

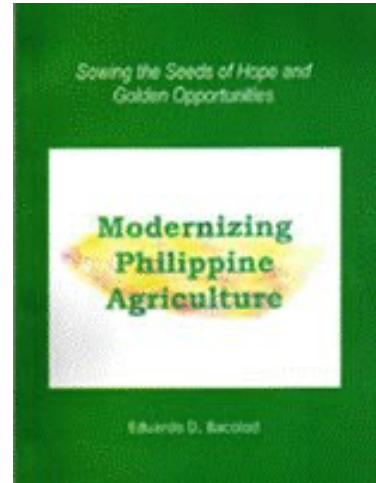
EXHIBIT 1: (Eduardo Bacolod, BS AEco, 1983)

Modernizing Philippine Agriculture

Eduardo Bacolod

SUMMARY

Modernizing Philippine Agriculture is a piece of planning work that gives hope to the Philippines that agricultural modernization can be achieved very fast. The fundamental weakness of the present agricultural modernization programs of the country is the apparent lack of a solid operative structure or order that can unify the country's agricultural modernization thrust. Since agricultural development can be best attained in unity, the main thesis of this work is that by building an integrated structure for the country's agricultural modernization drive, the country's splintered agricultural development undertakings can be unified into one common mass thereby enticing all the stakeholders of the country's agricultural modernization to participate and work together to attain the common goal of strengthening the basic foundation of the country's agricultural economy.



The planning work starts by laying down the foundation and establishing the fundamental framework of the country's agricultural modernization agenda in Chapter 1. The goal of the Agricultural Modernization Agenda of the Philippines must be to build globally competitive and modernized agricultural economy by operationalizing working models that will drip down to increasing farmers and fishermen's income, creating stable employment opportunities for all the stakeholders of the country's agricultural industries, improving their quality of life, and making quality food affordable to and adequate for every Filipino.

In pursuit of the above goal, the agricultural modernization agenda must subscribe to the essence, but not necessarily following all the details, of the Agricultural and Fisheries Modernization Act of 1997 (AFMA). In this regard, AFMA was interpreted as an integrated agricultural development structure called the Square Conceptual Framework for Agricultural Modernization. The square conceptual framework is represented by four structures in its four corners. Every structure has an interconnection with each of the other three corners of the square so that there are two diagonal connections that further provide strength in the structure. The four corners of the square are represented by the model farms for organized production, credit, and marketing, food networks for marketing and processing of agricultural products, rural industrial parks for processing of raw materials and food products, provision of support services, generating employment for skilled workforce, and zoning of the country into strategic agricultural development zones, and farm depot as source of farm production inputs, technologies, and farm mechanization support. At the center of this four-corner agricultural modernization structure are support services, the fuel and operating system that starts the whole mass and keeps it moving. These support services are credit, infrastructure support, research and development, information and communications systems, training and extension, cooperative modernization, transport support, and disaster and risks coping support.

The ten major strategies that will guide agricultural modernization are (1) adopting guiding framework for national agricultural modernization (2) establishment of special agro-industrial zones (3) drawing up of plans and implementation of programs for special agricultural industries that need support, (4) modernizing agricultural support services, which include infrastructure, farm mechanization, soils and land management, research and product development, information and communications technology, transport and product handling, and agricultural disaster management, (5) promoting investment in the agriculture sector, (6) enhancing multi-sectoral collaboration, (7) enhancing private sector participation, (8) modernization of cooperatives, (9) improving professionalism in the small scale agribusiness sector by attracting retirees and professionals to engage in modern farming, and (10) organizational and program reforms in the Department of Agriculture (DA) bureaucracy by adopting innovations and creative thinking and imposing lighter grip on the status quo.

The agenda shall aim to establish special zones for agricultural modernization by formulating a comprehensive modernization plan and promoting investment in these priority zones. Initially, 14 special agricultural modernization zones must put up because of 1 per administrative region of the Philippines. The rural industrial parks must be preferably the center of the operation of the identified zones.

Agriculture industries that must be modernized include rice, food handling and distribution, coconut, high-value crops, livestock, and fisheries. Comprehensive modernization plan for support services, which include credit, research and development, rural transport, irrigation, farm access, information and communications technology, and research and extension shall be laid down.

