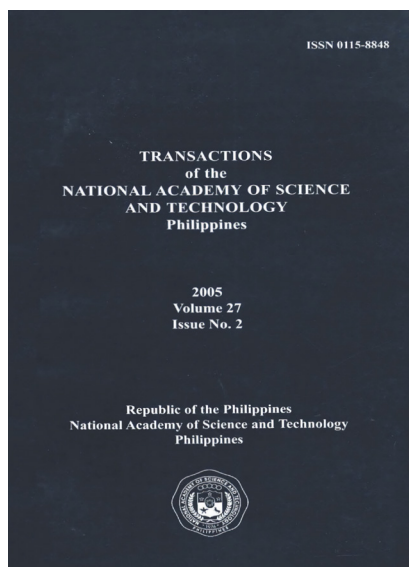


Transactions NAST PHL, is the official journal of the National Academy of Science and Technology Philippines. It has traditionally published papers presented during the Academy's Annual Scientific Meeting since 1979 to promote science-based policy discussions of and recommendations on timely and relevant national issues as part of its functions as a national science academy. Starting in 2021, this journal has been open to contributions from the global scientific community in all fields of science and technology.



Philippine Agriculture 2020 Executive Summary

Citation

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PHILIPPINE AGRICULTURE 2020 EXECUTIVE SUMMARY

1.0. INTRODUCTION

1.1. Concept and Methodology

The PA 2020 long-term plan is the first attempt to integrate agriculture (crops, livestock, fisheries), environment and natural resources (forestry products) sectors, and social systems using the millennium ecosystems assessment framework of the United Nations (UN). The planning exercise recognizes the importance of a science-based development strategy, with a time frame not constrained by the traditional short to medium-term planning and autonomous, but cognizant of, political and bureaucratic considerations.

PA 2020 builds upon the commodity roadmaps developed by the DA as well as on the department strategic plans of DA, DENR, DOST and DLR, respectively. It drew heavily on the agency plans of key units like PhilRice, PCA, Philsurin, FIDA, and the sectoral Councils of DOST. It took into account the major thrusts and projections of the MTPDP (2004-2010).

PA 2020 is an initiative of the Agricultural Sciences Division (ASD) of the National Academy of Science and Technology in the exercise of NAST's advisory function. Headed by Dr. Teodulo Topacio, Chair, ASD and Dr. Emil Q. Javier, Chair, Biological Sciences Division, the Division acknowledges the leadership of PCARRD, PCAMRD, DA-BAR and DENR-ERDB in agricultural research planning, coordination, funding, monitoring and evaluation. Key agencies like LDC, PHILSURIN, PhilRice, the Philippine Coconut Authority and several academic units from University of the Philippines Los Baños and University of the Philippines Diliman bought into the project by sharing their time and expertise. The team received strong support from the heads of three departments most involved in agriculture: the Secretaries of the Department of Agriculture (Luis Lorenzo and Arthur Yap); the Department of the Environment and Natural Resources (Michael Defensor); and the Department of Science and Technology (Estrella Alabastro).

Philippine Agriculture 2020 envisions robust and vibrant agricultural and natural resources (NR) production systems and ecosystem services that improve and sustain well-being in the Philippines. This vision informs the logical framework (logframe) and identifies a set of development goals, objectives, and targets of the whole sector and 14 specific industry cluster levels (Table 1).

Table 1. Logical Framework of the Philippine Agriculture 2020.

Vision	Goal	Objectives	Tar-gets	Acti-vities	OVI's
Robust and vibrant agricultural and natural resources (NR) production systems and ecosystem services that improve and sustain human well-being in the Philippines	Improve Human Well-being through:	Human Well-Being (HWB): By 2020,			STILL TO BE WORKED OUT AT THE INDUSTRY CLUSTER LEVELS
	Decrease in poverty	Reduce poverty by 50%			
	Enhance food security Enhance fiber security Enhance energy security	Increase domestic food, fiber, biofuel production by 10%, and agricultural GVA to 30% of GDP			
	Improved agro-industrial sector competitiveness	Enhance competitiveness on agricultural and NR products by a factor of 0.50			
	Improved sustainability of ecosystem services	Reduce environmental threats to HWB by a factor of 0.50			
	Better justice and peace				
	Improve Ecosystem Services through:	Ecosystem services: By 2020,			
	Better agriculture production system	Expand agricultural production to at least 50% of public lands and municipal waters			
	Better ENR management system	Expand private investments on primary production in public domain by at least 50%			
	More effective governance	Expand co-management and co-investment in agricultural and NR production by a factor of 0.50			
		Integrate production systems in private and public domains by a factor of 0.50			

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1.2. Millennium Ecosystem Assessment Framework¹

