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Working Paper

How Modern is Philippine Agriculture and Fisheries? Synthesis Report

PIDS Discussion Paper Series, No. 2022-25

Provided in Cooperation with:

Philippine Institute for Development Studies (PIDS), Philippines

Suggested Citation: Briones, Roehlano M. (2022) : How Modern is Philippine Agriculture and Fisheries? Synthesis Report, PIDS Discussion Paper Series, No. 2022-25, Philippine Institute for Development Studies (PIDS), Quezon City

This Version is available at:

<https://hdl.handle.net/10419/284562>

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Roehlano M. Briones



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How Modern is Philippine Agriculture and Fisheries? Synthesis Report

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September 2022

Abstract

The agriculture and fisheries sector has been expanding over time, albeit within the overall context of structural change in the Philippine economy. However, based on progress made in other similarly situated economies, growth and productivity trends have not been “on track.” While considerable progress has been made over the past quarter century in terms of growth of household income and reduction among agriculture and fisheries households, though the recent pandemic will likely have reversed some of the gains. Dimensions of food security which are on track are food availability, although improvements in hunger incidence and food utilization measures lag behind other Southeast Asian countries. The state of ecosystems and natural resource base for AF is arguably worse today than in the late 1990s.

To address these modernization gaps, the following strategies are recommended: Expenditure programs based on distortionary subsidies should be terminated, to give way to funding projects under a modern agri-food industrial policy. Expenditure programs should support strategic interventions under a modern industrial policy for the agri-food system. This industrial policy should apply the area-based, bottom-up planning, synthesized in the Agriculture and Fisheries Modernization Plan (AFMP), in determining strategic interventions to meet the needs of farmers and rural enterprises along the value chain. To address sustainability, an ecosystem approach to sustainable development of agriculture and fisheries should be adopted. Management of the AFMP should be results-based, with progress monitored by a PBMES.

Keywords: agricultural modernization, market-orientation, industrial policy, farmer welfare, food security, sustainable development, value chains

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How Modern is Philippine Agriculture and Fisheries? Synthesis Report

Roehlano M. Briones¹

1. Recap of the research questions

The past ten chapters have assessed progress made in modernizing agriculture and fisheries, the primary aim of the AFMA. The introductory chapter lays down the plan of the book, provides overview of AF modernization trends, develops a conceptual framework, and reviews previous studies on AFMA implementation and accomplishment. How the law expects to bring about AF modernization about is explained as an implicit Theory of Change in which AFMA strategies, driven by a market approach, seeks to overcome a set of macro, meso, and micro constraints to modernization.

The second chapter meanwhile focuses on respective roles of the state and of markets, to frame the discussion around the objective of pursuing the market approach. The third chapter addresses micro constraints, at the level of the farm, which AFMA seeks to transform from being “resource-based” to one that is “technology-based”. Chapters 4 and 5 focus on meso level issues: small farmers and fisherfolk (SFF) are envisioned to gain empowerment through formation of People’s Organizations (POs), and economies of scale by consolidation. Chapters 6 and 7 address macro level issues: AFMA aims at modernization of the entire agricultural value chain leading to lifting AF up the value added ladder, and spreading industries to rural areas. Overcoming micro, meso, and macro constraints lead to the intended impacts of AF modernization, namely higher income of SFF (Chapter 8), and improved food security (Chapter 9), while protecting the environment (Chapter 10).

The subject matter of each chapter is interrogated in terms of the following key research questions:

- *How far has the process of agriculture modernization gone? Is modernization on track, ahead of expectation, or lagging behind?* Each chapter assessed the progress of the AF sector in attaining objectives of the AFMA, based on available evidence and quantitative indicators. Constraints to attaining modernization objectives were discussed to account for the pace of progress or lack thereof.
- *What are the future prospects for continuing or completing the task of AF modernization?* Based on constraints and opportunities that have determined the past pace of progress, the chapters assessed as well as the prospects for future agriculture and fisheries modernization.
- *Given real-world developments in the past twenty-five years, what elements of the AFMA framework/objectives remain relevant, and which need to be updated?* A careful examining of real-world developments over the past twenty-five years offers an opportunity to review AFMA provisions and discuss how the law may need to be updated in light of these developments.
- *What types of policies are needed to ensure AF modernization?* Based on the foregoing analysis, strategies going forward to facilitate the attainment of the AFMA objectives were discussed.

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This synthesis report seeks to answer these questions in summary form, based on the analysis of the previous chapters.

2. Progress in agriculture and fisheries modernization

2.1 Overview

The AF sector has been expanding over time, albeit within the overall context of structural change in the Philippine economy. AF output has been growing as part of the overall expansion of economic activity. Economic growth in the Philippines conforms to the stylized fact of structural change, in which the relative share of agriculture in output and factors of production declines over time, giving way to industry and services. Nonetheless, growth in output has been driven in part by growth in agricultural productivity, whether defined as land productivity (yield), labor productivity, or total factor productivity (TFP). Productivity has been improving a result of new technologies such as improved seeds, improved animal breeds, better drugs, improved management practices, and the like. These trends suggests that AF has indeed been modernizing.

Based on progress made in other similarly situated economies, growth and productivity trends have not been “on track.” During the 2010s, growth in Philippine agriculture has fallen behind the average of developing countries. Fisheries began its long-term decline, while livestock has been reeling from a massive productivity shock due to animal disease. TFP and labor productivity in agriculture have been increasing, but at a slower pace than in other countries. Growth of TFP ranges from mediocre at best and negative at worst. In short, AF has been modernizing, though progress has been slow compared with neighboring countries.

