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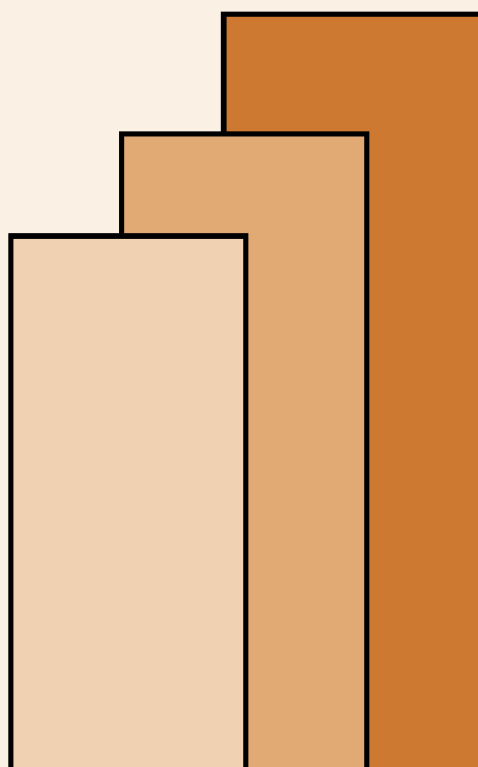
Cristina C. David

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Philippine Agriculture's Institutional Structure of Governance: A Critique*

Cristina C. David**

Introduction

The pervasive impact of the institutional framework on the performance of the economy has increasingly been recognized. Institutions are rules, regulations, laws, and organizations that condition how the market works, and how failures of the market due to externalities, public goods, economies of scale and high cost of risk are addressed. In this paper, we focus our analysis on institutional issues affecting the cost and effectiveness of governance of the agriculture, natural resource and environment sector. It is particularly important to understand the nature of institutional issues confronting the sector to meet the new challenges and exploit the new opportunities created by the agricultural trade liberalization, greater concern for poverty alleviation, greater commitment for environmental protection, and the major devolution of governance under the 1991 Local Government Code (LGC).

The first section characterizes the current institutional structure of governance, its organizational structure, and personnel and budget allocations. The institutional issues constraining effective governance are examined in the second section. In the third and final section, directions for institutional reforms are proposed.

Institutional Structure

The agricultural, natural resource and environment sector is governed at two levels: the national and the local levels. In addition, non-governmental organizations (NGO's) have

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increasingly become actively involved in performing a variety of public sector functions, particularly in relation to environment and natural resource management.

National Level

Governance at the national level is mainly the responsibilities of the Department of Agriculture (DA), Department of Agrarian Reform (DAR), and the Department of Environment and Natural Resources (DENR) and their respective attached agencies. For certain specific functions or programs, other agencies/government corporations are also directly involved. The DOST's Philippine Council for Agricultural Resources Research and Development (PCARRD), Philippine Council for Agriculture and Marine Research and Development (PCAMRD), and Forest Products Research and Development Institute (FPRDI); and selected State Colleges and Universities (SCU's) are involved in the management and conduct of research and development in the sector. The Land Bank of the Philippines (LBP) handles the land valuation and financial transactions related to the land acquisition and distribution aspects of the CARP as well as implements various rural credit programs. The Philippine Crop Insurance Corporation under the Department of Finance manages a crop insurance program.

Department of Agriculture. The DA has overall responsibility for increasing productivity, improving market efficiency and ensuring sustainable growth of the crops, livestock and fisheries subsectors. Its goal is to improve welfare of farmers, fishermen, and other rural workers, through appropriate policies, regulations, and public expenditures for the provision of public goods or support services.

The organizational structure of the DA is a complex mixture of bureaus, administrative services, councils, central level and regional offices, and attached commodity-based agencies and

corporations (Chart I). Attached commodity agencies may have single functions, i.e., agricultural research (Philrice, NAPHIRE), market or technical regulations (NFA, FPA), infrastructure development (NIA for irrigation; PFDA for fishing ports), or a whole range of functions, i.e., research, extension, marketing and other regulatory functions (PCA, SRA, FIDA, NTA, NDA).

Bureaus and other offices are mainly concerned with commodities and functions not covered by those agencies. In the 1987 reorganization of the DA, the bureaus such as the BPI, BAI, BFAR, BSWM were supposed to retain only the staff functions, i.e., development of plans, strategies, programs and projects including their monitoring and assessment, and the line functions or implementation of programs were shifted to the regional offices. In practice, this delineation of functions was not strictly followed as the bureaus continued to perform some line functions such as research, market, and technical regulations.

In 1987 also, the former Bureau of Extension was converted into the ATI, responsible solely for training; the former Bureau of Agricultural Economics was renamed the Bureau of Agricultural Statistics to focus on the generation of agricultural statistics, while the policy analysis office takes over socio-economics and policy analysis; and the Bureau of Agricultural Research was created to coordinate research functions among the various units conducting research within the DA.

There are four councils. The NAFC (crops and fisheries) and LDC (livestock) are supposed to be consultative bodies to link the public and private sectors, but both perform other functions. The NAFC in particular, has been involved in funding production programs, research, livelihood programs that are outside its mandate, mainly because it was assigned the

task of monetizing commodity grants. The ACPC is mandated to formulate credit policies and programs; but has also begun to participate in management of certain credit programs. And the NNC serves to link nutrition, health, and food availability concerns.

For regional operations, the attached agencies are separate and independent of the integrated operations of the regional offices of the DA. Before the devolution the regional offices performed research, extension, regulatory and other field level functions (Chart 1a). With the devolution of extension, most of the regulatory functions, and part of the research operations which accounted for almost 75% of the personnel in the regional offices, the organizational substructure for the region was modified as in (Chart 1b). Regional operations of attached agencies (PCA, SRA, FIDA, NTA, and NIA) remained intact, despite the fact that these attached agencies perform extension and other front-line regulatory functions that should, in principle, be devolved to LGU's.

Under the overall direction of the Secretary of Agriculture, the Department is managed by three undersecretaries (USEC) and three assistant secretaries (ASEC) at the top positions. The undersecretary for policy and planning with an assistant secretary leads a relatively small, somewhat disparate units including the BAS, Planning and Monitoring Services, ACPC, NNC, Quedan Corporation, Special Concerns Office, Computer Services and IADCCD. The heaviest load and most unwieldy assignment is borne by the USEC for livestock, fisheries, staff operations and attached agencies, who is helped by an assistant secretary assigned to livestock. For livestock alone, there are six separate agencies. Aside from supervising the administrative services, a number of fairly large commodity-based agencies and miscellaneous government corporations such as the SRA, PCA, NFA, NTA are under its wing.

The USEC for regional operations and research and training is basically in charge of the production and technical regulatory aspects of grains, fiber and other crops outside the commodity-based agencies. His assignment also covers irrigation (NIA), marketing assistance and agricultural investment services. An assistant secretary under his command oversees the operations of the thirteen regional offices.

Department of Agrarian Reform. The DAR serves as the lead agency to implement the Comprehensive Agrarian Reform Program (CARP or EO 229) passed in 1987 which subsumes the 1992 land reform program for rice and corn (PD 27) and extends the program to all private agricultural lands and designated public lands. The objective of the program is to effect a more equal distribution of land ownership for the benefit of the poorer segment of the rural population. The CARP law established the Agrarian Reform Fund (ARF) to finance not only the cost of land acquisition and distribution (LAD), but also the provision of complementary support services (SS) to the agrarian reform beneficiaries. The law also created the Presidential Agrarian Reform Council (PARC) to formulate the specific policies, rules, and regulations necessary for the implementation of the CARP and oversee the administration of the ARF.