Chapter 2 is about the idea of building a coalition of agricultural modernization advocates for the purposes of cooperating with the government, assisting farmers and fishermen's groups, and providing guidance to the private sector and foreign investors in line with the planning and implementation of agricultural modernization projects in the Philippines. A coalition of farmers' associations, cooperatives, nongovernmental organizations, private agricultural development and agribusiness consulting groups, professional agricultural societies, consumers' groups, academic institutions, and private agribusiness corporations shall bond to form the Philippine Forum for Agricultural Reform and Modernization (PHILFARM). Areas of cooperation among members include planning and project preparation support, multi-sectoral business collaboration, assistance to cooperatives and farmers' association, and support in line with the development of vital agricultural industries. PHILFARM, with its wide and solid network of stakeholders, will be vital partners of the government in implementing agricultural development programs.

Chapter 3 proposes a full-blown integrated and comprehensive plan to attain national rice self-sufficiency through the development of the country's hybrid rice industry. The project aims to establish 20 integrated milling districts for hybrid rice with a total service area of around 300,000 hectares dispersed in 14 provinces all over the country. The development of the country's rice industry must depend on the private sector in partnership with farmers' associations and cooperatives. A hybrid rice-milling center has a service area of about 15,000 hectares divided into production clusters ranging from 3,000 to 5,000 hectares. It is equipped with the most modern rice milling and drying facilities that can operate very efficiently with a high rate of milling recovery. The private group shall manage the center. The milling center will be opened to multi-sectoral ownership as cooperatives, government agencies, and private corporations will invest in the milling centers.

The center shall operate its own machinery pool, technical assistance service, and facilities as a meeting place for training and social gathering purposes. The center shall deliver technology transfer services to the farmers who will enlist as cooperators. As cooperators, farmers are provided with production inputs such as seeds, fertilizers, and farm chemicals, and are provided access to farm mechanization services at affordable terms. Farmers then sell their produce to the integrated milling center.

To operationalize the milling center concept, Chapter 3 presents a model corporation that will be engaged in hybrid rice. The study for the establishment of the Filipino Hybrid Corporation (FIL-HYBRID) that will provide the corporate leadership in the development of the country's hybrid rice industry is incorporated in the Chapter. The corporation shall operate subsidiaries in hybrid seed production, farm machinery pool operation, research and development, and integrated rice milling center operation.

Chapter 4 provides the strategic direction for the country's research and development agenda in agriculture and fisheries as a package of investment opportunities. The program direction aims to formulate concrete research and development framework that will hasten the development of technologies and business models for the agriculture and fisheries industries of the Philippines. Furthermore, the program shall focus on transforming research organizations in the Philippines as financially stable institutions.

Furthermore, Chapter 4 draws a model government institution that will operate as a financially self-sustaining government corporation conducting research and development business, with the Philippine Rice Research Institute (PhilRice) as the model. PhilRice's main business of conducting research and development can be transformed into income-generating opportunities. In pursuit of its mandate, PhilRice shall enter a business collaboration with farmers' cooperatives, private sector, and other government agencies to implement worthy business models that are products of the institute's own research works. Possible business opportunities that the institute must initiate for the collaborative business undertaking are integrated milling center, seed production business, farm machinery pool management, crop protection and management, and rice food products development. PhilRice can be also transformed as financially worthy organization attracting the interest of banks for financial assistance purposes and other partners to invest.

Chapter 5 is about the modernization of the country's food handling and distribution industry. The National Food Authority (NFA) shall become the corporate leader in modernizing this industry in partnership with the private sector and farmers' groups. NFA must reorient its focus to address the whole food handling, processing, and distribution industry, thus departing from the agency's traditional unilateral concern on its grains processing and marketing business. The establishment of networks of food terminal markets, the use of geographic information system (GIS) for product positioning domestically and internationally, the operation of business subsidiaries in food processing and handling with ownerships opened to farmers and employees in partnership with the private sector using its existing network of warehouses and the development of new food product lines, are business areas NFA must explore in order to assert itself as the country's corporate leader in the development of a globally competitive food handling and distribution industry. The grains trading function of the NFA, which is the object of privatization move, must be fully modernized to become competitive to ensure that grains are distributed to the immediate consumers at the cheapest cost.

Chapter 6 is about the modernization of the country's coconut industry, which is on the verge of becoming a sunset industry. As the government agency with the mandate to develop the industry, the Philippine Coconut Authority (PCA) shall reorient its corporate direction to start the massive rehabilitation effort to uplift the country's coconut industry. The agency shall also undergo internal reforms in its organization and management structures to speed up the modernization of the country's coconut industry.

