to the UNDP/ESCAP's Regional Network for Agricultural Machinery (RNAM) and serves as its national counterpart through the Agricultural Mechanization Development Program (AMDP). It implements the Agricultural Machinery Testing and Evaluation Center (AMTEC), a joint project between MA and the UPLB. It is also playing a pivotal role in the conceptualization and organization of an inter-ministerial policy-making body on agricultural mechanization named Permanent Inter-Agency Committee for Agricultural Mechanization (PICAM).

PRESENT MECHANIZATION STRATEGIES

The decade of the eighties was ushered in by a highly volatile peace situation in the world. This is aggravated by widening socio-economic gaps and political differences between the developed and the developing countries. On the national scene, the increasing inability of the government to meet target development goals underlined the exigencies of implementing viable projects with great time constraints. While the past was premised on the natural flow of events, the present has to forcefully concentrate on means of coping with harsh realities, with national survival itself at stake.

The current Five-Year Development Plan of the National Economic and Development Authority (NEDA) includes the adoption of appropriate mechanization as one of its long-range objectives. Unfortunately or fortunately, NEDA left out the mechanics for attaining this goal. In effect, involved public and private agencies were allowed to map out their own strategies supportive of this goal. Presently, the various mechanics discussed earlier are still ongoing, with modifications being made to reflect changing situations.

In the past ten years or so of extensive development activities with mechanization as a factor, many have expressed the common opinion that mechanization in the country could fare better if it follows definite policy guidelines that would conserve resources, avoid

duplication of efforts, and shorten the time for goal-attainment. It is not sufficient that the government is now playing an active role; it has to assume the *key role* in formulating and promulgating policies for the compliance of everyone concerned. Specifically, four major areas requiring stringent policy guidelines were identified:

1. Research and technology development
2. Education, training and extension
3. Manufacture, supplies procurement, operation/maintenance
4. Marketing and financing for manufacturers and credit for users

The existing number of organizations working on some, or all, of the above areas naturally results in delays and conflicts of interests not to mention miscommunication, waste of resources, and unsatisfactory results. The end-goals of mechanization are not well served if the agencies are not bound by common views. Although it was mentioned earlier that the Philippine mechanization program enjoys a unique camaraderie between the public and the private sectors, these sectors could work together more harmoniously if they knew their respective responsibilities.

This observation was supported by RNAM, which urged the Philippine Government to organize a national body that would set the pace for the various mechanization activities in the country. The RNAM Regional Office requested other participating countries to form national Farm Mechanization Committees.

The enthusiasm of RNAM was readily picked up by the MA and NEDA through the instigation of UPLB not only because it was a formal resolution of RNAM, but more importantly because these agencies themselves were feeling the need for such a body. The enabling act for this conceived organization, initially called National Agricultural Mechanization Council (NAMC), has been in the process of obtaining government imprimatur for five years. Its latest version, the Permanent Inter-Agency Committee of Agricultural Mechanization,¹ is now with the Prime Minister for his approval. As an inter-ministerial policymaking body, PICAM would require very little funding support for the maintenance of a skeletal work force based at the AMDP. Expectedly, the major activities would still be conducted by the member-agencies which would be grouped into the

1. See Appendix A for the terms of reference and organization of PICAM.

technical committee and operational subcommittees along the four areas requiring policy guidelines enumerated earlier.

Even as the Memorandum Circular creating the PICAM is being awaited for signature by the Prime Minister, its four subcommittees have already been working on draft policy statements and strategies for consideration by the Technical Committee which will then make appropriate recommendations to the Cabinet Committee of PICAM for approval. These draft statements² were presented by the various chairmen of the Sub-Committees at the Technical Committee meeting on November 29, 1983.

It may be interesting to note that, in the midst of the government's passive attitude toward mechanization, a proposed bill called the "Magna Carta of Mechanized Agriculture" has been pending in the National Assembly (Batasang Pambansa) since the early 1970's. It sought for the creation of an "Agricultural Mechanization Authority" which would implement a progressive, massive and integrated agricultural program designed to mechanize, industrialize and commercialize Philippine agriculture. It has never been and perhaps never will be calendared for formal consideration owing to certain factors and very controversial provisions. If and when it is considered, it would have to jibe with the existing organizational and administrative policy guidelines for better results.

On its own, PICAM would require the assistance and voluntary cooperation of all sectors concerned. After all, policies are effective only if they serve the goals for which they were directed. The present enthusiasm and open support of the private sector which is amply represented in PICAM augur well its future viability.