Implementation of the CARP is a cooperative undertaking by various agencies. The task of land acquisition and distribution is primarily conducted by DAR. However, land valuation and all financial transactions between the government, and land owners and beneficiaries are handled by the LBP. The Land Management Bureau of DENR participates in land surveys, and the Land Registration Authority in the registration of the EP or CLOA.

Although the DAR coordinates the allocation of ARF funds for support services, the responsibility for the actual provision is distributed among LBP (rural credit), DPWH (market

infrastructure), NIA (irrigation), DA (input subsidies, technology transfer etc.), and DTI (rural enterprise development). The DAR also directly provides support services mainly in terms of community organizing, technology transfer, training, and enterprise development.

The organizational structure of DAR is portrayed in Chart 2. The Secretary manages the department through three undersecretaries in charge of (a) Policy and Planning (b) Support Services and Field Operations and (c) Finance, Management and Administration. Each USEC is assigned an Assistant Secretary. The responsibilities of the USEC for support services and field operations are by far the most wide ranging -- as all the bureaus and regional offices are under his control. Three bureaus are concerned with land acquisition and distribution activities i.e., BLAD, BLD, and BALA, while the two other bureaus, i.e., BARBD and BARIE perform a variety of services in support of the beneficiaries development. At the regional office, the implementation of both the LAD and SS programs are carried out by the municipal agricultural offices and directly supervised by the provincial offices (see Chart 2a).

Department of Environment and Natural Resources. The DENR's mandate is to ensure the sustainable use, management, development and conservation of the forest, mineral lands, offshore areas, and other natural resources, including the protection and enhancement of the environment. The public forest land is defined to cover lands with a slope of 18% or more, and mangrove forests of 20 hectares or more. To operationalize its mandate, DENR is organized into six staff bureaus, regional offices, service units and other agencies and corporations attached to the department. The bureaus include: (a) the Forest Management Bureau (FMB), responsible for the forest land use, forest management, and reforestation; the Land Management Bureau (LMB) in charge of the survey, classification and disposition of public

lands; and Mines and Geo-science Bureau (MGB), with responsibility for terrestrial marine geological surveys, mines and metal technology development, management of mining rights; (d) Environmental Management Bureau (EMB), responsible for the formulation of environmental quality regulation and standards, administration of EIA environmental impact assessment, promotion of environmental education, maintenance of environmental quality data base, and the research and development related to environmental issues; (e) Ecosystem Research and Development Bureau (ERDB), for the research on forest ecosystems, grasslands and degraded areas, coastal zone and freshwater ecosystem, and upland farms ecosystems; and (f) the Protected Areas and Wildlife Bureau (PAWB), for the development and maintenance of all national parks and wildlife sanctuaries. With the exception of the MGB which has its own regional offices, the regional offices are responsible for the corresponding line functions of the five bureaus.

Supporting services include those responsible for legal and legislative affairs; planning and policy studies; and administrative/financial/management services. The four attached agencies include: (a) the Pollution Adjudication Board (PAB), the judicial body for environmental affairs; (b) the National Mapping and Research Information Authority (NAMRIA), as the central mapping and natural resource information agency, and the major land classification institution; the Natural Resources Development Corporation (NRDB) involved in developing and financing industrial tree plantations, agro-forestry ventures, and the proposed stumpage sales system; and the Laguna Lake Development Authority (LLDA) responsible for the management of the Laguna Lake.

The current organizational chart (Chart 3) show three undersecretaries; the PAB; the directors each of public affair, special concern, and the MGB and the assistant secretaries for planning and policy studies, and management services reporting directly to the Secretary. One USEC is responsible for legal and legislative affairs and attached agencies and helped by an assistant secretary. The USEC for environment and programs development takes charge of the five bureaus, and foreign funded projects. The third USEC position oversees the operations of the regional offices; though at present, only one USEC supervises both the bureaus and regional offices.

Local Governments

There are three levels of governance at the local level: the provincial, the municipal/or cities, and the barangay, as the lowest basic unit. Each of these levels are headed by elected officials, i.e. governors, mayors, and barangay captains, and guided by their respective "sanggunians" or councils responsible for enacting rules, regulations, and ordinances related to their functions, including enacting revenue generation measures

In order to enhance the government's responsiveness to local concerns and improve efficiency of government's operations at the local level, the Local Government Code (LGC) was passed in 1991. That law expanded the functions of the local government units (LGU) by devolving various front-line government services related to agriculture (DA), environment and natural resources (DENR), health (DOH), infrastructure(DPWH), social welfare (DSWD), telecommunications (DOTC), housing (HLURB), and tourism (DOT).

Table 1 summarizes the devolved functions of the DA and the DENR. In agriculture, the devolved functions consist of extension-related activities including enforcement of regulations

to control plant and animal diseases; on-site research services and facilities; cooperative development; communal and other small-scale irrigation development; and enforcement of fishery laws and conservation of mangroves. The bulk of the responsibilities were devolved to the municipalities/cities covering front-line services for crops, livestock, fisheries, and irrigation development. Prior to the LGC, the municipalities already exercised jurisdiction over municipal fishing grounds (Fisheries Decree PD 704), but any municipal ordinances related to fishery had to be approved by the DA. With the LGC, the municipalities gained full authority to enforce fishery laws in its waters, and enact fisheries regulations regarding permits, and penalties against use of deleterious fishing methods. Furthermore, the area of municipal waters was expanded from 7 to 15 kilometers from the shoreline. At the provincial level, the agriculture-related responsibilities are limited to preservation and control of plant and animal diseases; management of dairy farms, livestock markets, animal breeding stations, and artificial dissemination centers, cooperative development, and general technology transfer activities. The barangay's function is in terms of distributing planting materials and operating farm produce buying stations.

Efforts to introduce a participatory approach to resource management began even before the LGC, with the DENR's initiative in creating Environment and Natural Resources Councils (ENRCs) at the provincial level in 1991, as a mechanism for consultation and coordination of DENR activities with the LGU and the local population. The council is chaired by the Governor while the ENRO serves as the vice chairman. The councils were, in fact, granted wider authority to control the issuances of licenses, leases, permits, and other agreements to explore, exploit, develop, and utilize natural resources.

The LGC expanded the functions of LGU's with respect to environment and resource management, and required consultations with LGU on the environmental impact of national (including GOCC) agency projects within its jurisdictions. It should be emphasized, however, that the DENR shall have the power to supervise, control, and review LGU's exercise of devolved functions.

According to the LGC, provinces and municipalities/cities are mandated to adopt adequate measures to safeguard and conserve the natural resources in their respective jurisdictions, including imposition of penalties for illegal logging, dynamite fishing, pollution and similar acts through their respective "sanggunians". The provinces and barangays are primarily responsible for enforcement of forestry laws in community-based forestry projects, pollution control law, small-scale mining law, and other laws pertaining to the protection of the environment. The functions of municipalities/cities are largely developmental, specifically the implementation of community based forestry projects including: integrated social forestry projects; management of communal forests, not exceeding 50 sq kms; and establishment of tree parks, green belts, and the like.

The implementing guidelines prepared by DENR in early 1992 were more specific and included wider responsibilities, including regular reforestation; granting of stewardship agreements and forest land management for areas identified and delineated by the DENR; management, protection, rehabilitation, and maintenance of small watershed areas which are sources of local water supply to be identified by DENR; enforcement of forestry laws in general; conduct of cadastral surveys, lot surveys for CARP covered areas, and other special surveys provided such are closely supervised by DENR; issuance of permits for guano collection

and gravel, sand, and other quarry resource extraction; implementation of solid waste disposal and other environmental management services related to general hygiene and sanitation.

