

Reforming Agricultural Insurance

IN THE PHILIPPINES



Technical Report and Recommendations



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Abbreviations

ADB	↘	Asian Development Bank
ADS	↘	Accident and Dismemberment Security
AIC	↘	Agricultural Insurance Corporation of India
AIP	↘	Agricultural Insurance Program
APCP	↘	Agrarian Production Credit Program
ARB	↘	agrarian reform beneficiary
ARBO	↘	Agrarian Reform Beneficiary Organization
ASEAN	↘	Association of Southeast Asian Nations
AYII	↘	Area Yield Index Insurance
BAS	↘	Bureau of Statistics
BIR	↘	Bureau of Internal Revenue
BSP	↘	Bangko Sentral ng Pilipinas
BTr	↘	Bureau of the Treasury
CAD	↘	Claims and Adjusting Department (PCIC)
CADENA	↘	Component for the Attention of Natural Disasters (Mexico)
CAP-BPD	↘	Credit Assistance Program for Program Beneficiaries' Development
CCE	↘	Crop Cutting Experiment
CLTI	↘	Credit and Life Term Insurance
COA	↘	Commission of Audit
CPMI	↘	CARD Pioneer Microinsurance Inc.
DA	↘	Department of Agriculture
DAR	↘	Department of Agrarian Reform
DARPO	↘	DAR Provincial Office
DILG	↘	Department of the Interior and Local Government
DoF	↘	Department of Finance
DY	↘	Dividend Year
ENSO	↘	El Niño–Southern Oscillation
FAO	↘	Food and Agriculture Organization of the United Nations
FCIP	↘	Federal Crop Insurance Program (United States)

FI	↘	Financial Institution
FO	↘	Farmer Organization
FPB	↘	Farm Plan and Budget
GIZ	↘	German Agency for International Cooperation
GoP	↘	Government of the Philippines
GPS	↘	Government Premium Subsidies
GSIS	↘	Government Service Insurance System
HA	↘	Hectare
HRA	↘	Homogeneous Risk Area
HVC	↘	High-Value Crop
HVCC	↘	High-Value Commercial Crop
IC	↘	Insurance Commission
IFAD	↘	International Fund for Agricultural Development
IFC	↘	International Finance Corporation
INSURED	↘	Insurance for Rural Resilience and Economic Development
IPR	↘	Indicative Premium Rate
IS	↘	Input Supplier
Jasindo	↘	PT Asuransi Jasa Indonesia
LBP	↘	Land Bank of the Philippines
LGU	↘	Local Government Unit
LTALR	↘	Long-term Average Loss Ratio
MARO	↘	Municipal Agrarian Reform Officer
MPCI	↘	Multi-peril Crop Insurance
NAIPP	↘	National Agricultural Insurance Pilot Program (Vietnam)
Nat Re	↘	National Reinsurance Corporation of the Philippines
NCI	↘	Non-crop Agricultural Asset Insurance
NDRRMC	↘	National Disaster Risk Reduction and Management Council
NDRRMF	↘	Natural Disaster Risk Reduction and Management Fund
NIA	↘	National Irrigation Administration
NL	↘	Notice of Loss
NPCI	↘	Named Peril Crop Insurance

O&A	↘	Operational and Administrative
OCD	↘	Office of Civil Defense
OECD	↘	Organisation for Economic Co-operation and Development
PAGASA	↘	Philippine Atmospheric, Geophysical and Astronomical Services Administration
PCIC	↘	Philippine Crop Insurance Corporation
P&D	↘	Pests and Diseases
PD	↘	Presidential Decree
PMFBY	↘	Pradhan Mantri Fasal Bima Yojana (India)
PPP	↘	Public-private Partnership
PSA	↘	Philippine Statistics Authority
QRF	↘	Quick Response Fund
RIICE	↘	Remote Sensing-based Information and Insurance for Crops in Emerging Economies
RMA	↘	Risk Management Agency
RMAC	↘	Risk Management and Audit Committee
RO	↘	Regional Office (PCIC)
RPR	↘	Risk Premium Rate
RSBSA	↘	Registry System for Basic Sectors in Agriculture
RWBCIS	↘	Restructured Weather-Based Crop Insurance Scheme
SAC	↘	Catastrophe Agricultural Insurance (Mexico)
SAGARPA	↘	Ministry of Agriculture, Livestock, and Fisheries (Mexico)
SC	↘	Steering Committee
SDC	↘	Swiss Agency for Development and Cooperation
TNCIS	↘	Thai National Crop Insurance Scheme
TWG	↘	Technical Working Group
UAI	↘	Unit Area of Insurance
VAT	↘	Value Added tax
WII	↘	Weather Index Insurance