The Millennium Ecosystem Assessment (MA) shows a strong linkage between ecosystems and human well-being, in particular, the “ecosystem services.” These services are the benefits people obtain from ecosystems. The conceptual framework posits that people are integral parts of ecosystems and that a dynamic interaction exists between them and other parts of ecosystems, with the changing human condition driving, both directly and indirectly, changes in the ecosystems which in turn cause changes in human well-being. At the same time, social, economic, and cultural factors unrelated to ecosystems may alter the human condition, and many natural forces influence ecosystems. Although the MA emphasizes the linkages between ecosystems and human well-being, it recognizes that the actions of people that influence ecosystems result not just from concern about human well-being but also from considerations of the intrinsic value of species and ecosystems² (Figure 1).

1.3. Goals

Given the global changes that impinge on Philippine agricultural and natural resource ecosystems, the PA 2020 long-term plan visualizes the dynamic interactions of the agricultural and natural resources ecosystems, and projects the likely impact on the well-being and security of the Filipino, in terms of five interrelated development goals: poverty reduction, food security, competitiveness, sustainability, and justice and peace³.

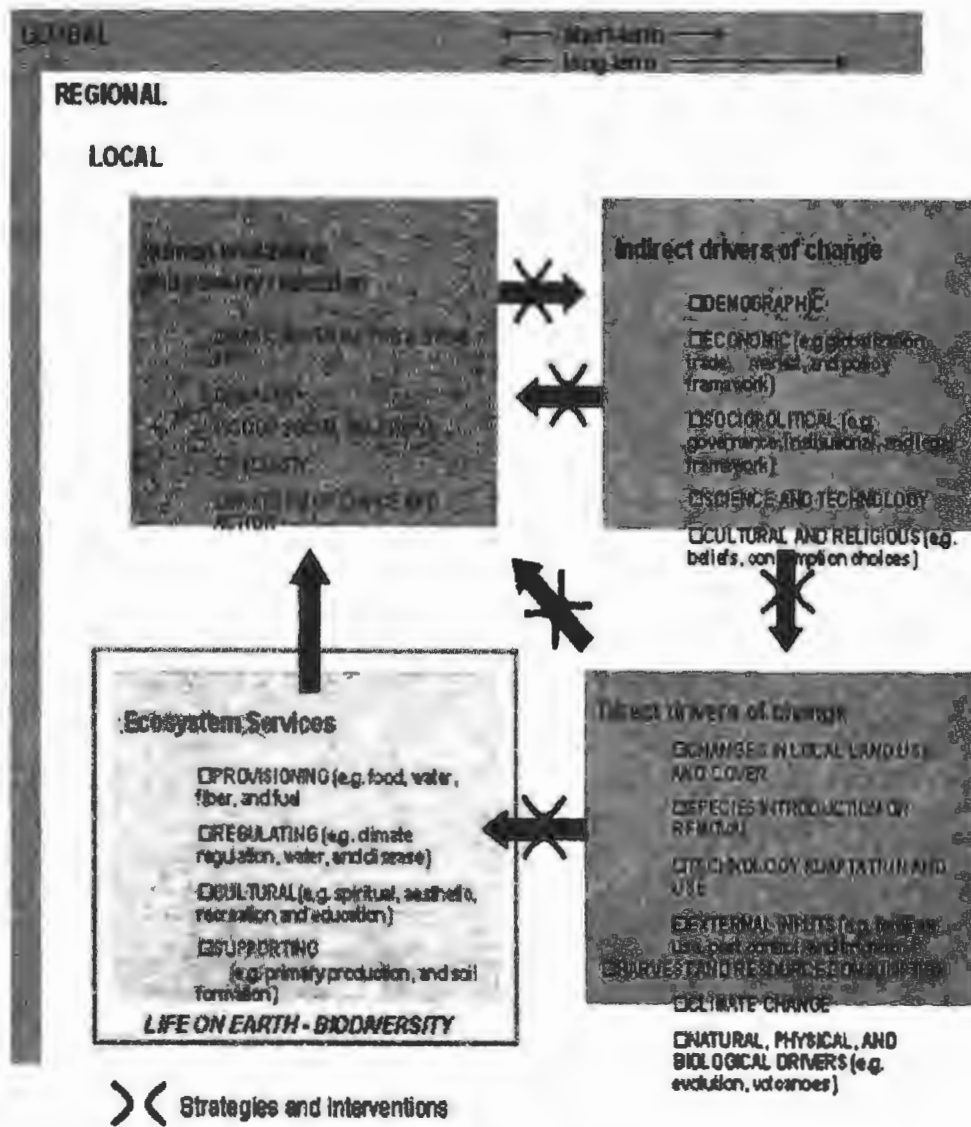
Using the ecosystems conceptual framework, national human well-being is determined by the changes in at least three systems: the agricultural systems, environment and natural resources systems, and the social systems (Figure 2).