The goal of the Philippine coconut industry's modernization agenda is to contribute to the development of the country's agricultural economy by transforming the coconut industry as a globally competitive and stable sector in agriculture, which in effect will be capable of providing decent socio-economic support to its main stakeholders, the coconut farmers. The immediate objectives of the coconut industry modernization agenda are: (1) to increase the income of farmers by improving efficiency in coconut, copra, and oil production, diversifying coconut base farming business, and developing the technical, managerial, and marketing skills in running all the businesses that are associated with a dynamic coconut industry, (2) to generate additional employment opportunities by developing the business viabilities of promising product lines of the coconut industry, which include coconut coir and peat, coconut fiber, coconut sugar, virgin coconut oil, and food, beverage and spirits, (3) to strengthen research and product development and extension delivery support to the coconut industry, and (4) to reorganize the Philippine Coconut Authority (PCA) as a financially stable government-owned and controlled corporation and the recognized corporate leader in the country's coconut industry. At the center of the development of the coconut industry are integrated coconut product processing centers under private sector management but co-owned by coconut farmers. These centers will provide an integrated package of services, which include production assistance, credit, processing, research and product development, and marketing.

Chapter 7 is proposing a regular, rather than a reactive or palliative mitigating program to face El Niño. El Niño is a natural disaster resulting in severe water drought that is recurring, and its cycle is becoming short during the last ten years. The program to mitigate El Niño must be to face the climatic phenomenon heads on. The goal of the program is to contribute to accelerating agricultural modernization in the Philippines and to create better decent jobs for Filipino farmers by transforming the problem of scarcity of water brought by the El Niño climatic phenomenon into opportunities. The program shall resort to massive commercialization of agricultural technologies and management strategies that will make scarce water resources economically productive. The main technologies to be promoted for massive commercialization are dryland rice farming, greenhouse farming, drip and sprinkler irrigation system, and the use of irrigation canals for the cultivation of pasture grasses. The El Niño mitigating program must be largely a private sector initiative.

Chapter 8 is about promoting greenhouse technology and other related greenhouse irrigation infrastructure systems for high-value crops production, which include the drip and sprinkler systems. The Greenhouse Village is conceptualized to engage smallholder farmers in the use of modern farming technologies like a greenhouse. The greenhouse village is a community of farmers organized following the nucleus-satellite model of production. A Larger greenhouse, with an area ranging from 1,500 to 2,500 square meters, shall serve as the nucleus or anchor farm capable of providing the leadership for farmers to employ better technology and management and for organized production and marketing purposes. The smaller greenhouses managed by individual farmers or two to three farmers with an area of about 300 to 500 square meters are

parts of the organized production setup. The goal of the project is to contribute to the development of the greenhouse farming industry in the Philippines.

Finally, for the massive operationalization of the integrated planning framework for agricultural modernization, Chapter 9 explores the participation of local government units in agro-industrial modernization. A model provincial investment plan for agro-industrial modernization is being proposed for the province of Nueva Ecija. Since local government units have corporate powers and authorities that they must exercise with utmost expediency for local-level economic modernization, they must be also responsible and accountable in promoting financial, technological, and human resources investments coming from the government and the private sectors that are essential to propel local level development. A sound investment, however, must be based on concrete development framework.

Projects being proposed for investment include Farm Depot as a warehouse store of farm machinery and equipment, the establishment of integrated rice milling centers located in strategic areas in the province, the establishment of the province's agro-industrial park promoting rice as the province's vital industry, the establishment of integrated livestock center with trading center, a slaughterhouse, and a laboratory engaged in the business of reproducing ruminants artificially, the establishment of the province's fisheries center to organize the breeding, production, and processing of tilapia, and the establishment of the province's food terminal market to take advantage of the strategic location of the province. Support services for housing and health care for farmers are also being proposed in the investment plan. It is an investment that will propel agro-industrialization in rural areas.

Once the unified structure for agricultural modernization is put in proper order, from the national to the local levels, the country's agricultural economy will modernize and grow further to become internationally competitive.