Budgetary Allocation

Public expenditures for agriculture, natural resources and the environment amounted to about by ₱21.5 billion in 1994. Representing nearly 10% of total public expenditures net of debt service and about 6% of the sector's gross value added. Only 7% of the sector's public expenditure (₱1.9 billion) was disbursed by the LGUs. Of the LGU expenditure for the sector, 84% was allocated for agricultural (AS) services, 8% for veterinary services (VS), and 8% for natural resource services (NRS). By level of LGU, the municipalities accounted for 48%, provinces 35%, and cities 17%. About half of the cities expenditures was spent on agriculture, 27% on VS and 20% on NRS. Among municipalities, agriculture received nearly all of the allocation 98%. The allocation at the provincial level was also largely for agriculture (80%), 12% for NRS and 8% for VS.

The DA together with its attached agencies/corporations spent about ₱10 billion, nearly half of the public expenditure for the sector. The largest single item of its budget (₱2.7 billion) went to the operations of NFA, followed by NIA with about ₱2 billion. Fisheries through BFAR, regional offices, PFDA, local and foreign funded project also received a sizeable allocation of ₱700 million. The budget for all livestock agencies reached nearly ₱500. NAFC's expenditure was close to ₱300 million. The budget for commodity-based agencies such as SRA, NTA, FIDA were in the order of ₱100 million each, except for PCA which was close ₱400 because of the foreign funded coconut development program. The biggest single

program was the GPEP in which the office of the secretary obtained an allocation of close to ₱800 million.

The total budget for the agrarian reform program amounted to approximately ₱5.2 billion, almost 90% of which was equally shared by DAR (₱2.2 billion) and LBP (₱2.3 billion) and the remainder was distributed to NIA, DPWH, DENR, LRA, DTI. In 1994, almost two-thirds of the expenditures for the agrarian reform program was devoted to land acquisition and distribution (LAD), higher than the average share since 1987 of 50% for LAD and 50% for support services.

The budgetary allocation for DENR was about ₱4.1 billion. When the budget for fisheries at DA is added, public expenditures for natural resources and the environment is currently in the order of ₱5 billion. Less than 10% of DENR budget is allocated to environmental management, as the overwhelming majority is devoted to natural resource management and rehabilitation, especially forestry.

A relatively small amount of the sector's budget is disbursed through the DOST's PCARRD (₱68 million) and PCAMRD (₱11 million) and the FPRDI (₱34 million). The research and extension budget of the SCUs was more than twice as large, at about ₱300 million.

Personnel

Approximately 100,000 staff (regular, contractual and casual) are employed by the government to carry out the policies and programs in the sector (see Table 2). Based on the number of devolved personnel, the local government would have about 19 million or almost 20% of the total. The devolved personnel of DENR was about 900 or 3% of its personnel, while almost a third of the DA was devolved.

The DA continues to be the largest organization, despite substantial devolution with close to 40,000 personnel. About 70% of its work force belong to the attached agencies/corporations (Table 3). NIA alone employs about 13,000 and NFA over 5,000. The personnel of commodity-based agencies such as PCA, SRA, NTA, and FIDA range from 600-1,600 each. The bureaus and other offices under the Secretary at the headquarters have a total staff of more than 5000, while the regional offices have close to 7000.

The DAR employs over 14000 staff and 92% of those are located in the regional offices (Table 4). The DENR is a relatively large organization, with more than 26000 staff. Only 12% of its staff are in the central office; eighty-eight percent are assigned in the regions, up from 65% before the reorganization in late 1980's (Table 5). The proportion of staff engaged in environmental management at the headquarters and regions is only 5% of the total, as the vast number of DENR staff are involved in forestry management, mostly the forest guards and other non-technical staff.

Institutional Issues

Effective governance of the agriculture, environment and natural resources sector has been constrained by several factors: (a) overlapping and fragmentation of responsibilities across agencies; (b) the emphasis on use of costly regulations and direct production of support services, rather than use of market-based policy instruments and indirect provision of support services; (c) government's performance of private sector roles; (d) instability in leadership positions and consequently, the chain of command and organizational structure; (e) weaknesses in the design and implementation of the devolution process; and (f) inadequacies in the incentive structure and

qualifications of staff. While many of these issues are common to all the three major departments, there are important differences in the nature and causes of their institutional problems. Overlapping and fragmentation, for example, is most pervasive among agriculture related agencies.

Across Departments

Upland Development. The DENR and DA functions overlap in promoting sustainable development in upland areas. Since lands with 18% slope and above are designated public lands, upland areas are within the jurisdiction of DENR. Yet, DENR does not have the comparative advantage to effectively provide the necessary support services in these areas which are now largely under cultivation and pasture grazing. The DA, on the other hand, has historically focused on lowland agriculture, in part due to the geographical division of responsibilities. With the greater concern with poverty alleviation and sustainable development, the DA and DENR have developed ad hoc cooperative arrangements to undertake upland development projects, funded mostly from foreign sources such as the Rainfed Resources Development Project, the Cordillera Highland Development Project, and the Central Visayas Regional Development Project. However, because of the failure to institutionalize these support activities through appropriate organizational restructuring and budget reallocations, these efforts have not been sustained.

DAR and support services. DAR's involvement in the delivery of support services to agrarian reform beneficiaries overlap with DA's overall responsibility for agricultural development. About one half of the agrarian reform budget (ARF and DAR's GAA budget) between 1987 and 1994 were allocated for support services. While only about a third of that

expenditure has been directly administered by the DAR, the fragmentation of the budgeting process and the linkage of the support service allocation to land reform, rather than to technological and market opportunities reduces the cost-effectiveness of such expenditures. The lack of synchrony in planning is demonstrated by the concentration of DAR's support services in about 800-900 barangay-level agrarian reform communities (ARCs), while the DA has its own set of priority areas in its national programs, not to count the LGUs as another layer of program planning in agriculture. The allocation of DAR's support services would tend to be biased towards short-term support projects (e.g. credit subsidies in priority land reform areas) against institution building efforts, or projects that may have higher, long-term economic pay-off (such as agricultural research). Furthermore, the bureaucratic cost of allocating funds and implementing agricultural support services in a highly fragmented manner also increase.

Research and Extension. The fragmentation of the agricultural research and extension system is one of the most important weaknesses of the sector's institutional structure, as technological progress is a key to sustainable development of the sector. Whereas the DA assumes the overall responsibility for agricultural development and the DENR for the sustainable management of the natural resources and environment, the mandate, authority, and budget for technology generation and dissemination are spread over several agencies under the DOST, DA, DENR, SCUs, and LGUs. The mandate for technology generation in agriculture, fisheries, and natural resources officially belong to PCARRD and PCAMRD which are under DOST. Yet, the Secretary of DOST does not have any direct responsibility over the productivity performance of the sector. Although PCARRD's and PCAMRD's endorsement of agricultural research budget is required for DBM's approval, this has merely become a pro-forma process as no

formal review process is conducted and SCUs, DA, and DENR directly defend their budgets. The budget of PCARRD and PCAMRD represent only about 10% of total public expenditure for agricultural research, and thus their competitive research grants are too small to have any significant influence on research thrusts (Table 6). The operation of PCARRD-led regional research consortia aimed to strengthen coordination cannot effectively raise the efficiency of the research system because of the lack of a unified budgetary and management control and continuing lack of economic framework for research prioritization.

The State Colleges and Universities receive a significant share (about 30%) of the research budget, either directly from DBM or indirectly from external donors and other government/private agencies. The UPLB alone accounts for 70% of the total SCU research expenditures; and more than half of that are grants from external donors and other government agencies, principally the DA, DOST, DAR, and DENR.