1. INTRODUCTION AND CONTEXT



1.1. THE PCIC: 40 YEARS OF PUBLIC SECTOR–SUBSIDIZED AGRICULTURAL INSURANCE IN THE PHILIPPINES

There is a long history, starting in 1981, of public sector agricultural crop, livestock, and fisheries insurance provision in the Philippines, implemented by the Philippine Crop Insurance Corporation (PCIC). The PCIC is a government-owned and -controlled corporation that was under the Department of Agriculture (DA) until 2021, when the responsibility to oversee it was transferred by Presidential Decree (Executive Order No. 148 of September 14, 2021) to the Department of Finance (DoF). For many years, the PCIC was the sole agricultural insurance provider in the Philippines, and it is still the only company authorized to offer government premium subsidies (GPS) to subsistence farmers and fisherfolk in the country. The company operates seven insurance programs, including five agricultural insurance programs—rice, corn, high-value crops (HVCs), livestock, and fisheries (aquaculture)—that are primarily targeted at small and subsistence farmers, and two nonagricultural insurance programs—non-crop agricultural asset insurance (NCI) and credit and life term insurance (CLTI)—for the producers and their families (see Annex B for further details of each of the PCIC's insurance programs).

Between 1981 and 2010, PCIC's underwriting operations were severely constrained by the lack of capital and reserves and a very restricted budget for premium subsidies, resulting in extremely low coverage rates of farmers. Starting in 2014, the Government of the Philippines (GoP), through the Department of Management and Budget, elected to start promoting fully subsidized (free) insurance to subsistence farmers registered under the Registry System for Basic Sectors in Agriculture (RSBSA), and it has injected huge amounts of GPS into insuring these farmers, thereby enabling the PCIC to expand its agricultural and nonagricultural insurance portfolio to over 3 million insured farmers and fisherfolk in 2021. However, as discussed in section 3, the PCIC does not have the necessary manpower and staffing to handle the hundreds of thousands of agricultural insurance claims that have to be assessed in field at the time of loss each season and year.

To date, there has been very little private sector involvement in the provision of agricultural insurance in the Philippines, due mainly to the fact that private companies do not qualify for GPS. Private insurers' offerings are mostly limited to hail and named peril risk covers for large commercial farms and businesses; although several companies have piloted crop weather index insurance (WII) over the past 20 years, their success has been limited. Constraints to the provision of agricultural insurance by the private sector include, most importantly, the lack of access to premium subsidies, limitations on data access, additional taxes levied on private insurance premiums, limited knowledge and experience in underwriting these products and programs, and the perceived riskiness of agricultural insurance (World Bank 2019a).

1.2. GOVERNMENT'S REASONS FOR WANTING TO REFORM THE PCIC

The GoP wants to improve the cost-effectiveness of the public sector's PCIC, as well as promote private sector entry into the agricultural insurance market.¹ Over the past 20 years, the GoP has paid the PCIC more than PHP 28.8 billion in premium subsidies from the national budget to make agricultural insurance more affordable to Philippine farmers; but the program has not had the desired results at the farm level. The PCIC's premium subsidy budget has grown to PHP 4.5 billion in 2022, and the GoP questions whether this trend is sustainable. For this reason, it is seeking to reform the PCIC along sound market-based principles to ensure that stakeholders get maximum value for money from this subsidy and that agricultural insurance is made more sustainable.

As a first step to reforming the PCIC, in 2021 the GoP transferred responsibility for the corporation's operations from the DA to the DoF through Executive Order 2021 No. 148. The new PCIC Board is chaired by the secretary of finance, with the national treasurer designated as the alternate chair. That same year, the government requested the Insurance Commission (IC) to conduct a limited review of PCIC's operations with a view to strengthening, as necessary, the pricing of its insurance products and the actuarial valuation of its reserve liabilities (IC 2021b). Additionally, also starting in 2021, the GoP has actively been encouraging private commercial insurers to provide agricultural insurance products and services in collaboration with the PCIC, under IC Advisory 2021-09 (IC 2021a).

1. For example, see a message by Secretary of Finance Dominguez in 2021 on the need to strengthen PCIC's operations (Dominguez 2021).