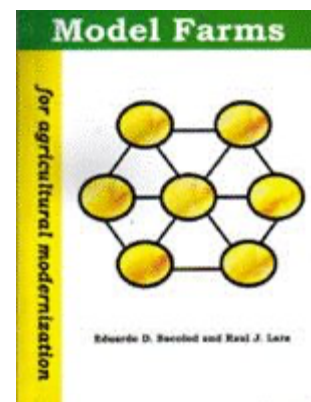
MODEL FARMS FOR AGRICULTURAL MODERNIZATION

Eduardo Bacolod and Raul Lara

SUMMARY

Agricultural modernization can be best attained in unity is the main thesis we wish to establish in line with the development of model farms for agricultural modernization. A unified and organized agriculture system for the Philippines, however, must emanate from the most basic production unit of agriculture, which is the farm. On this basis, the development of model farms built as organized farms forming a unified mass of an integrated production system established for the purpose of attaining technical and managerial efficiencies must be vigorously supported. Seemingly, organized farming can best draw its strength from continuing community-based education, a process that will hone the core competencies of individual farmers as part of an efficient organized farmers' groups engaged in viable business endeavors.

Chapter 1 lays down the theoretical foundation of organized farming. The chapter gives emphasis on the continuing community-based non-formal education as an integral part of the technology transfer process. On this basis, the chapter recommends embracing the Freirean



philosophy of education, which can provide the philosophical foundation for a necessary national endeavor to promote organized farming in the Philippines. Chapter 1 finds in the Freirean philosophy the appropriate theoretical foundation and the necessary operational strategy consistent with carrying out massive organized farming endeavors in the Philippines.

Freirean philosophy has two critical elements. The first element is dialogue and the second one is critical thought in unity. In Freire's view of education, learning to take control and achieving power are not individual objectives. For poor and dispossessed people, strength is in numbers and social change is accomplished in unity. Power is shared, not the power of a few who improve themselves at the expense of others, but the power of the many who find strength and purpose in a common vision based on the above philosophy, a model continuing community-based education based on three progressive stages of learning, which are reflection, transition, and transformation, is laid down. A culture circle composed of farmers, scientists, extension workers, government officials, and entrepreneurs will provide the non-formal guide to the learning process. The end of the process is a responsible community aware of their social and economic roles in society.

Chapter 2 presents the operational framework for a national undertaking to promote organized production in Philippine agriculture. The history of organized production in the agriculture sector of the Philippines reminds us that the farming practice has been in the country for more than a century best exemplified by the agricultural crop zoning introduced during the Spanish period. Sugarcane is the most important crop cultivated, processed, and marketed using an organized system. The application of modern technology is very appropriate in organized farming. Under the organized arrangement, private management groups and cooperatives of farmers can build harmonious business relationships.

The objectives of a synchronized effort to promote organized farming in the Philippines are: 1) to ensure that products will be marketed giving the highest possible income to the producer by a combination of a favorable price, good management and technology, and better access to production support services, 2) to avail of technical and management assistance through organized production, and 3) to gain access to inexpensive but quality production services or inputs such as seeds, feeds, farm mechanization, postharvest handling, and fertilizer and chemicals through organized production. Commodities best suited include traditional crops such as rice, corn, and coconut and high-value crops such as fruits and vegetables, particularly crops wherein primary or secondary processing will be needed. Organized production will be also applicable in municipal fisheries, aquaculture, livestock, and dairy businesses.

Based on the organized farming framework inspired by the Freirean philosophy of community-based education, various model farms were developed and proposed. The development of models in this planning work starts with a proposal to explore the business of quality rice through organized production and marketing under a cooperative set up in Chapter 3. The project shall engage in three main business undertakings. First, is the trading of palay by buying rice and then selling to a rice miller during the harvesting season; second, is the trading of milled rice, which will be the main bulk of the business; and third, is by engaging in production contract with farmers by giving them seeds and later buying the harvest to be milled by designated rice millers. All these strategies are designed to ensure the availability of quality rice whole year-round to supply the needs of urban consumers in Metro Manila. Based on the combination of the strategies, the project sounds to be financially viable.

Chapter 4 draws a model cooperative that will be capable of producing hybrid rice seeds. The model production project will have an initial aggregate area of 350 hectares for F1 hybrid and 50 hectares for R line production. The cooperative will contribute to supplying the hybrid rice seed requirement of Luzon and other parts of the Philippines in line with the government's hybrid rice production program. The cooperative will also enter into a contract production agreement with farmers, government agencies, and other cooperatives in carrying out a hybrid rice seed production and marketing business. The project strategies include aggregation of land to produce a volume of seeds at an efficient level, contract production with members for the participation of smallholder farmers, management assistance by experts and technicians for better technology transfer, maintenance of own parental or breeder lines to ensure product quality, and responsible product branding to maintain better product standard.