The DENR's research and development activities are concentrated in the ERDB with a budget approximately 8% of total research. The largest share (45%) of total research budget is spent directly by the DA through its various research units/agencies dispersed throughout the department. Within the DA, about 40% of its research budget is allocated to the regional integrated agricultural research centers (RIARCs) directly under the regional offices. These RIARCs conduct applied and adaptive research on commodities important in the region, and not covered by the commodity-based bureaus/agencies. There are only two specialized research and development agencies at the DA: the Philrice which is responsible for rice accounts for about 20% of the department's research budget, and the NAPHIRE for post-harvest research and extension. The remaining 40% of the DA research budget is allocated for coconut, sugar, fiber,

tobacco, mango, vegetables, fruits, livestock, and fisheries in research divisions that are part of the operations of commodity-based agencies with broader mandates. To coordinate research within the DA, the BAR was created with a mandate that to a large extent overlaps with PCARRD and PCAMRD. The BAR's effectiveness, however, has also been limited by the dispersion of research units/agencies within the DA and its lack of direct control over research budgets and personnel appointments.

The linkage between research and extension has been historically quite weak. This has been caused mainly by the highly fragmented nature of the overall research and development system and the separation of institutional responsibilities for research and extension. The PCARRD-operated regional research consortia have not been suitable mechanisms for strengthening research and extension linkages.

The 1987 decentralization of the DA which integrates the line functions at the regional was aimed in part to strengthen that linkage, at least within the DA. With the devolution of the on-site research and extension responsibilities to the LGUs, the task of strengthening the research and extension linkage has become even more complicated, and clearly necessitate a rationalization of the national research and development system.

Imbalances in the budgetary allocations between research and extension; across commodity groups; and scientific manpower resources across agencies also weaken the research and extension system. In South and Southeast Asia, the country has one of the lowest research expenditure ratio to GVA, but has one of the highest level of extension budget and manpower resources. Public expenditures for extension is at least double the expenditures for research.

Imbalances in the allocation of research funds and manpower resources across agencies significantly lower the productivity of the research system. The limited research funds are allocated thinly over too many commodities across several agencies. Moreover, minor crops receive relatively more support while research on a number of major commodities, especially corn are grossly underfunded. While the DA now receives a relatively higher proportion of the research budget, up from only about 23% in 1985, the scientific manpower resources are still overwhelmingly located in the SCUs. Assuming that only 30% of the PhD man years in the SCUs are devoted to research, this would still be 3 to 4 times more than what is available at the DA.

Department of Agriculture

Fragmentation and overlapping. Considerable overlap and fragmentation of functions also characterize several agencies within the DA. In livestock alone there are six separate agencies, despite the devolution of most of the technical regulatory functions, on-site research, and extension. The BAI continues to have a Dairy Development Division, notwithstanding the existence of the NDA. The LDC operations overlap with BAI in several respects including policy formulation, livestock development and monitoring, and developing contacts with the private sector. Furthermore, with the Dairy Development Fund from cattle registration fees, the LDC has also directly administered a number of livestock development projects.

NAFC likewise perform functions beyond its mandate as a consultative body. Because of the additional assignment to monetize and allocate the proceeds of commodity grants, it has become a funding unit for a variety of projects, as well as an implementor of livelihood and

other projects. The ACPC has become involved in the administration of credit projects, a task that is beyond its staff function.

Irrigation development in DA is the responsibility of two agencies: the NIA for national gravity and deep tubewell irrigation systems, and the BSWM for the small water impounding and shallow tubewell projects. A separate corporation for cotton exists, together with FIDA, though fiber is a relatively minor crop.

Cost of market regulations. A major part of the agricultural bureaucracy has been concerned with direct marketing operations in rice and administering market interventions arising from the pervasive use of quantitative trade restrictions. The NFA operations alone accounted for about 27% of the total budget of DA and its attached agencies, and employed more than 5000 staff. Several commodity-based agencies are also heavily involved in administering market regulations e.g., SRA (sugar), BAI (livestock), BPI (seeds, coffee, potatoes, onions, garlic, cabbage, and other), NTA (tobacco). The pervasive market interventions have not only bloated the bureaucracy and shifted scarce budgetary resources away from growth-enhancing activities, these have also promoted rent-seeking among government employees engaged in trading, allocating import/export permits, issuing licenses, and so forth.

With the abolition of quantitative trade restrictions under the WTO, many of the staff in the above commodity-based agencies will become redundant, requiring major institutional adjustments. Although rice has been exempted from the WTO agreements, the high budgetary cost of NFA operations should warrant a shift towards more cost-effective, indirect policy instruments to achieve the same objectives.

Private roles. Besides involvement in agricultural marketing activities, the DA, particularly the attached agencies has been engaged in several activities that are basically private sector functions. And while the original intention may be to initiate the activity as a means of promoting private sector investments, the opposite often prevail because the heavy subsidies on government operations create unfair competition. Moreover, even if there are economic justifications for government provision or subsidies of such goods and services, these are often more cost-effectively produced by the private sector. For example, the government provides veterinary and artificial insemination services, operate animal stock farms and dairy processing facilities, and produces breeding animals, activities that are essentially private in nature. The other examples are the operations of fishing ports and cold storage facilities (PFDA), general cold storage and warehousing facilities (FTI), and tomato canning factory in Northern Luzon.

Commodity-based structure. The current organizational structure reflects the proliferation of agricultural commodity-based agencies in the 1960's and 1970's. Although these have been brought under the DA in 1986, they have remained largely intact as attached agencies, retaining the weakened controls and accountability in their bureaucracies and constraining coordination of research and extension. The commodity-based structure of the DA leads to fragmentation of the agricultural bureaucracy. It also contributes to instability and inflexibility as the DA has been divided into more and more commodity-based agencies, motivated in part by political economy factors rather than on consistent, sound, and logical criteria. Moreover, the commodity-based structure tend to favor regulations against growth-enhancing activities -- research, extension, irrigation -- which have longer-term pay-off. Regulations are easy to implement, have short-term impacts, generate resources for the agency, and rents for the

employees allocating import/export permits, issuing licenses, and so forth. In contrast, well-documented justifications and record of performance are necessary to raise budgetary support for productivity-enhancing activities. Furthermore, heads of commodity agencies are typically non-technical persons who may not fully appreciate the potential contributions of technological change or the scientific skills and different type of management style required for productive research.

Department of Environment and Natural Resources

For the DENR, the problem lies in the inherent difficulties of adjusting the institutional structure of governance in response to changing objectives, instruments of policy, material and technological conditions in natural resource and environmental management. The DENR has historically been concerned mostly with maximizing production from forest, fishery, and mining resources, with little regard to the long-term consequence on the environment nor to equity considerations, and relying mostly on regulations rather than market-based policy instruments as tools of management. Over the past decade, the Department had to reorient its goals and strategies away from short-term exploitation of natural resources towards long-term sustainable management, including resource renewal and rehabilitation, as forest and fishery resources have dwindled. Its functions and activities needed to be transformed from being mostly regulatory to being more developmental, with equity enhancement as an explicit corollary objective. Its functions also expanded, encompassing now the whole range of environmental management beyond natural resource conservation, including air, water, and solid waste pollution management. Consequently, the profile of its clientele shifted from the few, large loggers and

miners to the numerous, and small upland dwellers, indigenous communities, small and large industrial farms, local communities, local governments, etc.