The agricultural systems are in turn driven, among others, by changes in climate, soil and water, technology shifters and techniques and certain tenurial arrangements in both private and public domains. In the same manner, the performance of the environment and natural resource systems are determined by environmental risks/quality and threats, tenure systems and technology and techniques. Finally, the drivers of the social systems performance are population numbers and quality, and governance systems.

¹ Condensed from Millennium Ecosystem Assessment (March 2005).

² Intrinsic value is the value of something in and for itself, irrespective of its utility for someone else.

³ These goals are broadly congruent with the seven principles of the Agriculture and Fisheries Modernization Act (AFMA) of 1997. These are poverty alleviation and social equity, food security, rational use of resources, global competitiveness, sustainable development, people empowerment, and protection from unfair trade practices.



Source: Millenium Ecosystem Assessment 2005

Figure 1. Conceptual framework of assessing ecosystems linkage with human well-being.

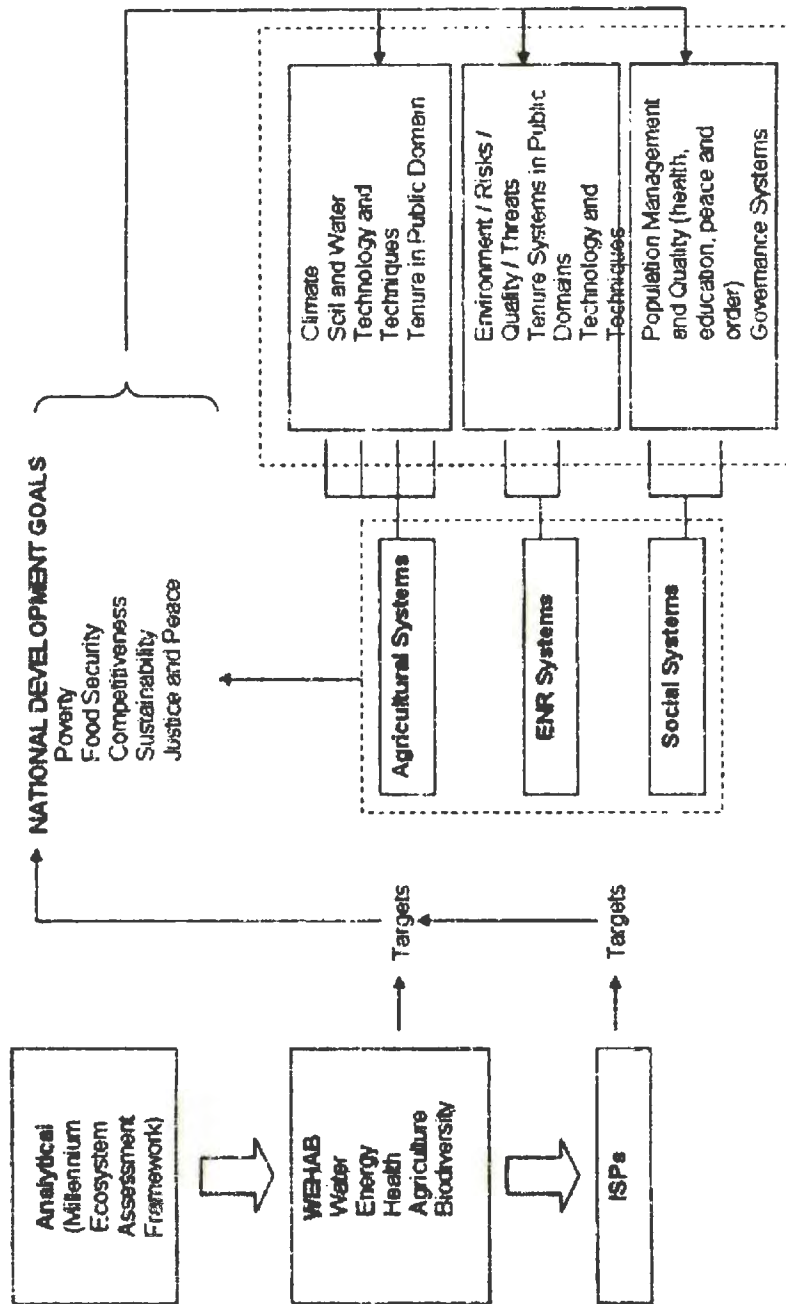


Figure 2. Conceptual development framework of Philippine Agriculture 2020.