2.2 Pursuing the market approach to agricultural policy

Evolution of the policy regime

Agricultural policy has made considerable progress in adopting the market approach since the mid-1990s. A key policy declaration of AFMA (called an “objective”) is adoption of the market-driven approach. This was the latest step in the transition out of the regime of intense state intervention adopted by the newly independent Republic of the Philippines back in 1948. Initially that policy regime, widely referred to as “import substitution industrialization”, inflicted a net penalty on export-oriented agriculture; by the early 1990s though, the policy regime had evolved to protect import-substituting agriculture.

From the mid-1980s however, a reform initiative was already underway against legacy policies from the import substitution era as well as the Martial Law period. Accession to WTO, and subsequently AFMA itself was the decisive break in favor of market reform in agriculture.

Nonetheless, state intervention remains pervasive in agriculture, most prominently in the form of market price support using import barriers. The inability of government to commit entirely to a market approach is by no means unique to the Philippines. There are few if any exemplars, anywhere in the world, of a pure market approach, especially for agricultural policy. Rather, countries follow a policy trajectory motivated by a food problem at early stage of development; a disparity problem at the middle stage; and a farm problem at the late stage. As a middle-income economy, the Philippines is currently addressing the

disparity problem, marked by inconsistent and incoherent policies resulting from pressures of contending interest groups.

Review of agricultural policies

With respect to public-sector enabling policies, some provisions of AFMA were implemented, while others were done poorly, or did not benefit SFF. For agricultural planning: AFMA introduced an area-based approach to agricultural development planning, called SAFDZs; however this was not actually used in government plans and programs, as the zoning process became heavily politicized and the resulting delineations technically unsound. AFMA is replete with planning and implementation inconsistencies. Agriculture and Fisheries Modernization Plans (AFMPs) have been formulated, but it is difficult to establish how AFMPs have actually affected DA budgets and programs. Rural nonfarm employment initiatives mandated by AFMA did not take off, probably because DA did not perceive that such programs were within its mandate.

The current version of the AFMP is the National Agricultural and Fisheries Modernization Plan (NAFMIP) 2021 – 2030. It is a trans-administration directional Plan, anchored on AFMA, towards inclusive food and nutrition security with empowered farmers and fisherfolk via agri-fishery industrialization (DA, 2022). Its components cover: a Commodity Systems Plan; a Regional Plan; and a Functional Plan. The latter covers a set of functions under the overarching “Steering Function” of DA, namely:

- Formulation of policies, plans, advocacy, and results-based monitoring and evaluation;
- Development of regulations and standards
- Supporting credit, insurance, and financing facilities;
- Facilitating agribusiness and market development, and transformative agricultural information systems;
- Promoting private Investments and agri-fishery organizations
- Investing in infrastructure, mechanization, and facilities for commodity systems
- Investing in capacity development
- Research, Extension, and Training for Development

As written, the NAFMIP appears to remedy the gaps found in previous AFMP; however, it was prepared by the out-going Duterte administration, hence it now falls on the current administration to implement the Plan.

AFMA did reinforce an on-going, market-oriented reform in the agricultural credit system, which has resulted in greatly expanded access to formal finance. Credit constraints are an important factor behind low productivity at the farm level. There remains a sizable proportion of SFF who rely on self-finance and informal finance of farming and fishery activity. Starting 2018, government began a subsidy-based set of credit programs, supported by risk mitigation schemes such as premium-free agricultural insurance. Financial sustainability of these schemes remain dubious in the face of continuing poor uptake of formal debt on the part of numerous SFF. Trade and fiscal incentives under AFMA were provided; product standards for agriculture and fishery products were developed; and market support was a service offered by DA.

However, market reform in credit was offset by enactment of mandatory credit allocation under the Agri-Agra Law, and later by a subsidized credit scheme under Production Loan Easy Access and related programs. Product standards remain voluntary, except for food safety standards which were made mandatory under RA 10661 (the Food Safety Act). Information and marketing service provisions of AFMA remain underprovided. Applicants for fiscal incentives were mostly large private companies rather than SFF enterprises.

As for expenditure support was skewed towards commodity-based programs, irrigation for rice, and subsidies for inputs, equipment, and postharvest facility. Input and equipment subsidies are inefficient instruments to promote AF competitiveness, and are directed towards private goods. Irrigation support is likewise limited to rice and has been prone to inefficiencies. Lastly, farm-to-market roads, and market infrastructure projects, have had a mixed record on effectiveness.

A “market approach” to expenditure support would look very different from the current programs: market-friendly expenditures will instead be skewed towards subsidies that address market failures, namely provision of public goods such as agricultural innovation, addressing externalities such as agri-pollution and contagious disease, asymmetric information such as moral hazard in finance, and coordination problems related to economies of scale and scope in initiating new activities along the value chain. An authentic market approach is described in greater detail in Sections 3.1 and 4.2.

2.3 Overcoming micro and meso constraints

Farm level

At the farm level, some productivity growth has been observed, but the pace has fallen behind that in other countries. A key farm level constraint is level of technology. Advances in productivity have been observed in Philippine agriculture, especially in rice and corn. However, progress has fallen behind other countries, whether with regard to outcomes (overall TFP growth, as mentioned earlier), or inputs (RDE funding). Moreover, governance problems prevailing in the RDE system had gone largely unaddressed post-AFMA. Overlaps in research function continue to persist. Given the research fragmentation, the overall impact of research and its attributions to the national goals is difficult to estimate.