Efficient governance of the natural resource and environment sector requires a well-defined and stable system of user rights, and the appropriate pricing (or taxing) of user (or pollution) rights. With the shift towards more equitable distribution of access to public resources, new property or user rights arrangements have been developed, such as the CSCs, CFMAs, CALCs, CADCs and IFMA. However, these arrangements have been confined to forestry areas, neglecting similar possibilities in pasture lands and fisheries. Moreover, their implementation has been slow and very limited which suggests that at least for CFMAs, FLMAs, and IFMA the demand for these tenure instruments is far less than the supply of forest land to be managed sustainably. This may be due to the term of tenure (25 years renewable once) for long-term stewardship in forestry projects which is still short relative to growth period (40 years) of tropical hardwoods and uncertainties about price and trade policies on logs.

Because long-term financing is typically required for sustainable development in these areas, innovative means for imbuing at least the CSCs with collateral value will accelerate sustainable development in upland areas suitable for agricultural productions. Certainly, providing full property rights ownership in selected areas of the public domain, less susceptible to soil erosion, would be a step in that direction.

The country has a long way to achieving appropriate pricing of user rights to include the environmental cost in estimating the economic rent associated with the use of natural resources. While forest charges have increased sharply since the late 1980s, rental fees for pasture grazing and public fishponds continue to be at their historical low levels. Underpricing of user rights

have not only accelerated exploitation, limited government revenues for better enforcement of regulations and rehabilitation, it has promoted widespread rent-seeking in the bureaucracy. With respect to environmental management, the use of tax instruments, such as presumptive pollution charges have not yet been initiated; while policy distortions (e.g. fuel prices) are promoting pollution.

Over the past decade, the DENR has been reorienting its programs with limited benefit from the needed complementary institutional reforms in pricing and tenure issues, and especially in human resource capacity and organization transformation in the bureaucracy. Furthermore, despite the focus on decentralization in the 1987 reorganization of DENR, the operations continue to be highly centralized. Planning and design of program are mostly executed at the headquarters, with little input from the regions; much of the decision making and budgeting still emanate from the center. And as discussed in another section, devolution of responsibilities to LGUs, already provided in the LGC and Department AO 30 has been very slow.

Sharp increases in the budgetary allocations have facilitated the introduction of some policy reforms, strengthening enforcement of regulations, and expansion of developmental programs, focused mainly on forestry and to some extent on fishery, and much less on environment concerns. However, these projects have been mostly foreign-funded (about 45% of DENR budget is foreign funded in the early 1990s); and have to be disbursed within a relatively short period of time. Consequently, these have not been accompanied by concerted efforts to address the fundamental institutional constraints in the bureaucracy that has been a major drag in the effective governance of the sector. On the contrary, special program management units outside the regular bureaucracy were often set-up on an ad hoc basis, and

dismantled at the end of the program. Thus, there is no clear evidence that recent development programs have been integrated into the mainstream of the DENR bureaucracy.

The bureaucratic constraints are essentially the mismatch between the current and required technical profile of DENRs staff and the continuing centralized management of governance of the sector. The question should be asked whether or not addressing the institutional constraints first and foremost, would have been a more cost-effective approach, because natural resource and environment programs are long-term in nature anyway.

Department of Agrarian Reform

The most important institutional issue concerning the DAR what should be its role or function by end of the CARP program in 1998. Undoubtedly, provision of public support services in agrarian reform areas would continue to be needed, but that is a function properly belonging to the DA. However, the land acquisition and distribution program will unlikely be fully accomplished but this task may be completed by a much smaller number of staff and for a definite period of time. Tenure issues will also continue to be a major concern in the sustainable management of public lands. It should be stressed that unlike the agrarian reform program, where the main objective is to achieve a more equitable income distributions, tenure questions on public land and other resources relate more to their impact on the environment and sustainable development, the purview of DENR.

Devolution Process

The devolution of responsibilities for delivering front-line services from the national to local government units is potentially one of the most important institutional reforms for improving the efficiency of providing public support services and effecting a bottom-up approach

to development. However, major flaws in the design and implementation of the LGC have hindered the realization of those potential benefits.

Incomplete devolution. The devolution is not complete. Although about one-third of DA staff has been devolved, extension agents of the attached agencies/corporations of the DA such as PCA, FIDA, SRA and NTA have not been covered by the devolution. Neither has any personnel from NIA been devolved to LGU's, despite the transfer of responsibilities of communal and other small-scale irrigation projects.

The rate of devolution of DENR has been much less than in DA. Only the staff involved with the ISF projects representing about 3% of total DENR personnel were devolved to LGUs. And only the collection of fees from small scale mining and extraction of quarry resources and guano are actually operational. A recent study (NRMP 1994) reported that of the devolved functions, only 11% have been totally devolved, 22% were only partially devolved, and the larger number have not been devolved at all. It was not until late 1995 that DENR began any to initiate substantive efforts to operationalize the ENRCs initiated in 1991, and to encourage and assist LGUs in performing environment and natural resource functions. In contrast to the very slow pace of devolution of DENR responsibilities is the increasing interest and unilateral actions related to environmental concerns by LGUs, as reported in the 1995 appraisal of the devolution process by the GOLD project.

Funding Constraints. The shift in national budgetary allocation was much less than commensurate to the responsibilities devolved to the LGUs. The problem was exacerbated by the bias in fund allocation in favor of cities and barangays and urbanized LGU's, against the more rural provinces and municipalities which carry the bulk of responsibilities related to

agriculture and natural resources (Manasan 1995). Moreover, poorer regions which have a greater proportion of population dependent on agriculture, particularly upland agriculture, also have lower total budgetary resources and relatively fewer devolved personnel due to the same bias in the original personnel allocation of DA regional offices (Cabanilla 1995). Finally, the mechanisms for LGU's to directly manage foreign-funded projects, a major source of funding for irrigation and natural resource and environment management projects at the national level, have not been fully developed. Hence, the ability of the LGU's to effectively carry out their responsibilities in the sector has been adversely affected by funding constraints. Many trained devolved CDOs and CDAs for DENR have reportedly been assigned new tasks with the LGUs, mainly because there are no available operating funds for ISF support

About 80% of budgetary allocations by LGU's for agriculture, veterinary, and natural resource services are spent on salaries and wages of personnel, whereas the average for total LGU budget is 50%. Salaries of LGU personnel, particularly in poorer regions have fallen behind equivalent national level staff (Table 7). Salaries of agriculture-related personnel in poorer regions have also lagged behind other technical staff because of mandated allowances and salaries for DOH personnel, causing widespread demoralization. Given the bias in personnel allocation and funding availability against the poorer regions, it is not surprising to find in several cases studies that agricultural support services have expanded in the more progressive areas, but deteriorated in the poorer LGUs (Cabanilla 1995). [a box on Rey's and Cabanilla's case studies].

Delineation of responsibilities. Delineation of responsibilities in many areas are unclear and/or not well understood. For example, interviews with municipal-level staff suggests that

many LGU's do not as yet consider the development of communal and small-scale irrigation as an integral part of their functions. LGU involvement in irrigation, so far, has been simply to facilitate the implementation of national projects by identifying potential irrigable areas or recipients of shallow tubewells, assisting in distribution of tubewells, and overseeing the construction of small water impounding projects.

In the case of the integrated social forestry projects, their operations have practically ceased. The DENR has not devolved the power to issue the CSC's and CFMA's nor has it devolved any budget for providing support services in these areas. Yet, the LGU's are expected to monitor compliance in these contracts, as well as provide the support services in upland areas. Because of significant externalities in natural resource development and management, LGUs cannot be expected to fully shoulder the cost of such efforts even for ISF projects.