FUTURE MECHANIZATION STRATEGIES

The present uncertainties in the country and elsewhere should serve as a rallying point for the pursuit of a more vigorous and dynamic mechanization program in the country. The suitability of selected technologies should properly match existing conditions, and short- and long-range goals. Perhaps efforts to combine resources and identify mutually beneficial policies would pave the way for increased interest in, and commitment to, mechanization as a development

2. See Appendix B for the draft policy and strategy statements.

factor. While it is acknowledged that a number of conditions have to be balanced carefully to optimize benefits, the end-goals of development which are the national progress and socioeconomic well-being of the people, should be seriously considered.

The great number of mechanization strategies currently being carried out would, hopefully, lead to the successful "grafting" of suitable mechanization technologies given local conditions. In the sugar industry for instance, which provides one of the country's major exports, cultivation of sugarcane has long been a labor-intensive industry. Recent events, unfortunately, required the shifting to mechanization and displaced many workers and their families who have long lived on sugarcane production through generations. Given current events, the issue is no longer labor displacement and its concomitant social disadvantages, but the very survival of the industry itself in the face of a highly competitive world market.

It is too early to equate the experiences in the sugar industry with those of other agricultural crops owing mainly to differing agronomic, social, economic and technological realities. Research studies of the effects of mechanization have so far produced conflicting findings that tend to highlight the general consensus that it is indeed hard to identify common grounds for comparisons.

Accordingly, the following policy issues are being thrown to the participants for consideration in their discussions:

1. What could be the agricultural scenario by the year 2000 A.D. in view of the technological findings and scientific advancements attained to date? What is the place of mechanization in it?

2. Assuming massive labor displacements to accommodate agricultural mechanization that promises higher rates of return, how could the problem be tackled for the good of all concerned? What alternatives are open where and for whom?

3. Based on the present legal, organizational and administrative setups of the public and private sectors involved in mechanization, what would be the best management strategy or a mechanization system? How could coordination and linkages be strengthened and identified problems or goals pursued, especially along the four major areas of operation discussed earlier? Which agency should play the key role in policymaking and in implementing projects along the four major areas of operation?

We at AMDP-CEAT have just started compiling the necessary background data to support our programs and plans of work. You, on the other hand, have already the experiences of your respective agencies to back up your contentions. Please do not, therefore, hesitate to open up your minds to us for we are relying on you to support our conceptualization of PICAM and our commitments at AMDP and CEAT.

EPILOGUE

The Ad-hoc PICAM was finally formalized with the creation of the Agricultural Mechanization Inter-Agency Committee (AMIC) by virtue of Ministry Order No. 1, Series of 1985, signed on 29 January 1985 by Minister Salvador H. Escudero III of the Ministry of Agriculture and Food (MAF). In effect, AMIC assumed the role envisaged for PICAM except for some modifications in its composition and functions.

The AMDP/CEAT/UPLB is the designated Secretariat of AMIC. The Technical Committee is under the joint chairmanship of MAF and NEDA representatives. Four subcommittees continued to exist as AMIC's working committees in charge of the following major areas of concern: (i) Research and Development; (ii) Manufacturing and Supply; (iii) Marketing and Finance; and (iv) Education, Training and Extension.

A workshop to review/update the draft of policy statements under each area of concern as presented in Appendix B was held in April 1985. It was decided that data should be gathered to rationalize the policy studies undertaken or results of previous studies compiled by the Ad-hoc-PICAM for perusal by the AMIC Technical Committee and the Sub-committees.

As of July 1985, AMIC and AMDP commenced two major activities intended to strengthen the policy studies undertaken by PICAM: (i) establishing a comprehensive data base and conceptual framework to substantiate the proposed national policy recommendations and (ii) entering into networking arrangements with national and regional institutions involved in agricultural mechanization development. Hopefully, before the end of 1985 the first activity would have been completed and some urgent or critical policy statements/strategies referred to the MAF Minister for his consideration.

The formal organization of a national network on agricultural mechanization development was intended to facilitate the initiation of relevant local-specific work programs along AMIC's four major areas of concern mentioned earlier.

APPENDIX A

PERMANENT INTER-AGENCY COMMITTEE FOR AGRICULTURAL MECHANIZATION

TERMS OF REFERENCE

The following are the terms of reference to be adhered to by the committees of the Permanent Inter-Agency Committee for Agricultural Mechanization (PICAM).

Organization:

General

1. The PICAM is composed of the Cabinet Committee, the Technical Committee and the Sub-Committees. It is supported by a Secretariat which is based at U.P. in Los Baños.