The ecosystems conceptual framework of the MA (left inside of Figure 2) is inputted into the PA 2020 strategic framework as an analytic tool in attaining the Millennium Development Goals (MDGs). By focusing on the water, energy, health, agriculture and biodiversity (WEHAB), integrated systems targets can be made to attain the five national development goals.

2.0. THE PHILOSOPHY: AGRICULTURE AS A WAY OF LIFE

The philosophy that Philippine Agriculture 2020 used in envisioning the future is a holistic view of agriculture, cognizant that its role as a source of income is only a part of its more all-encompassing character as a way of life.

2.1. Three Pillars of PA 2020

PA 2020 rests on three pillars, namely: organizing and managing agriculture as a business; attacking poverty through asset reform; and nurturing the values of nature and community in our people.

2.1.1. Organizing and Managing Agriculture as a Business

To enhance productivity and efficiency, Philippine agriculture must be organized as a business. Under a regime of liberalized trade, and given the smallness of landholdings, the initial efforts should focus on: a) the farmer-focused, market-driven agriculture that attempts to transform traditional small farmers into entrepreneurs; b) the agribusiness systems within the context of socio-economic policy environment, improving the efficiency of the supply chain and enhancing efficiencies within the subsystems; c) product and market transformation to simultaneously capture the dynamic changes in domestic and global markets, from low-value to higher-value processed products; and d) industry clustering to internalize the linkages among industries within the sector and in the economy. The industry cluster model aggregatively incorporates the three other modalities. It is focused on sub-sectoral productivity, competitiveness and sustainability.

Agriculture as a business must encompass the supply chain of inputs, production, post-harvest, distribution and foreign trade. The strategy must be informed by our resources and the needs of our people, as well as our global competitiveness as importers and exporters. It must be oriented to the market, and therefore must be accompanied by periodic and accurate reading of supply and demand. The lead role would be given to the private sector but government, civil society and the farming communities must join in making investments in the countryside attractive.

2.1.2. Asset Reform as a Key Instrument for Reducing Poverty

Asset reform involves transferring property and/or usufruct rights to assets to the poor as a key instrument for attacking poverty and in the same breath to stimulate increased investments among rights holders on making the assets productive.

The prominence of poverty alleviation as a strategic policy concern in the agricultural sector will likely rise to compete (even more than at present) with food security and competitiveness as goals of the sector.

In the lowlands, it is imperative that agrarian reform be accelerated and completed and agrarian reform communities organized to become viable social and economic entities. This requires husbanding the solidarity of neighborhoods and cooperatives in co-management of certain crucial infrastructures like irrigation facilities; nurturing the entrepreneurial spirit of the forward-looking among them, and encouraging cooperatives, people's organizations and NGOs as well as universities, local governments and the private sector to energize the agricultural extension system for these newly emancipated farmers. It also challenges Filipino firms to invest in the rural areas and invent viable partnerships with farming households and cooperatives for the production and use of hybrid seeds, integrated pest management, post-harvest facilities, the marketing and distribution of their produce and so on.

For the uplands, PA 2020 suggests a radical change of policy regarding production forests most of which are now covered by community-based forest management agreements. The more entrepreneurial beneficiaries in many CBFMAs have begun planting forest trees in their individual homesteads. Our recommendation is to build upon the momentum of this innovation in social forestry by granting them private titles to encourage more forest occupants to invest their labor and resources, to planting trees and related agro-forestry activities in the forestlands they tend. The phased release of the CBFMA lands (now covering 5.71 million hectares) will be coordinated with incentives to private corporations, cooperatives and even LGUs to put up processing plants to absorb the produce of the incipient tree estates. Priority will be given to the CBFMAs which are complying with the stewardship contracts.

At least ten percent of the Philippines' 26 million ha of coastal waters are suitable for mariculture. Only 59,000 ha of these suitable shallow coastal waters are farmed for seaweeds, finfish, abalone, and sea cucumbers. Yet our coastal dwellers are among the poorest of the poor in our country. The farming of 255,000 ha of shallow coastal waters would provide viable livelihood to a million households throughout the country, but would have special resonance in Muslim coastal communities in Mindanao. This would then be not only an economic imperative but a social justice one as well.

2.1.3. Nurture of Nature and Community Values

The values of community and respect to the environment that agriculture as a way of life engenders are necessary underpinnings not only for agricultural reform but for the strengthening and complementation of the rural and urban halves of the country as well.

Present awakening to the values of nature and community augur well for their nurture that PA 2020 submits as its third pillar. One of the programs that

can exemplify it is genuine eco-tourism which should be run as a business, but should not only be a business. Local governments may use it as a starting point for getting the community to focus on their sources of pride, and how they themselves live in harmony with nature. They may see it as a means to exercise the vaunted Filipino hospitality without feeling inferior or becoming subservient to the outsiders with whom they share their portion of nature's bounty.