Role of National Agencies. Considerable efforts were devoted to the orderly transfer of personnel from the DA and DENR to the LGUs. However, the Da and DENR did not systematically anticipate, monitor, and address the problems faced by the devolved personnel in their new roles, as well as by the LGU heads in taking responsibility for the devolved functions. For example, the provincial and municipal agricultural officers and other devolved personnel have been historically used to implementing programs conceived and designed at the central offices. Indeed, the field personnel were still in the process of being transformed from being specialists into generalists, capable of dealing equally well with all aspects of farming systems under the decentralized DA structure. Therefore, a strong, concerted effort to assist LGU personnel in developing new skills, attitudes, and mode of operation should have been mounted to effectively function in their new more independent role.

There was also little effort to establish specific guidelines, procedures and institutional mechanisms for interaction among LGUs to resolve common problems and harmonize programs; and between NG and LGUs for developing joint programs and effecting a bottom-up approach of governance. The spread of the foot and mouth disease in wide areas of Luzon in 1995 was caused primarily by the limited coordination of efforts between local and national agencies.

The LGC did not specify any mechanism for interaction among agriculture and natural resource personnel across municipalities and between municipalities and the province. And it was not until late 1995 as the need became apparent that municipal and provincial agricultural officers decided to form associations as venues for such interactions and as a mechanism for organizing their interaction with DA.

The interactions between LGU's and NGA's, thus far have been largely ad hoc and top down in the nature of getting nationally conceived and funded programs such as the GPEP, and now Gintong Ani, implemented by the LGU's. Developing appropriate mechanisms for interaction between LGU's and NGA will likely be frustrated by weaknesses in the institutional structure of agriculture-related agencies at the national level, specifically their highly fragmented and largely overlapping nature. The problem is especially critical in trying to link the extension and agricultural research, which is conducted independently by a wide variety of institutions. Thus far, only the organizational structure of regional offices were reorganized, but even the new interim structure (Chart 1b) does not reflect any attempt to reorient the relationship between the central and regional offices and the field personnel under the LGUs. In order to achieve an efficient working relationship with the LGU's, a restructuring of the Department of Agriculture and related agencies is clearly called for.

Technical Capability. The slow pace of devolution of DENR responsibilities to LGUs is due in part to resistance and inertia on the DENR side and lack of resources on the LGU side. DENR often raise the issue of lack of technical capability of LGU to effectively carry out the devolved functions with respect to environmental and natural resource management. While that concern is valid, it should be emphasized that the DENR itself suffers from similar problems, particularly the capability to manage community level activities. Indeed, it may be more efficient to complete the devolution and then undertake the necessary manpower development program, rather than further delay the devolution process. In this way, the reorientation of personnel capability at the central level will also be greatly facilitated.

Other Common Concerns

A critical institutional issue that pervades governance of the sector relates to human resource management and capability in the bureaucracy. There are at least 3 aspects to this issue: instability in leadership, constraints in technical expertise, and inadequacies in the incentive structure.

Since 1986, the secretaries in the 3 major departments changed from 4 to 5 times. For each change most of the undersecretaries, and assistant secretaries also change. For every change in the President, the turnover of leadership positions deepens down to director-level. And for each change of the secretary, the organizational structure (at least the arrangement of the boxes) also change based on the preferred management style and sometimes on the expertise of assigned undersecretaries/assistant secretaries. While a reasonable rate of turnover of leadership and staff is advantageous, the very frequent changes over the past decade have been quite disruptive and demoralizing to the regular staff.

The generally low level of technical expertise in the sector's bureaucracy has greatly hampered efficiency in the design and implementation of policies and programs. The proportion of staff with advanced degrees is very small to effectively carry out technology generation, policy and program formulation and also their implementation. Outside local and foreign consultants have supplemented the departments' expertise but without a minimum level of technical competence at the Department, their contributions are limited and unsustainable. In-house capability in policy analysis is critically low, almost non-existent at the DA and until recently at the DENR also. With the changing thrusts in natural resource and environment management, a change in the technical profile of its staff would be needed. The DENR's manpower capability has been historically concentrated in the technical aspects of forest management. Greater professional expertise is needed in economics and law with specialties in natural resources and environment; social scientists specializing in community management; fishery experts with advanced knowledge in resource assessment and marine fisheries management, and ecologists.

Weaknesses in the incentive structure fail to attract, motivate, and retain the more qualified staff. Aside from low financial compensation which characterizes the whole bureaucracy, the strong influence of political factors in promotions and appointments in leadership positions down to Director level have discouraged the more able and qualified from joining and/or staying in the sectors bureaucracy.

Directions for Reforms

Clearly, weaknesses in the institutional structure of governance have adversely affected government's effectiveness in achieving sustainable development in agriculture and natural resources directly through the inefficiency in provision of support services and indirectly through the inefficiencies in the design of policies and programs. Major reforms in the institutional framework of governance are imperative to accelerate global competitiveness, strengthen environmental and natural resource management, and to anticipate the end of CARP in 1998 and the removal of QRs under WTO. While the suggested directions for reforms are bold and far-reaching, it is recognized that a gradualist approach would be more effective over the long-term to minimize the cost of disruption and ease the burden of adjustments by the government personnel. It should be emphasized, however, that piece-meal approach of institutional adjustments without an over-all framework in the past has largely caused the current dysfunctions in the institutional structure of the agriculture, environment and natural resource bureaucracy.

Across Departments

1. Over the medium and long-term, governance of agriculture, natural resources, and environment should be consolidated mainly within a restructured and leaner Department of Agriculture and Department of Environment and Natural Resources, in which most front-line services have been devolved to LGUs.

2. Some shifts in responsibilities across the two departments would be beneficial.

- a) Because of the strong interdependence of forest, fishery and mining resources, particularly in common areas of domain, and the similarity in principles and tools of managing

these resources, the jurisdiction over the fishery sector should be returned to DENR. The proposal to establish a separate Department of Fishery being discussed in Congress is counter to the policy decision to streamline the bureaucracy, will detract from further devolution of front-line services, and will increase the problems of coordination in management of natural resources.

b) The responsibility for developing upland areas that are primarily grown to crops or used as pasture grazing should be formally shifted to the DA. However, overall responsibility for managing tenure issues should continue to be the purview of the DENR, although awarding of CSCs and other types of contract on use of uplands may be devolved to LGUs under the overall supervision of DENR.

3. After 1998 at the end of the CARP, the staff and resources involved in delivery of support services at DAR should be transferred to the DA. Since the task of land redistribution in private lands and improvement in tenure system in public lands would likely not be completed in 1998, the staff and resources involved in doing so should either be shifted to a restructured DENR or retained as a Commission with a fixed term of existence.

4. All government supported rural credit programs should be centralized and placed under a specialized financial institution, logically the Land Bank of the Philippines. The present involvement of the LBP in rural credit is mainly as a wholesale conduit of DA, DAR, or DENR initiated programs given a fixed margin. This specialized institution will take responsibility over the performance of the credit programs, i.e., its budgetary cost and sustainability. Annual budgetary allocations would be granted on the basis of the differential cost of lending to small farmers in terms of the higher cost of transaction and higher cost of risk. For expanding credit

operations, a government guarantee can be extended or budgetary allocation be credited as government equity contributions. And repayment of foreign loans used for the purpose of expanding credit operations must be its responsibility. The new Land Bank should then cease to engage in banking operations that are private in nature, concentrating only in the business of managing small farmer credit programs and financial transactions related to the land acquisition and distribution program. In this way, monitoring and evaluation of the cost-effectiveness of credit programs can be facilitated, budgetary cost is transparent, and accountability is clear.