2. The Cabinet Committee reviews and takes appropriate actions on policy/strategy, recommendations of the Technical Committee. It meets at least once every six months or as often as necessary. However, should the Cabinet Committee fail to meet urgent matters may be approved by referendum.

3. The Technical Committee reviews and integrates the recommendations of the Sub-Committees and submits a final recommendation to the Cabinet Committee. It meets once a month or as often as necessary.

4. The Sub-Committees initiate the formulation of policies, strategies and programs related to their areas of concern. Initially, these areas are research and development; education, training and extension; manufacturing; and marketing/finance and credit. Each Sub-Committee meets at least once a month or as often as necessary.

5. The Secretariat provides administrative support to the PICAM at all levels and acts as clearing house of all information emanating from the committees and outside sources for the perusal of the committees. It gathers information on implementation of policies and strategies from the agencies concerned for feedback to the Committee.

Note: As an update, except in a few minor revisions, the provisions contained in this appendix are similar to those contained in the Ministry Order No. 1 of the MAF (see Epilogue in text). In the new organization, AMIC (instead of PICAM) is composed of a Technical Committee and four Subcommittees. AMIC reports to the Minister of MAF instead of to the Cabinet Committee which is no longer existent.

Specific

The composition (resource persons may be invited from time to time as deemed necessary) and functions of the Technical Committee and the Sub-Committees shall be as follows:

I. Technical Committee:

A. Composition

The Technical Committee shall be composed of senior officers of the following agencies/organizations and shall be appointed by the Chairman of PICAM.

1. Ministry of Agriculture
2. National Economic and Development Authority
3. Ministry of Trade and Industry/Board of Investment
4. Ministry of Agrarian Reform
5. Ministry of Labor and Employment
6. Ministry of Finance
7. Ministry of Energy
8. National Science and Technology Authority
9. Philippine Sugar Commission
10. National Food Authority
11. Central Bank of the Philippines
12. University of the Philippines at Los Baños
13. Agricultural Machinery Manufacturers and Distributors' Association
14. Philippine Society of Agricultural Engineers
15. National Congress of Farmers' Organizations
16. Pambansang Katipunan ng mga Samahang Nasyon
17. Philippine Chamber of Commerce and Industry

B. Functions

1. The Technical Committee shall review, evaluate and recommend approval of all policy statements, plans, strategies and programs submitted to it by the Sub-Committees and from other sources.
2. It shall submit its report and recommendations to the Cabinet Committee for consideration.

II. Sub-Committees:

The Sub-Committees shall be composed of senior officers of the agencies/organization indicated for each Sub-Committee and shall be appointed by the Chairman of the PICAM upon recommendation of their respective heads.

Research and Development

A. Composition

1. National Science and Technology Authority – Philippine Council for Agricultural Resource Research and Development.
2. Philippine Council for Industry and Energy Research and Development.
3. University of the Philippines at Los Baños – College of Engineering and Agro-Industrial Technology.
4. Philippine Sugar Commission
5. National Food Authority/National Post-harvest Institute for Research and Extension
6. Philippine Inventions Development Institute
7. Agricultural Machinery Manufacturers and Distributors' Association
8. Ministry of Labor and Employment/Institute of Labor and Manpower Studies
9. National Economic and Development Authority

B. Functions

1. The Sub-Committee on Research and Development shall initiate the formulation of research and development policies, strategies, plans, programs, projects and studies on agricultural mechanization in close coordination with the Philippine Council for Agriculture and Resources Research and Development and the Philippine Council for Industry and Energy Research and Development and other Sub-Committees of the PICAM.
2. It shall formulate policies and strategies to ensure the coordination among state universities and colleges, government agencies, corporations and instrumentalities and the private sector regarding research and development programs and activities related to agricultural mechanization.
3. It shall submit its report/recommendations to the Technical Committee for action.

Education, Training and Extension

A. Composition

1. Ministry of Agriculture – Bureau of Agricultural Extension/
Bureau of Cooperatives Development
2. Ministry of Agrarian Reform – Agrarian Reform Education Service
3. National Food Authority/National Post-harvest Institute for Research and Extension
4. University of the Philippines at Los Baños – College of Engineering and Agro-Industrial Technology

5. Agricultural Machinery Manufacturers and Distributors' Association
6. National Manpower and Youth Council
7. Association of Colleges of Agriculture in the Philippines
8. National Congress of Farmers' Organizations
9. Pambansang Katipunan ng mga Samahan Nayon
10. Ministry of Labor and Employment/Bureau of Rural Workers
11. Philippine Training Center for Rural Development
12. Philippine Society of Agricultural Engineers
13. Institute of Small Scale Industries

B. Functions

1. The Sub-Committee on Education, Training and Extension shall initiate the formulation of policies, strategies, plans, programs, projects and studies relating to the education, training and extension aspects of agricultural mechanization in close coordination with other Sub-Committees of the PICAM.
2. It shall formulate policies and strategies to ensure the coordination among state universities and colleges, government agencies, corporations and instrumentalities and the private sector regarding education, training and extension programs and activities related to agricultural mechanization.
3. It shall submit its report/recommendations to the Technical Committee for action.