The extension function has been fragmented largely owing to devolution to LGUs. For its part, LGU extension suffers from the lack of funding and human resources. Competencies and pay structure of extension officers and workers vary widely across LGUs. Many lower income municipalities offer salaries below those of large cities. Provision of technical assistance is poorly integrated with essential regulatory functions, such as biosecurity enforcement; this became evident during on-going struggle against ASF. Moreover, extension programs persist in spending for distribution of private goods, such as hybrid seeds and machinery.

The identification of municipalities and cities as the locus of frontline service delivery was overly optimistic. In practice, municipalities have not been able to assemble the needed human resources and physical infrastructure necessary to address both short-term emergencies (e.g., pest and disease outbreaks) as well as long-term deficiencies (e.g., unsustainable farming in uplands). Furthermore, there remains a need for national level coordination of extension. Despite lack of explicit legal mandate, the ATI of DA exercises this on de facto basis as the national extension agency. However, it lacks the authority to

standardize policies, such as worker qualifications, pay scale, merit and promotion systems, and other requirements of a well-run extension bureaucracy.

Community level

Farmer and fisherfolks are well-represented in the governance system, but public assistance remains limited in scope. A review of empowerment provisions of AFMA found that government has indeed been adopting the corresponding programs and policies. Farmer and fisherfolk representation is well entrenched in various governance systems, such as local development councils, up to the regional level. As a result, budgetary outlays for agricultural production support have followed a long-term upward trend. However public sector interventions remain limited in scope, and have yet to reach the large majority of SFF. Farmer representation tends to be marginalized” in plan and program formulation, with prioritization of projects and programs still being monopolized by government officials.

In 2011, less than a fifth of farmers were found to be part of an economic enterprise such as a farmer cooperative. One reason is that community organizing (CO) a difficult and costly exercise. Neither can government address this directly, as it tends to be a poor provider of CO services; LGUs are constrained by lack of human resources and vulnerability to patronage politics.

While small-scale informal operations dominate AF activities, some consolidation towards economies of scale have been observed in formal sector. Farm and fishery production is still mostly conducted in the informal sector at a small scale; there is however an active formal sector conducted at varying scales. Survey data on formal sector shows that consolidation has already progressed far, based on measures of horizontal integration. In terms of vertical integration though, the formal sector in agriculture has not undergone as much consolidation, except for poultry. Over time, horizontal integration has been rising for fisheries, but decreasing for crops, with no clear trend for livestock and poultry. Meanwhile, vertical integration has been increasing over a broad range of sub-sectors in agriculture. Unfortunately there are no benchmarks for comparison to determine whether the rate of horizontal and vertical integration is consistent with the original intent of AFMA towards consolidation and achieving economies of scale.

2.4 Overcoming macro constraints

Industry level

Major agricultural industries have been transitioning away from traditional systems, but none have attained to the status of a modern value chain. AFMA emphasized the need for AF sectors to “ascend the value-added ladder”, that is the minimize marketing traditional products in raw form, preferring instead the marketing of processed forms. Hence the “value chain approach” now popular in agricultural development thinking was already expressed in nascent form by AFMA. Chapter 6 of this book posits a typology of stages of value chain development as follows:

- **Traditional:** SFF in small family farms, devoted to local staple production and distribution; spot markets in all segments; chains fragmented and linkages short; no food safety standards
- **Transitioning:** SFF remain dominant, while commercial small-medium size producers emerging; crops undergoing diversification; products becoming processed and

packaged; disintermediation; urbanization; traders take large shares of value-added returns

- **Modern:** close interlinkage from farming to consumer markets, with fair degree of control over input supplies and marketing channels; dual small and large or commercial farming more processed and packaged (partly imported) food that is distributed through supermarkets and restaurants.

Case studies of value chains in the Philippines find that major food commodities such as rice, corn, livestock and poultry, and milkfish, are transitioning. The remaining fragmentation prevents ascent of the value added ladder; hence, for instance, corn remains only weakly integrated with downstream livestock and poultry. Meanwhile the milkfish industry is transitioning to a modern value chain, despite upstream bottlenecks in the supply of fingerling and feeds (the latter again affected by high cost of corn). Processing of milkfish products suffer from lower value addition owing to lack of private investment. Lastly, tuna is a mix of transitioning and modern value chains. The industry is affected by depleted fish stocks within the Philippine EEZ, forcing the most modern fishing vessels to operate overseas. Small and medium producers are still largely outside the cold chain, and the segment capable of complying with international standards. As a result, the large tuna processors (based in General Santos City) are often operating below capacity.

Economywide level

While AFMA situated AF modernization within a broader process of rural development, in reality industrial development remains heavily concentrated. AFMA understood AF modernization as part of a broader process of structural transformation involving the dispersal of industry to rural areas. The actual record of the country in terms of industry dispersal is however wanting. Industries remain heavily concentrated in the highly urbanized regions, namely NCR, CALABARZON, and Central Luzon. By various indicators, industry dispersal lags behind its ASEAN neighbors.

The slow pace of industry dispersal is a result of political, economic and technological factors, combined with the path dependent trajectory based on past investment and migration choices. Political factors involved policies up the 1980s, that were heavily biased against agriculture. Even the policy shift towards export-oriented industries in the 1970s ended up strengthening the bias towards capital-intensive sectors, which were mostly located in cities. Past policies interacted with economic factors, namely agglomeration economies that tended to favor urban concentrations with self-reinforcing cycles of investment, market size, and migration. Lastly, technological factors were also operative in constraining the dispersal of industries, as technologies tended to diffuse gradually to the countryside.