5. Overall responsibility for accelerating technological development in agriculture and should be assigned to the DA and fishery and forestry and environmental management to DENR. The DOST's responsibility with respect to the sector should focus on promoting basic and strategic research among the SCUs and specialized research institutions. The PCARRD and PCAMRD should be transferred to the DA and DENR, respectively. And a major restructuring of the research and development system at the DA should be initiated. Effective mechanisms should be developed to improve responsiveness of SCU research and development activities to DA and DENR priorities.

Department of Agriculture

1. Over the medium and long-term, the DA organization should be restructured along functional lines, rather than the current commodity-based structure. The commodity-based structure leads to fragmentation of operations, is prone to greater instability and inflexibility, and favors regulations against growth-enhancing activities. The functional-based structure has several advantages: prioritization in the allocation of funds and personnel is more transparent; accountability for performance is easier to monitor and evaluate; essential interactions are

institutionalized thereby lowering coordination costs, e.g., research across commodities and/or disciplines; and interaction and coordination between central and local governments would be greatly simplified.

2. The two major functions of the DA are to enhance productivity by ensuring the provision of support services that the market will fail to deliver, and to ensure that the policy and market framework facilitate efficient and sustainable growth. Thus, the DA should be subdivided according to these functions; and each group would be led by an undersecretary (Chart 5). The responsibility for the regulatory functions of the DA may be split; with the technical regulations (e.g., quarantine, etc.) being absorbed in the production group, and the market regulations (e.g., sugar quedan system) transferred to the policy group.

3. The production group will have three major responsibilities: a) water development; b) research and development; and c) maintaining strong linkages between the LGUs and DA through cooperative activities in research, regulations, training, production programs, and water development. The water section in BSWM should be merged with NIA and constitute the water development section. A major organizational restructuring would be involved in consolidating research and development activities under this group. This will involve shifting all R & D staff and resources in various bureaus, regional offices, attached agencies and corporations, and PCARRD within this group and a logical substructure by commodity/disciplinary lines developed. Subsequently, an ambitious program of institutional strengthening of agricultural research must be undertaken and the mechanisms for more productive relations with SCUs in R & D development should be developed.

4. Following the transfer of regional research centers to the R & D subgroup, regional offices must be restructured and reoriented. Reducing the number of regional offices to gain economies of scale should be seriously considered. The regional office new main function would be the linkage of LGU concerns and activities with the DA's to institutionalize the bottom-up approach. The specific tasks of the regional office would be to a) link research and extension, b) facilitate technical assistance in water development, c) facilitate the development of cooperative R & D programs between LGU and NGAs, d) develop joint production programs between national and relevant LGU units, e) monitor and communicate LGU concerns and performance in agriculture-related activities and recommend appropriate actions and interventions, and f) facilitate the linkage between the LGU and the policy group. A major activity of the regional offices would be to conduct training programs and demonstration farms, the logical linkage of research and extension; and hence, the integration of ATI with the regional offices should be explored.

5. The policy group will also require considerable institutional strengthening and assistance in designing the appropriate substructure. It will cover policy analysis and planning, market regulations and market promotion activities, socio-economic data production, and other related functions including those formerly exercised by bureaus and attached agencies/corporations. With the abolition of quantitative trade restrictions (QRs) the remaining tasks of market regulations should be greatly simplified. The proposed procedure for administering the minimum access volumes under WTO should be resisted because it would in effect return the bureaucratic process of allocating imports, as well as the government direct participation in importations, preventing the streamlining of the DA bureaucracy.

Since the NFA is solely concerned with marketing functions it should be attached to the policy group. Ideally, government interventions in rice marketing should take a more market-oriented approach, allowing private sector participation in international trade and using variable import levies to regulate prices and imports. Because of the NFA's high marketing cost, it should also begin to rely on privately produced marketing services to undertake any market intervention. And to have a more balanced decision on rice pricing policies, taking the overall socio-economic interest of the nation, the transfer of NFA to a more neutral agency such as the NEDA should be seriously considered.

The system for consultations among private sector, NGAs, and LGU's must also be maintained. However, a restructuring of the council system (NAFC and its RAFC, PAFC, and MAFC, LDC, ACPC, NNC) is advisable. Local consultations currently being performed by the system of RAFCs, PAFCs, & MAFCs must now be the activity of LGUs at the provincial level (with the Environment and Natural Resources Council as a model). Regional consultations would now be served by the linking activities of the restructured regional offices between the LGU and NGAs. The major concern of NAFC would be national level consultations, particularly for the policy and market concerns on crops and livestock issues. The task of monetizing and allocating commodity grants must be delinked and shifted elsewhere to avoid conflicts of interest and facilitate broader participation in allocating revenues. The ACPC should serve as the linkage between the DA and financial institutions, including the proposed specialized rural credit institution. The NNC should be shifted to the DOH.

Local Government

1. The devolution of agriculture and natural resource functions should be completed. In agriculture, this should include the transfer of extension-related functions in the attached agencies (i.e., PCA, SRA, FIDA, NTA, etc.) and DAR to LGUs. There should also be some devolution of NIA personnel to initiate the establishment of technical capability for water development for the LGUs.

2. The DENR must also complete its devolution process and clarify the numerous areas of confusion about specific areas of responsibility. In the medium-term, further areas of devolution should be identified.

3. Concomitant to that should be a significant shift in the budgetary allocation of DA and DENR, to provinces and municipalities particularly the lower class or poorer LGUs to achieve the appropriate balance. To ensure that the use of those funds promote the objectives of the sector, the shifted funds should be earmarked for that purpose at least for the first 5 years. A priority would be to raise salaries of agriculture and natural resource personnel in poorer LGUs making them at par with more progressive LGUs. Budgetary increases to LGUs must be sufficient to provide a minimum level of resources to carry out its mandated functions independently of the DA; and to allow counterpart funding for joint activities with NGAs in technology generation and national production programs to effectively operationalize the bottom-up approach of governance. In turn, NGA funds for national programs for local level expenditure must be sufficient to induce LGUs participation in the program, and provide subsidies to poorer regions as well as promote LGU participation as equal partners, not simply as implementators of nationally designed programs.

4. There is a need to institutionalize the linkages of agriculture and natural resource personnel between the province and municipalities, and among municipalities. This will ensure that provincial plans emanate from municipalities, and provincial officers help represent municipal needs in an organized way to NGA. One mechanism is the joint preparation of consolidated medium- and long-term plan, including program of action for the short-term and periodic external review of programs. By having representatives from the DA and DENR and other agencies at certain stages of that process, agricultural and natural resource programs across provinces can be harmonized and NGA assistance to LGUs systematized.

5. A system must be developed by which LGUs directly manage foreign funded projects, independently or in partnership with NGAs. This should identify the type of projects that are most appropriately managed at the LGU level, criteria for choice of LGU unit, and mechanisms for accountability in the performance of the projects.

6. The appropriate role of LGUs in the area of land acquisition and distribution of both private and public lands must be explored. While the general policy guidelines for issuance of tenure certificates, delineation of geographic areas and overall supervision remain at the national level, the possibility that the issuance and enforcement of contracts for CSCs and CFMAs may be devolved to LGU's should be explored.

Table 1. List of devolved functions of DA and DENR to local government units under the 1991 Local Government Code.