Manufacturing

A. Composition

1. Ministry of Trade and Industry/Bureau of Industrial Development
2. Board of Investments
3. University of the Philippines at Los Baños
4. Agricultural Machinery Manufacturers and Distributors Association
5. Representative from Small-Scale machinery fabricators

B. Functions

1. The Sub-Committee on Manufacturing shall initiate the formulation of manufacturing policies, strategies, plans, programs, projects and studies on agricultural mechanization in close coordination with the other Sub-Committees of the PICAM.
2. It shall formulate policies and strategies to enhance the coordination among state universities and colleges, government agencies, corporations and instrumentalities and the private sector regarding manufacturing programs and activities related to agricultural mechanization.

3. It shall submit its report/recommendations to the Technical Committee for action.

Marketing and Finance

A. Composition

1. Technical Board for Agricultural Credit
2. National Economic and Development Authority
3. Ministry of Human Settlements/Kilusang Kabuhayan at Kaunlaran
4. National Food Authority
5. Ministry of Agriculture
6. Land Bank of the Philippines
7. Development Bank of the Philippines
8. Philippine National Bank
9. Agricultural Machinery Manufacturers and Distributors Association

B. Functions

1. The Sub-Committee on Finance, Credit and Marketing in coordination with the Sub-Committee on Manufacturing shall assess the Finance, Credit and Marketing aspects of agricultural machinery requirements of the country, giving special attention to the real needs and problems of the farmers.
2. The Sub-Committee on Finance, Credit and Marketing shall initiate the formulation of policies, strategies, plans, programs, projects and studies on agricultural mechanization in close coordination with the other Sub-Committees of the PICAM.
3. It shall formulate policies and strategies to ensure the coordination among government agencies, corporations and instrumentalities and the private sector regarding finance, credit and marketing programs and activities related to agricultural mechanization.
4. It shall submit its report/recommendations to the Technical Committee for action.

PERMANENT INTERAGENCY COMMITTEE FOR AGRICULTURAL MECHANIZATION

ORGANIZATION

The Permanent Interagency for Agricultural Mechanization (PICAM) is an interministerial policymaking body that is saddled with the primary responsibility of formulating policy guidelines on agricultural mechanization, e.g., adoption of suitable machineries, cost/benefit effects of mechanization, aspects of mechanization in the labor market, users, manufacturers, the economy, etc.

Preamble

The PICAM's creation and continued viability hinges on its ability to actively support the Philippines' development goals, particularly its agro-industrial programs. Accordingly, PICAM's primary concern is the successful adoption of an agricultural mechanization *system* that:

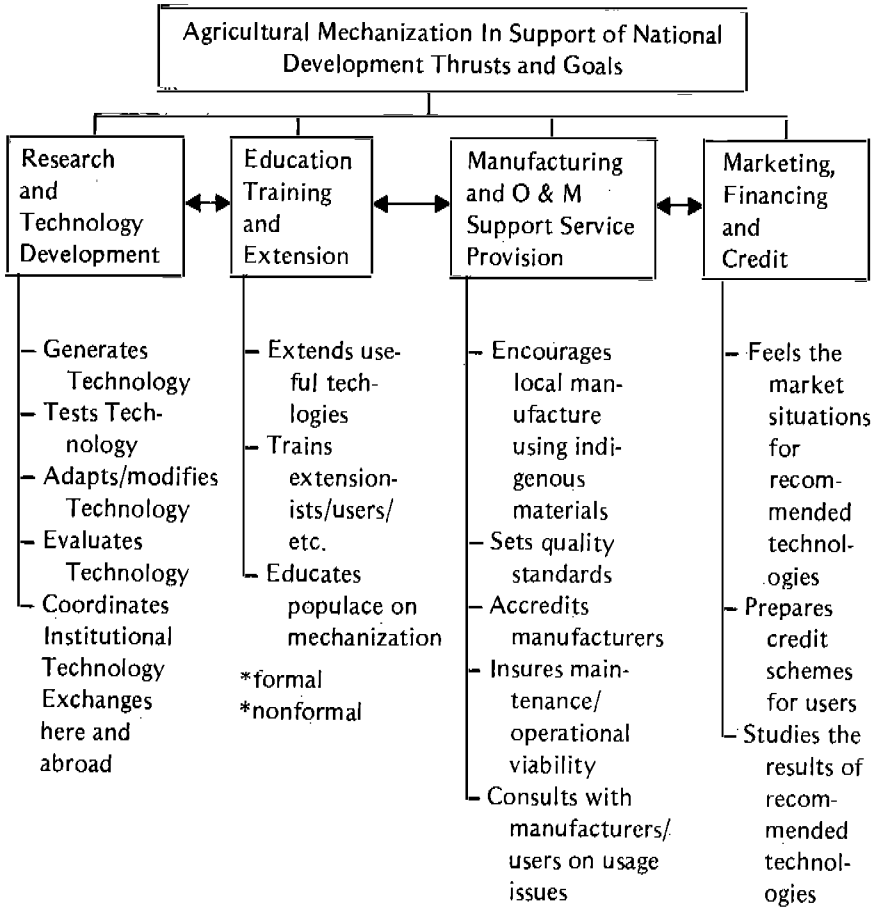
1. bolsters agricultural (i.e., crops, livestock, fisheries and forestry) production and productivity for food and economic purposes;
2. provides farm and nonfarm employment and income generating opportunities mainly in the rural areas, taking into account the effects of agricultural mechanization on the labor market and on the economy;
3. promotes a lucrative *but* supportive agricultural machinery industry that emphasizes local manufacture/service at the medium- and small-scale levels using indigenous materials;
4. conserves and/or optimizes both natural and human resources, especially those that are scarce, expensive, imported and dwindling;
5. takes full advantage of suitable technologies available within the country and abroad through a cooperative network of technical and information exchanges;
6. encourages the spread and growth of agricultural mechanization as a positive partner of national development by a continuing program of awareness/appreciation; and finally;
7. improves the quality of human life as a result of more social, economic and individual opportunities for betterment through agricultural mechanization.

Areas of Operation

Pursuant to the aforementioned, PICAM's modes of operation center on the following four major areas: research and technology development; education, training and extension; manufacturing and supply/service provision; and marketing, financing and credit.

The interdependent, interrelated relationships of these four modes of operation are illustrated on the following page.

Actual implementation would be done by the concerned public and private agencies under the overall policy umbrella of PICAM.



Overall Strategies

PICAM as a policy-making body acknowledges the difficulties of formulating, coordinating and monitoring a national agricultural mechanization program owing to the following factors, among others. Firstly, the program's concept itself has various interpretations that makes consolidation of agency goals a great task. Secondly, the term "mechanization" still causes negative and unsympathetic reactions from a majority of target clientele. Lastly, having emerged lately as a major development concern, the program is currently handled by a number of public and private institutions whose managements may not welcome the

entry of a body like PICAM. Given these limitations, PICAM proposes the following strategies:

1. Invite the representatives of involved organizations to become members of the PICAM's technical committee and/or various subcommittees that serve as venues for open, constructive undertakings.

2. Using the systems approach, initiate and implement in close coordination with all concerned a dynamic agricultural mechanization program that takes cognizance of the policies enumerated in PICAM's preamble.

3. Along the four modes of operation mentioned above, ensure the establishment of close working linkages with similar scientific, educational, public, private, funding, etc., agencies here and abroad.

4. Draw up and pursue a timetable of activities that will "mechanize" the Philippines for the advantage of all concerned, given a certain period of time and considering existing conditions.

5. Consolidate the resources and energies expended by the public/private institutions on agricultural mechanization through enumeration and promulgation of effective national policies.