2.5 Impact of agricultural modernization

Income

Considerable progress has been made over the past quarter century in terms of growth of household income and reduction over among AF households, though the recent pandemic will likely have reversed some of the gains. The primary measure of economic well-being is household income. Changes in behavior and institutions associated with modernization will typically be motivated by the desire to achieve increases in income in the long run. In fact, since the late 1990s, income among farm households had been increasing, while poverty had been falling, at least up to 2018. Between 2015 and 2018, the magnitude

of poor farmers and fisherfolk declined by 35.5%, from 4.14 million persons, down to 2.67 million persons.

Nonetheless, poverty remains relatively high among farmers and fisherfolk; as of 2018, poverty incidence among farmers was estimated at 31.6%, while that among fisherfolk was 26.2%. Compare these with population estimates of 16.6% the same year. Currently, owing to the pandemic, all those poverty rates are likely to be higher today, including among SFF.

Food security

Dimensions of food security which are on track are food availability, although improvements in hunger incidence and food utilization measures lag behind other Southeast Asian countries. Food security in Philippines has shown significant improvements since the late 1990s. In terms of food availability, domestic supplies have been adequate. Indeed per capita food availability has been on a consistent upward trend notwithstanding population growth. Hunger incidence has likewise been on a decline, while the number of food secure households have been increasing over time.

More problematic are indicators related to **accessibility** and **utilization**. Philippines lags behind other countries in Southeast Asia in various malnutrition indicators, such as childhood stunting. Much malnutrition results from deficits suffered by individuals from the womb, through to infancy early childhood, as seen in poor maternal health, low levels of exclusive breastfeeding, and inadequate dietary quality. This results in part from low affordability of nutritious food, though behavioral causes and knowledge deficits are also implicated.

Environment

The state of ecosystems and natural resource base for AF is arguably worse today than in the late 1990s. For fisheries, various studies have shown that certain regions suffer from low population abundance and low catch per unit effort, especially in the Visayas region, likely resulting from intense fishing effort, prevalence of IUU fishing, rising water pollution, habitat destruction, and climate threats. As a result, capture fisheries have suffered a decline over the past decade, pulling down overall growth of the AF sector. With respect to crops, the expansion of upland farming has contributed to loss of forest cover, and soil erosion affecting fertility of topsoils; the eroded soils end up affecting river systems and the coastal zone, causing siltation problems and habitat loss. In lowland farming, some crops are associated with excessive fertilizer usage and nutrient leaching, causing groundwater and some surface water contamination. However an even larger source of surface water pollution is livestock wastes, particularly from the hog industry.

3. The AFMA law in retrospect

3.1 Market and state in agricultural policy

Provisions of AFMA remain highly relevant in the modern agri-food systems, although the formulation of the law and subsequent implementation represent numerous missed opportunities for AF modernization. Developments in the agricultural economy and agri-food system over the past quarter century highlight the continuing relevance of various AFMA provisions, which were phrased based on the understanding of rural development and the trajectory of agri-food systems current at the time. The same developments however underscore the numerous missed opportunities in framing the law, together with the

accompanying implementing rules and regulations (IRRs), and especially in the subsequent implementation and enforcement.

The market-driven approach of AFMA matches the need of today's agricultural economy although the concept of "comparative advantage" should be sharpened. As cited earlier, the AFMA Objective (Section 3) on market-oriented policy states: "To pursue a market-driven approach to enhance the comparative advantage of our agriculture and fisheries sectors in the world market." While the market-driven approach remains highly relevant today's modern agricultural economy, the justification is not to "enhance comparative advantage", as the AF sector as a whole no longer has comparative advantage, the Philippines having been a consistent net importer since the 1990s. Rather than leaving this misleading impression, the wording of the law should have been crafted with greater care about the true extent and nature of market adjustment. Comparative advantage is not a concept to be applied to AF as a whole, but rather to specific sub-sectors of AF, which emerge as a result of the free operation of the price system. Comparative advantage underpins the economically rational patterns of specialization at the international level: a country will tend to specialize and export goods they can produce at lower comparative cost, while importing goods that are produced at lower comparative cost elsewhere. The AFMA should have strengthened the encouragement for farmers to shift to more profitable crops or products as a result of market reforms.

The market-driven approach may be updated to implement a modern industrial policy to address market failures in the agri-food system. The traditional notion of a "market-driven approach" was the correction of policy distortions as identified by the Washington Consensus. This emphasis remains valid and highly applicable in view of the numerous remaining policy distortions as described in Chapter 2. However restraints on government action inherent in a market-driven approach is now recognized to offer incomplete guidance for industrial policy towards economic development. The new thinking on industrial policy, post-Washington Consensus, views development as a path-dependent process that may not be entirely entrusted to market forces. The process is riddled with coordination and information externalities, i.e. the need for complementary capabilities among in-country workers (Kremer, 1993); development as self-discovery (Hausmann and Rodrik, 2003); and similar arguments.

Felipe (2015, p. 6) explains this new thinking as follows: "Modern industrial policy also entails sector selection (training a particular type of engineer or building a particular road, for example). However, the strategies used to select sectors have a clear rationale and the tools to promote them are stage- development dependent and linked to performance measures; that is, they are allocated according to the principle of reciprocity and given in exchange for concrete performance standards. Modern industrial policy also has a clear objective: to address the typical market failures that many firms face in the discovery of new activities in which they may thrive and that may ultimately lead to an economy's transformation."

The principles of modern industrial policy are already in place for manufacturing, judging by policy statements of the DTI in relation to the Philippine Manufacturing Industry Roadmap (Aldaba, 2014). However modern industrial policy should apply as well to the agri-food system (which indeed encompasses a significant of manufacturing, namely agro-processing industries). Successful cases of modern industrial are discussed in the Box.