Chapter 5 illustrates a model food outlet store that will offer food retailing service under a corporate setup but with an established tie-up with cooperatives or groups of farmers for the supply of products for sale. The outlet store will establish an integrated production and marketing system that will offer quality service to bring into the store shelves products that are always available, with consistently high-quality standard, at a competitive price, and delivered with good customer relations service. Under the contract production arrangement, the outlet store will create business opportunities for local farmers and entrepreneurs in the areas of food production and food processing. The model will then be replicated in other places as another business entity or branch.

Chapter 6 is about the development of an integrated business model for tilapia production and marketing owned by a cooperative but professionally managed by a private management group. The organized tilapia production arrangement will be put up in Nueva Ecija covering an area of 100 hectares by the third year of the project. Under the organized production and marketing system, cooperators will choose to specialize in such areas as tilapia grow-out production, hatchery operation, feed and input marketing and distribution, and tilapia marketing. Management groups will provide technical and management assistance to stakeholders in the various business operations related to tilapia production and marketing.

Chapter 7 provides options in rice-based farming communities by developing a business model that will explore the viability of the community-based dairy project in rice-based growing areas. Dairy project is a profitable business enterprise that will contribute to increasing family income of rice farmers and will provide additional employment opportunities in the rice farming communities. The model also aims to demonstrate that a solid partnership among cooperatives, local rice farming communities, and government agency is adequate to promote the development of the local dairy industry.

Chapter 8 explores the active participation of military organizations in food production. by the adoption of the Greenhouse Village Project. Military camps or areas to be managed by organizations based in military camps will serve as the nucleus or anchor farm under the nucleus-satellite model of producing crops using greenhouse and related irrigation infrastructure systems, which include drip and sprinkler irrigation systems and hydroponic or soilless crop production. Adjacent communities become cooperators in an organized agricultural production and marketing arrangement that employs modern greenhouse and other related farming technologies. The project aims to promote collaboration between police and military personnel and local communities in generating employment opportunities using modern agricultural technologies. The project will also demonstrate that greenhouse farming technology will be also

applicable to smallholder farmers with the application of innovative management strategies and credit guarantee scheme to support creditworthy projects. More important than the project will demonstrate is the participation of military organizations in promoting peace and order through food production.

MODEL AGRO-INDUSTRIAL INFRASTRUCTURE SYSTEMS

Eduardo Bacolod

SUMMARY

To further strengthen the microeconomic foundation of the agricultural economy of the Philippines, the establishment of structures or orders that can create and absorb employment, improve production efficiency, and provide guidance to local level economies, particularly the rural economies of the country, will be highly necessary. These structures must be established in such forms as (1) transport and communications systems, (2) processing and market infrastructure systems, (3) regional and provincial rural-industrial parks, and (4) supply and management of technology systems. Furthermore, these structures must apply functional and precise management and operating systems that will contribute to efficiency.

The integrated system shows the importance of establishing and maintaining model agro-industrial infrastructure systems that will propel economic growth through the application of sound technology and prudent management strategies.

This planning work desires to provide investors, policymakers, entrepreneurs, and students of development planning and management with concrete conceptual business development framework how the support infrastructure systems must be established and maintained within the context of the country's agro-industrial modernization agenda. The work presents eight separate projects as investment opportunities.

Chapter 1 is about the establishment of Rural-Industrial Parks in strategic areas of the country to provide the zonal planning dimensions to the country's agro-industrial resources and to disperse investments away from the country's major industrial cities. Under the initiative by the local government units, which have corporate powers and authorities to shape up rural industrialization and to create decent employment opportunities for the people, the park will attract investors to explore business opportunities in line with improving food production, food handling and processing, manufacturing of tools, equipment, and agricultural production inputs, and conducting support business services related to agriculture and fisheries. The park must reflect the overall agricultural modernization agenda of the region it has to serve or exert impact and influence. Interests and concerns of universities, government agencies, and the private sector will be all mutually addressed in the park.