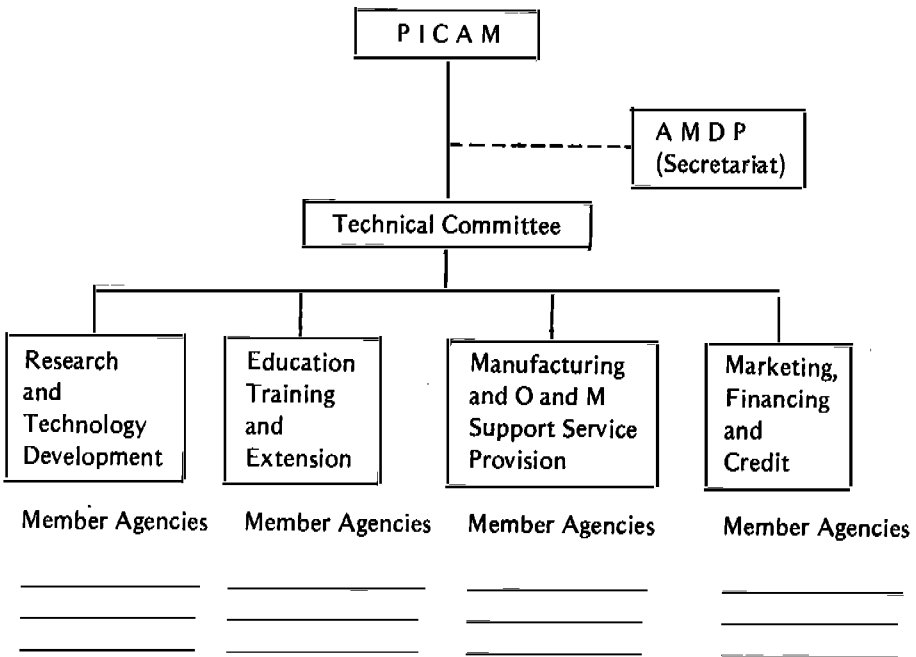
Organizational Set-up

It is to be emphasized that PICAM, being an interministerial agency, would rely on its member agencies for its manpower requirements. A skeletal work force would be working on full-time basis with the Agricultural Mechanization Development Program (AMDP) that is serving as its Secretariat.

While PICAM, sitting *en banc*, would be meeting a minimum of twice a year to review and decide on policy issues, the recommendations on such issues would emanate from the Technical Committee that meets at least once a month to discuss/recommend on issues submitted by the four subcommittees representing the duly-discussed modes of operation.

In effect, actual work programs will be implemented by the agencies that are presented in each of these committees. (See chart on the following page.)

Financial assistance for PICAM's operations would be provided by the member agencies themselves on an "agency commitment" basis. It is hoped, however, that a more definite source of budget would be identified later on.



APPENDIX B

DRAFT POLICY STATEMENTS AND STRATEGIES

EDUCATION, TRAINING AND EXTENSION

A continuing, long-range, comprehensive and multi-disciplinary education and training program in agricultural mechanization shall be instituted to develop skills of all concerned from farmers, extension workers and rural artisans to engineers, mechanics and dealers. To ensure adequate supply of skilled manpower, this kind of training shall be included in the curricula of educational institutions offering vocational, technical and agricultural courses.

The government shall provide adequate funding mechanisms to support a sustained educational, training, and extension program in agricultural mechanization.

Statement of Policies

1. A continuing education and training program in agricultural mechanization shall aim to develop skills, without discrimination to sex, among:
 - a) farmers, owners, and operators
 - b) mechanics and technicians
 - c) extension workers
 - d) dealers
 - e) manufacturers, fabricators, craftsmen and rural artisans
 - f) engineers

- 2.1 A long range comprehensive multidisciplinary training program shall be instituted to ensure adequate manpower for agricultural mechanization.

Strategies/Approaches

- 1.1 Government and private institutions could be tapped in conducting trainings for all clientele in the agricultural mechanization program.
- 1.2 Nonformal training, i.e. short and certificate courses conducted by dealers, public and private agencies, could include nondegree programs for the target clientele.
- 1.3 All channels of communication, whether personal and/or mediated could be utilized to disseminate information on agricultural mechanization development.
- 1.4 Government and private agencies and programs like the National Media Production Center, Philippine Council for Agriculture Research and Resources Development (PCARRD) and the Bureau of Agricultural Extension, National Extension Program and other related agencies could be tapped to develop and produce educational materials on agricultural mechanization development.

- 2.1 Through inter-agency collaboration with the Ministry of Education, Culture and Sports (MECS), the concept and importance of agricultural mechanization could be introduced in the work education subjects at the elementary level and included in the practical arts subject in the secondary level. This is envisioned to develop awareness and instill in the minds of the young the importance of agricultural mechanization.