Solidarity is a value engendered in agriculture as a way of life, but is not confined only to those living in the farms. The work of cooperatives, people's organizations and NGOs hews us closer to the ideal of broad-based participatory democracy that is the ultimate underpinning of equity, sustainability, and justice and peace. A major contribution of civil society, of direct concern to Philippine Agriculture 2020, is its effectiveness as an instrument in safeguarding the use of common resources, as may be shown in the performance of NGOs and POs in community-based natural resource management (CBNRM) and coastal resource management (CBCRM). In these ventures, they have fostered either indirectly (if NGOs intermediating between the people and the state) or directly (as members of people's organizations and cooperatives), stewardship in the use of resources, respect for the rights of indigenous peoples and the other rural poor communities, and participation in the conservation of the environment and other public ideals.

2.2. Enabling Strategies

Three enabling strategies will buttress the three pillars of PA 2020: technology development, investments, and governance reforms. Technology development is the "efficiency driver" of the supply chain in the provision of agricultural goods and services. As an enabling strategy, production technology innovations will reduce per unit cost of production resulting in enhanced efficiency in the agribusiness system. Green technologies on the other hand will reinforce the integrity of ecosystems and guarantee their sustainability over time.

The modernization of agriculture calls for substantial investments in 1) infrastructure such as farm-to-market roads, irrigation and drainage, postharvest systems and storage facilities, information, communications and transportation infrastructure, 2) in human capital, and 3) in institutions, particularly those engaged in R&D and extension. To optimize our productivity and competitiveness, it is imperative that these investments, both public and private, be in place.

Finally, under the Philippine context, governance reforms, the third enabling strategy, is the "binding force." First, the public sector plays a major role in

initiating development interventions. Second, majority of the institutions that implement the enabling strategies are public in character, and third, good governance implies broad-based participation of stakeholders, which is a requisite to sustainable development.

There are two basic characteristics of the three enabling strategies of PA 2020 under Philippine conditions. The first and foremost is the public nature of the technology development, investment and governance reforms. At present, most strategic activities of these three are public sector-driven, generating “public goods,” especially those related to the enhancement of agro-ecological systems that produce goods and services. The production of public goods, whether in technology, investment and governance reforms, is a necessary, but not sufficient condition, in optimizing the benefits of the agro-ecological assets. To complete the optimization, private sector investment in the agribusiness system must take place to ensure economic sustainability. A final dimension of the enabling strategies is the need for conscious public investment in resource recovery of the assets. This strategy is consistent with the MA framework.

2.2.1. Technological Development Directions

Following the agro-industrial cluster framework, technology development within the next fifteen years and even beyond should anticipate the technology needs of the different industrial clusters to make Philippine agriculture more efficient in the use of scarce resources, more competitive in the global market and thereby more profitable to producers, while assuring the sustainability of resources for future generations. The direction of technology development is organized along the supply chain components of primary production, distribution system, processing or value-adding and cross-cutting concerns in agricultural mechanization and water use, biotechnology, as well as social science and policy research.

2.2.1.1. Primary Production Technology Support

Remarkable yield improvements are achievable with the widespread deployment of crop hybrids. Breeding for tolerance to biological and environmental stresses, particularly as a consequence of climate change will continue to be major plant improvement objectives. In addition, improvement of quality and nutritive value (bio-fortification), particularly, of certain essential minerals and vitamins to combat hidden hunger, as the dietary requirements for protein, carbohydrates and fats are progressively met, will require increasing investments.

Integrated pest management has drastically reduced the application of harmful pesticides. The ecology of major pests and diseases, the identification,

multiplication and deployment of bio-control agents, the use of sex attractants, and judicious stacking and deployment of resistance genes will likewise require more attention.

With declining per capita availability of land, the opportunity of increasing production and income from the same piece of land by way of intercropping and relay cropping will need to be more aggressively explored. Earlier research on short maturity crops, tolerance to shading, and higher planting density need to be revisited.

Integrated soil fertility management, coupled with the development of new fertilizer materials like slow-release/controlled release fertilizer is a rich area for future research. Dependence on inorganic fertilizer can be lessened through this approach with positive implications on environmental health and farm income. Innovative approaches on soil erosion control, sloping land management technology, green mulching, cover crops, precise fertilizer application and management and bio-organic farming, among others, will go a long way in our attempt to achieve sustainability and improve the profitability of the farm enterprise.

Livestock and poultry have been the fastest growing sub-sectors in Philippine agriculture in recent years. Future researches should focus on reduction of production cost, improvement in quality and the development and promotion of niche products (e.g. organically produced meat, duck eggs and meat, native chicken, halal food, etc.). Moreover, there is a need to develop better structures and strategies for solid waste management while ensuring high animal performance and environmental safety. In the case of ruminants, use of improved breeds and the accompanying production technologies should be given emphasis as well as improvement in pasture carrying capacity.