Chapter 2 proposes the Filfoods.com as marketing network of food products and other goods and services using modern information and communications technology. The project aims to put into business operation integrated electronic shopping and courier services catering to the needs of the Filipino population in foreign countries. Under this system, Filipino food products will be



purchased through the internet, through telephone guided by print catalog, through authorized outlets, and even by mail. The proposal has also on-line duty-free shopping as one of the components. The integrated electronic marketing and courier services will greatly rely on synchronized and well-coordinated services by the courier and the on-line marketing systems.

Chapter 3 is about the establishment of the FarmDepot.com business project, a network of warehouse stores and satellite stores of agricultural inputs and machinery. This network of farm machinery and input supply warehouse stores will showcase the most modern technologies affordable to farmers and fishermen. Through direct handling and under private management, farmers, fishermen, and food processors are exposed to the most advanced farming, fishing, and processing equipment at a very reasonable cost. The do-it-yourself approach to selling under one roof is also an alternative technology transfer strategy. The Farm Depot.com is designed to be co-owned by farmers, fishermen, and private investors, with the government, if so necessary, providing the needed capitalization for their shares through a guarantee financing scheme.

Chapter 4 proposes a network of Food Network stores that will be able to provide a vertically integrated system of agricultural production, processing, and marketing. The services are packaging, handling and transport, retailing, and even exporting. The Food Network integrated processing and marketing services will be established as trading centers, warehouses, cold storage plants, processing centers, and mostly outlet stores in strategic areas. These facilities will be managed under one system. The Food Network will have direct links with producers and processors to maintain product standards. The Food Network business units will also use similar ownership principle as the Farm Depot.com

Chapter 5 is about the establishment of Greenhouse Farm Subdivision as planned settlement project that will be made very productive by employing modern agricultural technologies particularly greenhouse and soilless crop cultivation systems, which will be used as a profitable business venture to partly recover investment or amortize the loan for what could have been a non-earning investment like housing. Another possible option is to use the farm subdivision as a training farm and resort for tourism purposes. This business concept is being proposed to transform agricultural lands to be more productive using modern technology and management and at the same time to diversify their uses. Retirees and urban professionals, therefore, will become active in agricultural modernization and tourism development of the country.

Chapter 6 proposes an alternative plan for the rehabilitation of the Luzon sector of the Philippine National Railways. The goal of the project is to contribute to modernizing the country's transport system for socio-economic modernization by rehabilitating the old lines of the Philippine National Railways. The Philippine railway system will operate as different corporate subsidiaries. These subsidiaries to be formed through the private sector and government collaboration are railway line operation, locomotive and coach service, commercial terminal operation, cargo handling, travel and tourism, and housing and livelihood for relocation purpose. Integrated grains centers, oil milling centers, sugar milling centers, integrated food terminals, fish ports, and other agro-industrial communities, must be conveniently served by the railway system.

Chapter 7 proposes a model that will transform a traditional fish port into an integrated technology park. The proposal will lay down the conceptual framework for the transformation of the country's premier fish port, the Navotas Fish Port community, into planned community applying state-of-the-art technology in land reclamation engineering, urban planning, housing and building construction, waste management, fish processing, hotel and restaurant management,

integrated cargo handling, railway engineering, leisure and recreation, multi-level parking, and information and communications technology. The fish port community will be known as the Navotas Waterfront Technopark. It will become a planned community where fishermen, workers, entrepreneurs, tourists, and the town population are working and living harmoniously. The natural waterfront and land resources of Navotas will be therefore transformed into a better place to live and work.

Finally, Chapter 8, proposes a working model for the establishment and operation of public markets for local government units and other private groups to follow. More specifically, the proposal suggests strategies on how public markets will be established and owned without relying on uncertain government appropriations. Furthermore, the proposal incorporates advancements in construction technology, telecommunications and information systems, and food handling and packaging systems, which will be used in the establishment and operation of public markets in the Philippines. The modern public markets for the Philippines must give emphasis on the importance of institutional development in the management of public markets. All the stakeholders in the public market system, which include stall owners, ambulant vendors, traders, and the government must be properly educated on the use of facilities. Service is very important so that vendors and stall owners must be properly trained to deliver quality products and services. to customers.

Finally, the planning work puts a higher emphasis on greater private sector participation because the role of the government will be limited only to being the catalyst and guiding leader of national development. Every peso of government investment must be repaid back for reinvestment in future projects. On this basis, efficiency in managing infrastructure projects is very essential. The proposed model infrastructure projects for agro-industrial modernization are all in line with maximizing return for every peso worth of investment.