3.2 Overcoming micro, meso, and macro constraints

At the farm level, AFMA could have accelerated technical progress by addressing fragmentation of the R&D and extension system. Technical change objective, R&D provisions remain relevant. The R&D sector unfortunately remained fragmented notwithstanding AFMA's mandate to consolidate the sector under the leadership of DA and coordinated by CERDAF. The latter should have been activated and given budget approval powers, to force member agencies to integrate their respective R&D agenda.

Governance of agricultural extension was set by the LGC, whose shortcomings went unaddressed by AFMA. Devolution down to city/municipal level may have resulted in excessive fragmentation of extension services, nullifying potential benefits from decentralization such as greater accountability and shorter lines of communication from client to service provider. AFMA attempted to remedy this in part by assigning provincial LGUs the task of coordinating among the city/municipal LGUs within its jurisdiction. However, it is unlikely that this such coordination is effective, given that city/municipal programs remain under the supervision of the city/municipal mayor, with budgets approved by the Sangguniang Bayan.

Mapping of agricultural zones should implemented purely as a technical process, to be used as reference for local AFMPs. The area-based approach of AFMA could not be followed owing to failure to properly define SAFDZs. "In practice, the delineation of the SAFDZ was left much to the LGUs to carry out (Dy et al, 2008, 4.3-36)." This heavily politicized the zone delineation, and allowed LGUs to bloat the size and scope of "strategic" zones. Instead, SAFDZ mapping should have been determined by technical experts based on criteria already mentioned (see Chapter 1). Only the local AFMPs need approval from local political actors, consistent with the AFMA IRRs.

BOX

Case studies of successful industrial policy in the agri-food system

Salmon industry in Chile. The salmon export industry in Chile, from inauspicious beginnings in the early 1980s, grew to one of the top export industries in the country, with productivity levels similar to the largest exporter (Norway). Two-thirds of exports involve value added products, namely fresh and frozen fillets. The creation of the industry has generated strong backward linkages, such as manufacture of fish farming cages, manufacture of feed, vaccines, and antibiotics; quality monitoring services; and insurance. Back in the 1970s, private investment began with funding from CORFO (a public development agency) and the leadership of Fundación Chile, a nonprofit founded by the Government of Chile and ITT Corporation, USA (the former International Telephone and Telegraph). Joint actions of private sector and public agencies contributed to strengthening of the cluster through R&D (supported by public funds) and export promotion. Foreign investors have as well facilitated new technologies such as automated fishing and fish-counting. Government agencies also prepared a favorable business climate by assigning coastal concessions, monitoring of sanitation and hygiene; regulations are typically undertaken in partnership with the private sector, such as in standard setting and compliance.

Palm oil industry in Malaysia. Malaysia is the world's 2nd top producer of palm oil. In the 1960s, the government initiated a diversification strategy away from the then-traditional

primary industries, namely tin and rubber. Expansion of the new cash crop – oil palm – was accompanied by a massive resettlement program for rural landless households, together with investments in processing through Export Processing Zones incentivized by tax breaks. Large rubber estates were converted to smallholder plantations, over half of which were governed by schemes managed by the Federal Land Development Authority (FELDA). Public intervention was also key in supporting development of overseas markets, R&D, and regulatory systems. The Palm Oil Research Institute of Malaysia focused on innovations aimed at productivity enhancement and value added products; product promotion fell under the Malaysian Palm Oil Promotion Council. The Palm Oil Registration and Licensing Authority (PORLA) was in charge of ensuring compliance with quality standards. Malaysia has also pioneered in the development of halal certification, extending to the palm oil industry and beyond

Source: Kjollerstrom and Dallto (2007).

The empowerment objective should have included a mandate for government to engage in community organizing in partnership with the private sector. Achieving the empowerment objectives requires more explicit mandate for government to establish POs towards consolidation along value chains; however this should be done in partnership with private sector, both for-profit and non-profit, who have track record in community organizing and small business development.

Consolidation to realize economies of scale should have stated preference for developing social enterprises involving SFF. The law viewed consolidation quite favorably in terms of economies of scale; however this unqualified endorsement covers for-profit enterprises where decision-making power is concentrated in the hands of wealthy private investors. The “economies of scale” here would then carry worrisome implications for anti-competitive practices affecting farmers and consumers. Instead the provision should have introduced a preference for social enterprises such as cooperatives and worker associations whose membership is drawn from SFF.

Ascending the value-added ladder focused narrowly on the transformation of AF products, rather than for MSMEs engaged elsewhere in the value chain. With DA as lead agency for AFMA implementation, it was inevitable that the agency would focus on its core mandate of agriculture and fisheries productivity, and direct agricultural services such as irrigation, plant propagation, artificial insemination, and the like. However more remote components of the chain, such as food processing, storage, transport, and marketing, were left to other agencies, such as DTI. The missed opportunity here was to mandate (by Executive Order, or even by law) an inter-agency collaboration involving DA, DAR, DTI, and perhaps other agencies such as DOF (for Land Bank and Philippine Crop Insurance Corporation), DOST, Department of Information and Communication Technology (DICT), and TESDA (Technical Skills Development Authority).

Aside from promotion of the value adding, no explicit strategies were identified for achieving rural industrialization based on SMEs. Regional development initiatives are encapsulated by Regional Development Plans, as informed by the the National Spatial Strategy under the Philippine Development Plan 2017 – 2022. There are also fiscal incentives as specified in the Investment Priorities Plan (IPP), in which agribusiness is perennially a favored industry. Export processing zones have also been dispersed nationwide. However an

explicit policy of supporting rural industries in the form of MSMEs has not been well articulated.