On animal health, there is a need for the country to persevere in its efforts to achieve the status of being FMD-free and to make sure we are spared from emerging livestock diseases such as BSE and avian influenza. Thus, efforts should be focused on sustaining/enhancing the quarantine procedures and surveillance of these diseases. It is also necessary to support the development of diagnostic/detection kits.

Research activities in forestry should provide the necessary technology support to the establishment of high quality wood and non-timber plantations and their efficient/optimal processing. There is also a need to initiate the development of R&D programs on log production of lesser known species from the second growth or residual forest. Research activities designed to minimize wasteful raw material utilization, and the use of these wastes into useful products like fiberboards, activated carbon materials, etc. are also

necessary. The development of GIS that provides data (i.e. climate, soil, physiography, elevation aspect, land use, etc) and the development and management of decision support systems for forestry are also important.

To promote sustainable forest management, the following approaches need to be undertaken: the delineation of forest boundaries and complete demarcation of forest line on the ground; the identification and allocation or release of forestlands appropriate for the establishment of industrial tree plantations, that would make the country, in due time, self-sufficient in timber and do away with costly importation; the creation of an investment climate that would attract local and foreign capital in the rehabilitation, development and management of the country's forest resources and biological diversity, for their various products and services, including ecotourism and climate change mitigation and the promotion of synergistic efforts through mobilization of regional and international cooperation/collaboration on sustainable forest management.

In fisheries, research directed at the primary production system should focus on the cage culture of high-value fishes (e.g. grouper, seabass, pompano) as well as disease management of prawns. Hatchery and nursery techniques will have to be refined to produce high quality seed stocks. Intensive research and development is also needed for lowering the cost of producing cultured stocks particularly by developing cost-effective feeds from locally produced substitutes for fishmeal and soybean meal. In addition, there is a need to further develop and improve hatchery/nursery and mariculture technologies for high-value invertebrates (i.e. abalone and sea cucumbers). Other future research areas should include diversification of seaweed species and culture, and genetic improvement for better growth and disease resistance.

2.2.1.2. Technology Support for Processing and Distribution Systems

Future research effort should be directed towards expanding value-added activities at the farm and village levels. Important areas for research would include the development of food processing technologies compatible with small-holder operations, innovative packaging and design, and food products standards, safety and quality assurance.

Other research activities should help address problems of distribution systems such as inefficiency, high postharvest losses, too many intermediaries and high marketing cost exacerbated by poor roads and underdeveloped ports. Development and use of cold chain systems, better packaging materials and technologies designed to minimize deterioration during transit and storage (e.g. refrigeration, modified or controlled atmosphere/environment, etc.) and improvement of marketing schemes are imperatives in this area.

by a cooperative or a private entrepreneur which is networked to supply chains within the Philippines and globally.

2.2.3.2 Institutional Reforms

Effective public governance implies the presence of strong public institutions that can implement reforms. The Agricultural Commission of the Congress of the Philippines has made a thorough study of the agriculture sector and has made specific recommendations for its reform. Some of these have been incorporated into the AFMA. PA 2020's recommendations in this regard complement the reforms started by AFMA.

Reform of the Department of Agriculture. The Department of Agriculture is the national planning, coordinating and monitoring and evaluating body for agriculture and fisheries programs. As such it is the government agency in charge of the development, promotion and regulation of all agricultural policies and programs in the country. At present, it is principally involved with primary production, and its attached agencies are devoted to single commodities.

The major reforms needed in the Department of Agriculture are the following:

1. To develop agriculture as a business, the Department must undergo a paradigm shift from its historical emphasis on commodities and primary production. It must reorient its institutional structures and operations to agro-industrial clusters and pay increased attention to the efficient production of inputs, and post-harvest, storage, processing, packaging, marketing and distribution aspects of the supply chain. These can be achieved through (a) internal rationalization; and (b) more effective partnership and collaboration with other agencies like the Department of Trade and Industry, the Department of Land Reform, and local government units as well as with the private sector and civil society organizations.

2. Its regulatory agencies must focus on improvement of competition. Their rules and regulations should be simplified to minimize discretion of regulators and to improve transparency through clear rule-based procedures.

3. Transparency and accountability should be the hallmark of a reformed Department of Agriculture. While not singled out as an extremely graft-ridden department, high profile cases have periodically put it under scrutiny. Reports by the Commission on Audit and investigations by Congressional committees show malpractices and questionable decisions in the use of Government resources.