- 2.2 The educational programs of all member institutions of ACAP and other agricultural schools should not be limited to the technical aspects alone but also consider the social, economic and cultural implications as these relate to man.
 - 2.3 Educational/training institutions offering agricultural courses shall include in their curricula the training of people who shall be competent in all phases of manufacturing and utilization of agricultural machinery.
 - 2.4 Curricular offerings on machinery manufacture, design and utilization should be strengthened. These could be done by awarding fellowships and study grants to the deserving training clientele.
 - 2.5 Students/researchers of agriculture and other related fields could be given incentives in the form of thesis support/assistantships/fellowships, and research grants if they undertake research on education, training and extension of agricultural mechanization development
3. The government shall provide adequate funding mechanisms to support sustained educational and training programs in agricultural mechanization.
 - 3.1 Funding for educational and training programs may be administered by the Ministry of Agriculture in cooperation with related government and private agencies. Non-government agencies should be encouraged to provide supportive funds for educational and training programs.
4. Institutional linkages among public and private agencies which con-
 - 4.1 The education, training and extension functions of agricultural

duct education, training and extension activities related to agricultural mechanization shall be established with a central body that will manage and coordinate these activities.

mechanization program may be implemented by the Ministry of Agriculture through the Agricultural Mechanization Development Program, related agencies and other existing programs. It shall also formulate the necessary training curricula to meet the needs of specific target clientele and establish institutional linkages for support mechanisms/services for the program.

- 4.2 Necessary arrangements shall be made to government and private agencies to support the agricultural mechanization development program.

RESEARCH AND DEVELOPMENT

In support of the food and nutrition and energy programs, research and development in agricultural mechanization shall be directed to the attainment of an efficient or higher level of mechanization whenever appropriate. It shall encourage the private sector, particularly the farmer inventors, to undertake/develop promising researches and inventions related to agricultural mechanization. It should put more emphasis on applied research which shall be followed through by extension work for effective dissemination and utilization.

Policies

1. Research and development shall be directed to the development of more efficient levels of mechanization whenever appropriate.
2. Research and development shall encourage further development of

Strategies/Approaches

- 1.1 Identify relevant research areas considering the needs of farmers in collaboration with PCARRD, PCIERD and other agencies.
- 1.2 Identify and select from available technologies and determine specific requirements under given conditions.
- 2.1 Provide incentives such as reasonable royalties to inventors.

- promising inventions, designs and processes related to agricultural mechanization.
3. Research and development shall support the food and nutrition program of the government.
 - 2.2 Give grants to inventors to conduct research in universities, colleges and other institutions whose research capabilities make such arrangements possible.
 - 3.1 Provide more R & D funds to support national programs like Masagana 99, Maisagana, etc.
 - 3.2 Develop tools/equipment to help farmers produce more food at lower costs.
 4. Research and development shall give more emphasis to the development and utilization indigenous energy resources.
 - 4.1 Undertake applied researches on substituting fossil fuel with non-fossil alternatives.
 - 4.2 Encourage research on the utilization of agricultural wastes and other by-products and other indigenous resources like wind, solar and hydro as alternative energy sources. in agricultural mechanization.
 5. Both the government and the private sector shall encourage the development of promising agricultural mechanization researches.
 - 5.1 Increase funding support to R & D activities.
 - 5.2 Provide incentives like research grants, fellowships, tenure and research facilities.
 - 5.3 Strengthen the research capabilities of R & D institutions.
 6. Research and development shall be followed through by extension work for effective dissemination and utilization.
 - 6.1 Identify agency(ies) for extension of proven and verified technologies.
 - 6.2 Strengthen linkages between R & D institutions with extension agencies.
 - 6.3 Strengthen the capability of extension workers through training, seminars, etc.

- 6.4 Support local manufacturers through proper technical dissemination.

MANUFACTURING AND SUPPLY

In line with the national agricultural mechanization policies, strategies, and programs, it shall be the objective of the Manufacturing and Supply Committee to promote the effective rationalization of the agricultural machinery industry through the adoption of the following policies and strategies:

Policies

1. Promote the manufacturing of appropriate agricultural machinery which would be economically viable in line with the following objectives:
 - (a) Realize foreign exchange savings for the country through import substitution of complete equipment or components.
 - (b) Earn foreign exchange for the country through export to other countries.
 - (c) Create manufacturing activity in various enterprises.
2. Promote export of domestically-produced agricultural machinery and components.

Strategies/Approaches

- 1.1 Adoption of Progressive Agricultural Machinery Manufacturing Program that would encourage the manufacture of agricultural machinery through a system of incentives, financing, progressive increase in domestic content, accreditation, etc.
- 1.2 Promotion of the establishment of manufacturing facilities that would be utilized for the manufacture of agricultural machinery and others under the engineering industries.
- 1.3 Assurance of adequate supply of raw materials and components needed for the agricultural machinery industry at competitive prices.
- 1.4 Rationalization of tariff duties and taxes for complete equipment, components and raw materials.
- 1.5 Provision of adequate financing for manufacturers.
- 1.6 Standardization and testing of products, components and parts through the Product Standards Agency, AMTEC and other agencies.