Income goals become prominent in DA agenda only recently, with the current goal of doubling farmers' income. The various DA programs, including past AFMPs, have tended to emphasize production growth targets, especially among the major commodities. Only since 2019 has DA adopted explicit income targets for farmers, under the catchphrase “Ani at Kita”, seeking a doubling of farmers’ income – a goal that is expressed as well in the second Sustainable Development Goal. Historically, little attention was paid to diversification at the farm household level towards higher income opportunities.

AFMA maintained the self-sufficiency interpretation of food security, in conflict with the affordability dimension. AFMA already included a progressive concept of food security, including food affordability, and acknowledging imports as an instrument to realize better food security. However, inconsistently, it establishes self-sufficiency in rice and corn as key objectives in attaining food security. It also missed providing a stronger emphasis on nutrition, and the related dimension of food utilization, despite the fact that adequacy of food intake is best gauged in relation to the norm of a nutritious diet and healthy lifestyles.

AFMA motivated further reforms and programs for sustainable AF, but subsequent laws have failed to address national land use policy and integrated ocean and water resource management. AFMA is primarily not an environmental law, although it did provide the underpinning for subsequent laws that did provide for proper resource management and environmental protection, including the Fisheries Code, the Clean Water Act, and the Climate Change Act. However there remains no omnibus law to govern overall land use, nor an integrated ocean and water resource management, for sustainable development of terrestrial and marine ecosystems.

4. Agriculture and Fisheries Modernization: the Way Forward

4.1 Prospects for AF modernization

Past trends are expected to continue, implying persistent modernization deficits, unless action is taken to bring AF modernization back on track. In pursuing the market-driven approach, the expectation is that policy inconsistencies, and reversals from market orientation, will continue even in the long term, following the food-disparity-farm problematique. There is little indication of dramatically accelerating productivity growth. SFF have thus far possessed limited voice, as most farmers that remain unorganized. The dual structure in the countryside, consisting of a vast informal sector coexisting with a small formal sector characterized by increasing consolidation, will likely persist. The full modernization of agricultural value chains will remain perpetually elusive.

SFF will probably experience lower rates of poverty and malnutrition within the decade, but unlikely see eradication of the worst forms of poverty and malnutrition by 2030. Climate-related shocks, decline of wild populations, and biodiversity loss, will punctuate the continued deterioration of ecosystems and the natural resource base of AF.

Drastic action needs to be taken at once, given that many of the contemplated reforms may take years for the outcomes to materialize. Ideally, the various desired outcomes should be matched with the interventions that will bring about the outcomes. For some types of outcomes the intervention matching may be straightforward; for instance, identifying a native pig breed with rapid growth requires a selective breeding program performed by a public agency (such as an SUC). Other outcomes may be more difficult to match to interventions,

e.g. closing the yield gap in rice farming involves a more complex set of actions of public sector, private sector, and farmers. The following actions are proposed, together with a concluding recommendation involving the monitoring and evaluation system for follow through.

4.2 The market approach in agricultural modernization

Elements of the traditional industrial policy inconsistent with the market approach should be abandoned. Notwithstanding the pessimistic political economy assessment, it is still worth reiterating that past reforms should be sustained, and future reforms should be implemented. The Rice Tariffication Law should be kept firmly in place, notwithstanding strong political lobbying for its repeal. Remaining quantitative restrictions in sugar and fisheries should likewise be terminated.

Producer support in the form of elevated price policies should be abandoned in favor of expenditure programs. Favorable price policies are mainly implemented by persistently high rates of protection for key commodities, namely rice, maize, sugar, meat products, and fish. These protections may still be justified had these been made conditional and time-bound on reaching competitiveness (such as parity with world prices), but in fact the protections are extended without such conditionalities, and into the indefinite future. In lieu of such price policies, producer support should be delivered instead in the form of expenditure programs.

Expenditure programs based on distortionary subsidies should be terminated, to give way to funding projects under a modern agri-food industrial policy. While the preferred method of support should be expenditure programs, not any type of expenditure program will pass muster under a market-driven approach. Contra-indicated are subsidy schemes towards machinery, postharvest equipment, planting materials and seeds, fertilizers, and irrigation services, often structured to reinforce long-standing commodity biases, primarily for rice.

Expenditure programs should support strategic interventions under a modern industrial policy for the agri-food system. Modernization at the level of the value chains requires strategic interventions. Government funding should be provided conditionally against the following desired outcomes: supporting innovations to lower cost and achieve global competitiveness; building capacity of farmers to diversify economic activities, and comply with quality standards; consolidating/coordinating deliveries to ensure throughput and economies of scale in processing and logistics; and encouraging/facilitating investment in large-scale facilities. Specific elements of the new industrial policy for AF modernization are discussed in the remainder of this Section.

4.3 Overcoming constraints to AF development

Micro level

Transforming farms from resource-based to technology-based activities requires reforms along the entire R&D and extension continuum. In the first place, greater investment in public agricultural R&D and extension is needed, up to the level required by AFMA (1 percent of agricultural GVA for R&D, and another 1 percent for extension).² Much

² The technical language of the law requires an estimate based on the

of the additional funding should be used to build qualifications of and incentivize research staff in public R&D agencies. However, equally critical is to reform the **governance** system of the entire agricultural innovation system to ensure that additional funds are deployed effectively. This is further discussed in Section 4.5.