4. The completion of agrarian reform as land transfer is expected by 2013. Thereafter, there would be no need for separate departments of agriculture and land reform and the two should be merged. There would then be a single department developing the business of agriculture as a way of life, with units for forecasting agriculture product futures, product standards and development of supply chains (in coordination with Department of Trade and Industry), provision of infrastructure support (in coordination with Department of Public Works and Highways), and agriculture research and extension [in coordination with the Department of Science and Technology and the National Agriculture Research System (NARS)].

Reform of the Department of Environment and Natural Resources. The Department needs to be restructured to take account of its new responsibilities in asset reform in the uplands, its continuing functions in implementing community-based forest management (CBFM) projects, and the devolution regime started in 1991. The rationalization of human resource and fund allocation must show these altered emphases.

2.2.3.3. Integrated Research and Development and Extension System

The PA 2020 fully supports the MTPDP provision which pushes for the full implementation of the AFMA provision on the consolidation and rationalization of the ANR RDE system to improve productivity, competitiveness, environment-friendliness, effectivity, and responsiveness to the sectors' needs. To facilitate this efficiency and reform objective, the disparate component agencies and networks of the RDE system (DA, DENR, and DOST) should be harmonized.

The agricultural extension function has been weakened, partially due to lack of synergy between the National Agricultural Research System and the National Agricultural Extension System, and partially as a consequence of the devolution of the function to local government units. Government should develop priorities and funding for research particularly relative to biotechnology, plant breeding, etc. Among the incentives for scientists would be the protection and safeguarding of their intellectual property rights over their discoveries and innovations. Applied research from the demonstration end of the research, development and extension (RDE) spectrum can be substantially enhanced through the DA Regional Integrated Agricultural Research Centers (RIARCs), which will provide technical information support to the provincial offices and link them to SUCs.

Agricultural extension can also be enhanced with the wider application of participatory action research paradigms, such as the farmer-scientist program introduced among subsistence corn farmers in the degraded hillsides in Cebu.

2.2.3.4 The Role of Local Governments

Agriculture should be a major component of local economic and social development in rural local governments. Their land use plans must be in consonance with not only current conditions, but also with their prediction of the trajectory of future developments in their agrarian reform communities, major crops and in areas beyond agriculture. Demand-based planning will help them encourage their farmers to focus on crops in which they will be competitive. They can also improve local standards through involvement in trade fairs and other means. Another task for LGUs is the nurture of ARCs and community-based systems operating in their areas. This props up agriculture as a way of life without forgetting its ability to provide sustained income to the populace.

2.2.3.5. Convergence of Public and Private Sector (Corporate) Governance

Good public governance induces effective corporate governance especially in joint public-private development programs. Reflective of poor governance is the Philippines' low ranking in terms of competitiveness and risk scores ratings. This poor performance stems from the relatively low volume and productivity of investments, which arises from perception of risks and deficiencies in the investment and private sector environment for private sector enterprises (World Bank, 2003).

To make asset reforms effective in the lowland, uplands and the coastal areas, the public sector must first analyze the likely governance conflicts arising from public and private statutes and the nature of utilization of the specific asset. In assets which are of open access in nature, but encroached in by private use, the likely effects will be high conflict. Examples are coastal areas and open sea access by private entities. In the same manner, high conflict situation can occur when the public will encroach in resource assets which are defined by statutes for individual use. For common property, the level of conflict will be likely at medium level.

In the long-run, export competitiveness depends on foreign direct investments (FDIs), which to a major extent depend on good governance. From 1990 to 2001, FDIs in the Philippines in terms of actual magnitude in billion US dollars and as percent of GDP lagged behind Malaysia and Thailand. In 2001, FDI for the Philippines was estimated at US\$14.2 billion which was 20% of GDP. In contrast, Malaysia and Thailand had FDIs of US\$53.3 billion

(58.4% of GDP) and US\$28.2 billion (22.3% of GDP), respectively, during the same period.

Private firms are encouraged to locate in coastal, upland and forest communities to operate core post-harvest operations. This is not charity as it will earn them proper income, nor is it the encouragement of unbridled capitalism since their ventures will be in consonance with community-based principles and will be transparent also to the main producers and their civil society supporters.

2.2.3.6. Further Strengthening Civil Society

Past experience has shown that a strong civil society plays a critical role in advancing good governance. In natural resource management, for example, there are positive results in involving indigenous people, people organizations and non-government organizations in community-based natural resource management. These groups perform the role as models for or watchdogs in the effective implementation of development programs in the agriculture and natural resource sector.