- 1.7 Active promotion of technology transfer through joint ventures, licensing, etc.
- 1.8 Provision of extension services to manufacturers.
- 1.9 Removal of disincentives to domestic manufacturers, such as unequal treatment on duties and taxes and tied-in clauses in international grants and loans.
- 2.1 Undertake export promotion activities, trade missions, and participation in machinery fairs, in cooperation with CITEM or BFT or other groups.
- 2.2 Encourage subcontracting arrangements with foreign manufacturers.
- 2.3 Encourage regional cooperation through ASEAN, RNAM, etc.
3. Promote the setting up of rural industries, especially small and medium scale.
 - 3.1 Encourage rural-based artisans and inventors to undertake the repair and fabrication of simple and intermediate agricultural machinery or components.
 - 3.2 Encourage subcontracting arrangements between rural-based industries and larger industries.
 - 3.3 Encourage the setting up of other manufacturing activities in the rural areas that would employ labor displaced as a result of mechanization.
4. Allow the importation of agricultural machinery or components which are not economically viable for manufacturing and which are in consonance with the national agricultural mechanization program.
 - 4.1 Provision of adequate foreign exchange for such importation.
 - 4.2 Provision of adequate tariff duty concessions.

MARKETING AND FINANCE

Policies

Strategies/Approaches

1. *Finance and Credit*

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| <p>A. Financing and credit schemes in support of an agricultural mechanization program shall be provided by the government agencies as well as private lending institutions.</p> | <p>1.1 The government shall ensure the availability and proper management of funds for agricultural machinery.</p> <p>1.2 Encourage public and private financing institutions to support <u>local manufacturing</u>, importation of raw materials or parts not locally manufactured, distribution, retail sales and lease purchase of agricultural machineries on terms and conditions advantageous to both lenders and borrowers.</p> <p>1.3 Both government and private financing institutions should take into consideration technologies and approaches appropriate to special localities.</p> |
| <p>B. Promote fair and agreeable financing schemes.</p> | <p>1.4 Project viability and the borrowers' credit status should be given more emphasis than equity and collateral requirements.</p> <p>1.5 The financing of private firms of farm machinery equipment be considered as part of the agricultural loan portfolio of the bank for which the CBP will open its rediscounting window.</p> |
| <p>C. Ensure the efficient use of credit and adopt measures to improve farmers' payment capability.</p> | <p>1. Maintain, revitalize and improve crop insurance systems now existing to encourage increased productivity.</p> <p>2. Regular review of farm gate prices and crop price ceilings to determine realistic levels.</p> |

3. Appropriate training of end-users in proper farm equipment handling and loan use.
2. Marketing and Distribution
- A. Marketing and distribution as it relate to the agricultural mechanization program of the country shall relate to pricing and accreditation standards, exports and promotion of locally manufactured items.
 - 2.1 Accreditation standards to ensure reasonable quality of agricultural machineries.
 - 2.2 Discouragement of import items which are available locally through bands and/or increased tariffs or duties.
 - ~~2.3 Encouragement of exports for agricultural machineries through the continual provision of incentives such as tax incentives and promotional accommodations.~~
 - B. Promotion of efficient marketing system.
 - 2.4 Setting up of cooperatives as market for agricultural machineries.
 - 2.5 Establishment of adequate after-sales services in the rural areas by distributors/manufacturers.
 - 2.6 Dissemination of market information through the media.
 - 2.7 Provision of fuel allocation to the agricultural sector.

MARKETING AND FINANCE WORKPLAN FOR 1984

A. *Finance and Credit*

1. Renegotiate the extension of CB-IBRD fund, Biyayang Dagat and similar funds that might be available with all government involved.
2. Identification of research institutions involved in developing appropriate technology which shall continuously coordinate with government and private financing institutions and to make available information to them.

3. Lobby for the creation of a government guarantee fund similar to the concept of the KKK guarantee fund wherein the government and private financing institutions will not carry 100% risk.
4. Encourage the government to lend to qualified "Samahang Nayon," "Katipunan ng mga Samahang Nayon" compact Farm Clusters, corporate farming and other farmers' association.

B. Marketing

1. Gathering of market information and relevant statistics for promotion and sharing between the government and the industry.
2. Work for the giving of preference to the agricultural sector in the granting of fuel allocation and subsidies.
3. Negotiate with appropriate agencies for the selling of farm machinery/ implements through farmers' organizations such as cooperatives, compact farms and the making of guidelines to ensure viability of the organization and enable them to provide necessary after-sales service to farmers.

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