Meso level

Apply the area-based, bottom-up planning in determining strategic interventions to meet the needs of farmers and rural enterprises along the value chain. The original intention of AFMA was undertake planning that is initially agnostic about commodity allocations, adopting rather geographic units as basis for strategic interventions, with the nature of intervention and size of allocations to depend inherently on agro-ecological and socioeconomic criteria, as listed in Chapter 1. This was the starting point of the AFMA itself. As such, **banner commodity programs should be transitioned out in favor of area-based plans and programs.** In this way conundrums facing commodity programs in supporting diversified livelihoods, and multi-product cropping systems, can be resolved in favor of demand-driven opportunities and long term comparative advantage.

Zoning is implemented at a meso level, encompassing communities, towns, provinces, and even regions. This introduces a bottom-up approach to planning, in contrast to top-down planning as is present in the commodity programs. Zoning should be done independent political units, as agro-ecologies and value chain corridors may transcend barangay, municipal, and provincial boundaries.

Based on strategic zones, pursue a program of consolidation anchored on SFF enterprises in partnership with agribusiness investors. The small family farm set-up faces considerable disadvantages in realizing a modern AF, as understood by AFMA itself, and recently documented in World Bank (2021). The small family farm orientation is consistent with a focus on farm productivity, coupled with benign neglect of marketing and other activities that create value. However, a policy that acknowledges the role of value chains forces a re-evaluation of the future of small family farms.

Government needs to take seriously the organizational requirements of consolidating farm and value chain operations. This entails: a) formation of organizations, starting at the community level, then higher in multi-branch cooperatives, and cooperative federations; b) strengthening capacity of POs, both as institutions and as engines of profit-generation at the grassroots. The latter includes the oft-mentioned need to “professionalize” these organizations, i.e. to make them operate by accepted business principles, with personnel behaving according to professional standards.

To accelerate consolidation, raise the ceiling on agricultural landholdings. Various government programs such as F2C2, SRA block farms, and so on, are attempting to enforce consolidation of value chain functions such postharvest processing, packaging, logistics, and manufacturing. Actual consolidation of land ownership remains off-limits owing to the agricultural land ownership ceiling of 5 ha, imposed by the Comprehensive Agrarian Reform Program (CARP) under RA 6657. No doubt, repeal of the ceiling will allow some ownership consolidation, thereby accelerating operational consolidation. To safeguard against a return of the pre-agrarian reform inequities, the ceiling may be placed at a fairly low level (say 50 ha, or even lower at 20 ha). This is compatible with realizing economies of scale without risking a return to the large plantation system broken up by CARP.

Macro level

To harmonize agricultural zoning with competing uses of land and other resources, implement a national land use plan and integrated marine spatial plan. Area-based planning based on strategic zones will result in numerous zones and plans across space. Eventually these will need to be all harmonized in the overall spatial plan governing land, water, and other natural resources, across multiple uses (agricultural, residential, and commercial/industrial). At the highest (national) level this will have two aspects: a national land use plan for terrestrial resources; and a marine spatial plan for coastal and offshore resources.

Develop, update, and implement roadmaps for agricultural value chain upgrading and innovation. Currently government is already implementing various roadmaps governing agricultural value chains. One set is implemented by DA, i.e. cacao, coffee, rubber, rice, sugar, hog, etc. Another set is implemented by DTI, e.g. processed fruit, processed meat, processed shrimp, carageenan, tablea, and condiments. These should be updated (as need arises), and spell out a set of strategy and responsibility lines, as well as performance indicators along key result areas. Among the mandatory outcomes within these roadmaps should be **enhanced compliance with national and international safety and quality standards** as well as **accelerated adoption of goods and services innovation**, such as adoption of e-commerce, blockchain traceability, smart agriculture, and other ICT applications.

Generate synergies from the parallel implementation of AFMA and the National Innovation Agenda and Strategy. The Philippine Innovation Act of 2019 (RA 11293) places innovation “at the center” of development policy, and that that policy “shall harness innovation efforts to help the poor and marginalized and to enable micro, small, and medium enterprises (MSMEs) to be a part of the domestic and global supply chain (Section 2. a)”. The law also provides for the formulation of a National Innovation Agenda and Strategy Document. Opportunities to realize synergies that between AFMP and the National Innovation Agenda and Strategy must not be missed.

To facilitate industry dispersal, incorporate a spatial component in the value chain roadmaps. The roadmaps should be firmly anchored on the strategic zones and their agro-ecological and socio-economic profiles. This in turn entails localization of these roadmaps, to ensure that areas outside the main agglomeration centers also catch up in terms of structural change and industrial transformation. The regional and local roadmaps will be able to identify various horizontal support required for industry dispersal (i.e. investments in rural infrastructure) as well as vertical measures to promote regional and provincial agro-industry clusters.

4.4 Achieving AFMA Goals

Enhancing income of AF households

Adopt income growth of a fixed SFF household panel as a key result area for AF modernization. The increase in income of SFF households is a downstream outcome and essential metric of AF modernization. It is difficult to affirm that modernization has taken place, however fancy the technologies and farming systems being disseminated, if the innovations are enhancing incomes of SFF households. However, the increase in income of SFF is a final outcome of a constellation of interventions already described above. SFF

household income is an essential metric in monitoring the efficacy of these various interventions, and possibly making adjustments over time in the allocation and strategies being implemented. **Hence for instance, the M&E system should gauge success not only based on meeting production targets, but elevate income targets as a success indicator.**

Along these lines, the metric of success should be defined for a fixed panel of SFF households from a given baseline. This way, the diversification of livelihoods away from traditional activities will also be treated as a success indicator, as long as the shift results in higher household income. This further reinforces the need to move away from traditional banner commodity programs towards area-based planning (see Section 4.2).