Province	Municipalities/Cities	Barangay
Department of Agriculture		
<p>1. Extension and on-site research services and facilities * Preservation and control of plant and animal diseases * dairy farms, livestock markets, animal breeding stations, and artificial insemination centers.</p> <p>2. Assistance in the organization of farmer's and fishermen's coops and other collective organizations</p>	<p>1. Extension and on-site research services and facilities * dispersal of livestock, poultry, fingerlings, and other seedling materials for aquaculture * Palay, corn, and vegetables, seed farms, medicinal plant gardens and nurseries for fruits trees, coconut, other type of seedlings * Demonstration farms</p> <p>2. Quality control of copra</p> <p>3. Improvement or development of local distribution channels</p> <p>4. Communal and other small-scale irrigation</p> <p>5. Water and soil resource utilization and conservation projects</p> <p>6. Enforcement of fishery laws in municipal waters including conservation programs</p>	<p>1. Distribution of planting materials</p> <p>2. Operations of farm produce buying stations.</p>

cont'd Table 1.

Province	Municipalities/Cities	Barangay
Department of Environment and Natural Resources		
<p>1. Adoption of adequate measures to safeguard and conserve the national resources in their respective jurisdictions.</p> <p>2. Enforcement of forestry laws in community-based forestry projects, pollution control law, small-scale mining law, and other laws on the protection of the environment.</p>	<p>1. Adoption of adequate measures to safeguard and conserve their natural resources and</p> <p>2. Implementation of community-based forestry projects</p> <ul style="list-style-type: none">* integrated social forestry programs and similar projects* management and control of communal forests within an area not exceeding 50 sq. km.* establishment of tree parks, green belts, and similar forest development projects	<p>1. Enforcement of laws, and regulations relating to pollution control and protections of the environment.</p>

Table 2. Number of government personnel of national and local government agencies directly involved with agriculture, agrarian reform, natural resources and environment as of Dec. 1995.

	Total
Dept. of Agriculture	
NGA	39,245
DA (proper)	
Central	5,333
Regional	6,841
Attached Agencies/corporations	27,071
Devolved to LGU	17,553 ^a
Department of Agrarian Reform	
Central	1,091
Regional	13,248
Department of Environment & Natural Resources	
NGA	25,760
Central	3,163
Regional	22,597
Devolved to LGU	896
Department of Science and Technology	
PCARRD	241
PCAMRD	37

^a Included 9 person from NMIC, but not of non-viable positions.

Table 3. Number of government personnel (permanent, contractual, and casual) of the Department of Agriculture and its attached agencies by unit as of December 1995.^a

	Total	Regular	Contractual	Casual
OSEC-Proper	671	593	48	30
Bureaus/Institutes	4,662	4,134	262	266
ATI	961	928	1	32
BAI	610	565	28	17
BAS	1,150	985	83	82
BAR	68	68	0	0
BFAR	466	436	2	28
BSWM	361	293	49	19
BPI	892	724	96	72
NAPHIRE	154	135	3	16
Region	6,841	5,958	153	730
I	402	337	0	65
II	503	431	0	72
III	478	406	0	72
IV	1,177	935	64	178
V	515	434	16	65
VI	424	390	0	34
VII	740	660	42	38
VIII	513	446	6	61
IX	455	407	9	39
X	491	462	2	27
XI	463	434	2	27
XII	481	417	12	52
CAR	199	199	0	0
Attached Agencies:	1,805	1,661	125	19
ACPC	50	46	4	0
FPA	92	90	0	2
FIDA	603	589	14	0
LDC	34	31	0	3
NAFC	266	157	102	7
NMIC	366	366	0	0
NNC	132	128	4	0
NSF	48	47	1	0
PCC	156	156	0	0
NDA	58	51	0	7
Attached Corporations	25,266	16,862	414	7,990
NFA	5,686	5,307	4	375
NIA	12,976	6,644	0	6,332
NTA	1,844	1,048	346	450
PFDA	956	729	11	216
PCA	1,646	1,298	35	313
SRA	1,117	1,110	7	0
PHILRICE	474	227	0	247
QUEDANCOR	461	435	0	26
PHILCOTTON	106	64	11	31
TOTAL	39,245	29,208	1,002	9,035

^a Filled positions.

Table 4. Number of government personnel at the Department of Agrarian Reform as of December 1995.*

	Total	Regular	Conctratual
OSEC	730	674	56
Bureaus	361	348	13
BALA	77	76	1
BLD	94	91	3
BLAD	83	74	9
BARBD	40	40	
BARIE	67	67	
Regional Office*	13,248		
I	989		
II	810		
III	1,283		
IV	1,910		
V	968		
VI	1,145		
VII	1,291		
VIII	813		
IX	681		
X	1,051		
XI	824		
XII	811		
CAR	672		
Total	14,339		

* Filled positions only.

Table 5. Number of government personnel at the Department of Environment and Natural Resources, third quarter 1995.*

	Total	Regular	Co-terminus	Contractual	Casual
OSEC	1,195	787	31	255	122
Bureaus	1,968	1,238	168	38	524
EMB	187	144	12	13	18
ERDB	336	215	21	1	99
FMB	365	221	20	21	103
LMB	399	262	55	3	79
MGSB	366	248	50	-	68
PAWB	315	148	10	-	157
Regional Office	22,597	17,821	51	946	3,779
CAR	1,616	1,207	10	105	294
I	1,167	930	3	62	172
II	2,047	1,593	-	72	382
III	1,614	1,344	4	110	156
NCR	614	574	-	-	40
IV	3,149	2,670	8	3	468
V	1,582	967	7	364	244
VI	1,323	1,143	-	51	129
VII	1,994	970	5	17	1,002
VIII	1,316	1,166	-	6	144
IX	1,444	1,063	-	4	377
X	1,796	1,613	3	27	153
XI	1,927	1,717	5	119	86
XII	1,008	864	6	6	132
Attached Agency	831	689	21	56	64
NAMRIA ^b	472	451	21	-	-
NRDC ^a	163	82	-	56	24
LLDA ^a	196	156	-	-	40
Total	26,591	20,535	271	1,295	4,489

* Filled positions only.

^a as of March 1996.

^b as of December 31, 1994.

Table 6. Trends in agriculture and natural resources research and development expenditures by agency, 1988-1995 (₱ million).

	1988	1989	1990	1991	1992	1993	1994	1995
DA ^a	85.3	214.6	305.5	319.1	344.2	386.1	454.3	572.1
DENR ^b	38.6	52.7	56.2	50.9	65.5	64.3	76.3	93.0
DOST ^c	75.7	91.3	102.6	102.7	95.2	100.9	113.1	204.6
PCARRD	48.5	58.6	62.9	58.7	54.8	56.3	67.8	117.8
PCAMRD	3.7	7.7	9.4	9.8	9.8	11.1	11.1	13.4
FPRDI	23.5	25.0	30.3	34.2	30.6	33.5	34.2	73.4 ✓
SCUs	114.1	151.9	198.5	211.9	225.9	268.9	304.6	330.3
UPLB ^d	94.8 (60.1)	95.3 (64.1)	136.5 (79.6)	150.4 (81.0)	156.3 (82.0)	188.3 (82.0)	219.8 (80.0)	233.8 (82.0)
Others ^e	44.3	56.6	62.0	61.5	69.6	80.6	84.8	96.5
Total	343.7	510.4	662.8	684.6	730.8	820.2	985.0	1,152.0

^a This does not include grants to SCUs.

^b Includes ERDB only.

^c This does not include grants for agriculture-related research to SCU's of other units of DOST.

^d Includes not only general funds from GAA, but also grants from other government institutions, private sector, and foreign donors, figures in parenthesis include only the budget from GAA.

^e GAA only.

Table 7. Comparison of LGU relative to national level salaries by class of LGU (%).

Class	Province/City	Municipality
Special cities	100	
1st class	100	90
2nd class	95	85
3rd class	90	80
4th class	85	75
5th class	80	70
6th class	75	65