Philippine Agriculture 2020 now seeks to build upon this work by a new venture in asset reform for CBNRM areas. The developed concept is the giving of land titles to forest dwellers who are part of CBFMAs because of their proven stewardship of the forest. It would provide for sustenance of beneficiaries during the initial years while waiting for the income stream from agro-forest enterprises. Under this concept, POs and NGOs that represent forest dwellers in CBFMAs, in coordination with LGUs and the Department of Environment and Natural Resources, will take the lead in land assignment and distribution and continue to assist the new landowners in forestry management as a steward. They may organize the small holders as primary producers and as a cooperative to handle saw mill and other agribusiness operations, or backstop them in the negotiations with the private firm willing to invest in milling and transporting forest products.

3.0. Targets and Expected Accomplishments

Projected targets and expected accomplishments of PA 2020 are only indicative, firstly, because at this stage of plan development the strategic plans of the 14 agricultural industrial clusters are not yet finalized. Secondly, the projections are based on individual industry projections based on the knowledge of individual experts of the clusters, crosschecked with existing time-series trends within the agriculture and natural resources sectors. Thirdly, the projections are static in nature and are not yet integrated into a quantitative model that will provide congruence and consistency across clusters.

rehabilitating the existing irrigation systems. The Plan projects a total physical irrigated area of 2.2 M ha in 2020.

Forest cover which is around 5.5 M ha (18% of total land area) in 2000–2004, is projected to expand to 10 M has (33%) due to intensified development interventions in the uplands.

Finally, the Plan also projects a 333% increase, to 255,000 ha in coastal areas for mariculture development from its low base of 58,000 ha during the 2000–2004 base period (Table 2).

4.0 Financial Strategy

PA 202 is a broad-base rural development initiative that builds upon and expands the coverage of AFMA in the management of ecosystems so vital to the viability of agriculture. PA 2020 also projects its vision into a longer time horizon.

The shortcoming of AFMA, if at all, is the lack of political will to deliver on the financing arrangements that can centrally affect its implementation.

Although the actual magnitude of funding PA 2020 has not been estimated, the source of financing, among others, can come from the following:

- Return of Marcos wealth currently being tapped by CARP
- Coconut levy – prioritized in coconut producing areas
- ACEF – with specific tariffs ploughed back to the affected subsector
- Sale of non-performing assets of government
- Bilateral and multilateral financial arrangements – with global partners interested in financing rural development programs.
- Agricultural land use conversion taxes – to be jointly implemented by National Government and LGUs
- Specific taxes on biofuels, ethanol and coconut methyl ester
- Cost recovery charges – users of water provided by watersheds, quarrying, share from ecotourism receipts
- Private contributions of industries for R&D, e.g. the Philsurin model for sugar and the Philippine Coconut Research and Development Foundation

5.0 Next Steps

Philippine Agriculture 2020 is a work in progress. While the philosophy, pillars, goals, enabling strategies and general directions are clear, several steps need to be made to push us closer to our vision.

5.1. Improvement of the PA 2020 Draft

The first set of steps will be technical in nature, focused on improving this draft.

1. The first step would entail the completion and review of the cluster strategic plans and logical framework. Putting together the documents needed using a new philosophy, goals and pillars has been a challenge to our team of hardworking scientists and agricultural stakeholders. The cluster approach itself is a big shift from the usual focus on commodity divisions. We also need to beef up the estimates of the levels of investments from both the public and private sector. The overall favorable response of the ASM to the PA 2020 efforts will provide the extra push to keep our volunteers focused on this work.

2. The second step will be to draft the financial strategy that will harness the resources to implement PA 2020. This issue represents the most obvious gap in the promulgation of PA 2020. The PA 2020 team needs to entice new members to provide this expertise because it is not a usual qualification of our current group of largely agricultural scientists.

3. As the PA 2020 team will be carefully listening to the views expressed during this Annual Scientific Meeting of the National Academy of Science and Technology in July 2005, the second step will be to commission specific studies on problematic issues raised in the ASM.

All these activities will result in the rewrite of the draft main report.

5.2. Democratic Consultation and Approval

The second set of steps will be political in nature, as it seeks the participation, comments and endorsement of stakeholders, and the approval of the highest officials of the land.

1. A series of round-table discussions will be scheduled with representatives of concerned departments, the private sector from small-land holders to large agri-businesses, and civil society leaders.

2. This document will then be presented to the Secretaries of Agriculture, Environment and Natural Resources, Land Reform, and Science and Technology.

3. NAST will then present PA 2020 to the President and the Cabinet.

4. Simultaneously, the congress will be consulted on draft legislation that will emanate from the proposals of PA 2020. NAST and the now-expanded PA 2020 team will shepherd these bills through the public hearings in both Houses.

5. Parallel moves to present PA 2020 will be made to the people in different regions. This will increase public awareness of the directions agriculture will not take, and to encourage local communities and governments, corporations, producer groups, POs and NGOs to buy into the program.