Achieving available, affordable, and accessible food

Harmonize policies and programs towards addressing food security needs of the country in all its dimensions. Rather than persisting in the pursuit of the ever-elusive self-sufficiency in rice and maize, policies and programs related to food security, broadly defined, should now be harmonized into a coherent Food Security and Nutrition Plan. This requires a multi-dimensional, system-oriented perspective. Hence for instance, the current PPAN encompasses nutrition-specific and nutrition-sensitive strategies. Food security interventions should be seen as integral to the latter.

Expand the portfolio of risk instruments available to SFF and consumers to promote resiliency. These instruments include, but are not limited, full import liberalization, indexed insurance, infrastructure restoration fund, climate-proofing, and climate-smart agriculture. Import liberalization is essential, not only to lower long term domestic price, but also to expand options for consumers in the event of a domestic supply shock. Meanwhile resiliency of domestic agriculture will be supported by measures to restore as quickly as possibly the normal functioning of agri-food systems and livelihoods. Hence, an infrastructure restoration fund may be a viable scheme to ensure immediate repair of key agriculture-related facilities such as irrigation systems and farm-to-market access (roads, bridges, tramways, etc.) in the event of disaster. Climate-proofing and climate-smart agriculture prepare constitute advanced preparation for climate extremes, such as extra-strength design specifications for infrastructure; sloping agricultural land technologies; intercropped farming systems; and the like.

Ensuring environmental protection

Adopt, by legislation and in practice, an ecosystem approach to sustainable development of agriculture and fisheries. Rather than **base** AF modernization on a narrow definition of productivity, valuing performance of production systems should incorporate externalities and long term impacts on the environment and resource systems. The term for resource management incorporating these values is the **ecosystem approach**, to be applied to both terrestrial and aquatic ecosystems. This approach requires sophisticated metrics of ecological health and external impacts of production activity, e.g. carbon emissions, extinction rates, population estimates, species diversity index, biological oxygen demand (BOD), nutrient leaching, etc. The ecosystem approach may need to be adopted by appropriate legislation integrating across terrestrial and aquatic resource systems.

4.5 Establish an effective bureaucracy that can implement the AFMP

Redesign the bureaucracy for AFMP implementation at both national and local levels under the leadership of DA. This assessment of AFMA does not include, within its scope, the appropriate governance structure of the bureaucracy for AF development. However, as much of the problems that have been identified relate to governance, redesign of the AF bureaucracy becomes unavoidable.

Undertake a careful study of DA structure to identify optimal design aligned towards area-based planning, agri-fishery enterprise development, and national-local interface. Further study is needed towards the design of the DA bureaucracy as lead. The restructuring should adopt the principle of “organize for results”, i.e. identify the optimal design ensure implementation of AFMP, or in its current version, the NAFMIP. This may entail far-reaching reforms; for instance, the status of the national commodity programs, such as National Rice Program, National Corn Program, etc., is unclear within the NAFMIP. Such redundancies suggest a move towards their abolition.

Among the functional reforms, a priority is the streamlining and upgrading of the R&D and extension system. A coordinating body with effective power over member agencies (e.g. a rejuvenated CERDAF) should take over and streamline R&D and extension planning, monitoring, and evaluation. Moreover, public R&D need not be the sole source of agricultural innovation; rather the innovation system should emphasize collaboration between public and private sector.

As well, streamlining and upgrading should be applied to the extension system. Notwithstanding devolution of extension services, a national agencies (say the ATI) may be empowered to enforce standards for the organization, personnel policies, and funding (up to 1% of agricultural GVA as mandated by AFMA) of the otherwise autonomous local extension units. Moreover, these extension units need not be balkanized to the level of cities and municipalities, but rather consolidated to the provincial level (the highest local government unit available). With such consolidation, autonomous extension units will be capacitated to offer a broader set of services, improve links with the academe and research centers, and accelerate more advanced extension technologies (such as deployment of e-extension). All these extension-related reforms requires remedial legislation amending the LGC.

Adopt a results-based management approach to the AFMP, with implementation monitored by a PBMES. This entire volume is predicated on implementing, to the extent feasible using available data and past research, a results-based evaluation of agriculture and fisheries modernization efforts since the enactment of AFMA. This is precisely the requirement of AFMA itself, with respect to implementation of AFMP: “The Department shall develop the capability of monitoring the AFMP through a Program Benefit Monitoring and Evaluation System (PBMES). In addition, it can secure the services of independent consultants and external evaluators in order to assess its over-all impact. The Department shall make periodic reports to the Congressional Oversight Committee on Agriculture and Fisheries Modernization (Section 18).” However a consistently functioning PBMES has yet to be instituted.

Fortunately, initial steps towards such a PBMES are being taken. One favorable development for the NAFMIP is the conduct of a baseline study, which suggests an intention to establish a monitoring and evaluation system: “Baseline information on the indicators identified to monitor these goals is essential to establish a reference point to which future measures will be

compared. This data will aid in the evidence-based evaluation of the plan's progress, its effectiveness in achieving the intended outcomes, and contributing to the envisioned goals (p. 1).”

It is hoped though that there be follow-through of a serious pursuit of a functional M&E system for the AFMP, however it is called in forthcoming administrations. The concrete recommendations made in this or in previous chapters will only be meaningful when a functional M&E system operates to enforce accountability, first for the lead agency of AFMA (the DA), together with the other key actors who hold a stake in finally achieving a modern agriculture and fisheries for the Philippines.

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