1.3. THE GOVERNMENT'S REQUEST TO THE WORLD BANK GROUP FOR TECHNICAL ASSISTANCE AND TWO-PHASED PROPOSALS

Since 2017, the World Bank Group has been working with the GoP to strengthen agricultural finance and agricultural insurance in the Philippines. At the request of the Bangko Sentral ng Pilipinas (BSP), the World Bank Group presented a report to the government in June of 2019 focusing on ways to enhance and strengthen farmers' access to financial services and risk management tools, including insurance (World Bank 2019a). In response to BSP's request for a more detailed analysis of the issues and challenges related to expanding the coverage of agricultural insurance, particularly for smallholder farmers, the World Bank Group subsequently conducted several field missions to investigate these challenges and present possible options to strengthen and grow the agricultural insurance sector in the Philippines. Its findings were presented to the BSP in October of 2019 (World Bank 2019b).

Since late 2019, the World Bank's Finance, Competitiveness and Innovation Global Practice has been working with the GoP to identify ways to strengthen the provision of agricultural insurance in the Philippines. This effort led to the submission in February of 2020 of phased proposals to (i) immediately strengthen the provision of agricultural credit and the design of large-scale social protection parametric (index) insurance solutions to cover subsistence farmers against catastrophe climatic risks; (ii) implement medium-term reforms to the PCIC and introduce market-based principles to crowd in private sector insurers under a suitable public-private partnership (PPP) program; and (iii) in the long term, develop new agricultural insurance products for semicommercial farmers including the option of area yield index insurance (AYII), where technological innovations may offer the potential use of remote sensing applications to estimate crop yields and yield shortfalls in the future (World Bank 2020).

In 2021, the Bureau of the Treasury (BTr) requested World Bank's technical support for the comprehensive transformation of the PCIC. As specific next steps, the BTr is seeking support in (i) design and launch of crop insurance schemes that are more appropriate to the needs of smallholder farmers; (ii) improved implementation of existing and new crop insurance schemes, including those aimed at the commercial agriculture sector; and (iii) facilitation and encouragement of private sector provision of crop insurance.

The GoP has requested the World Bank to identify ways to reform PCIC's operations, promote private sector entry, rationalize the premium subsidy regime, and improve the provision of agricultural insurance to Philippine farmers. To address this request, the World Bank identified a two-phased approach:

Phase 1 A six-month technical assistance program starting in December 2021 to assist the government in formulating a roadmap that includes firm recommendations to strengthen PCIC's operations and identifies ways to reform the provision of national agricultural insurance along sound market-based principles

Phase 2 A three-year program (2023–2026) to implement market-based reforms to the PCIC and the Philippine crop insurance market, and to strengthen the range of agricultural insurance products and programs available to Philippine farmers.

This report presents the World Bank's findings from Phase 1, including the review of PCIC's operations, the roadmap, and recommendations for strengthening and reforming agricultural insurance in the Philippines. The preparation of this report was a collaboration between the World Bank team and key public and private sector stakeholders in the Philippines, including the DA, the DoF, the IC, the PCIC, the Philippine Association of Insurers and Reinsurers (PIRA), the Land Bank of the Philippines (LBP), the Philippine Statistics Authority (PSA), the Office of Civil Defense (OCD), and the National Disaster Risk Reduction and Management Council (NDRRMC). A list of participants who have kindly collaborated in this study is attached as Annex A.

1.4. FRAMEWORK OF THIS REPORT AND ROADMAP

This report is divided into five sections. Following the current section, which provides an introduction and context, section 2 presents an overview of PCIC's programs, operations, performance, and results, and draws on data and information provided by the corporation for this review.² Section 3 presents a detailed diagnostic analysis of the legal, technical, operational, financial, insurance, and reinsurance issues and challenges faced by the PCIC—and more widely the overall provision of agricultural insurance in the Philippines. Section 4 presents options, solutions, and recommendations for strengthening the PCIC and the provision of agricultural insurance in the Philippines. Finally, section 5 presents the way forward and a roadmap for immediate reforms (in 2022) and medium-term reforms (next two to three years) to strengthen the provision of agricultural insurance.

2. It is noted that in the very short time available for this study (from mid-February to the end of March 2020), it was not possible for the PCIC to assemble all the data and statistics requested by the World Bank team. Thus, while the team has attempted to carry out the most detailed review and analysis possible within this time frame, a more comprehensive review and analysis will be required for the next phase, when the recommendations identified in this report are implemented.



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2. OVERVIEW OF PCIC'S OPERATIONS, PERFORMANCE, AND RESULTS



2.1. PCIC'S INSTITUTIONAL AND LEGAL BASIS, MANDATE, AND MISSION

The PCIC was created by Presidential Decree (PD) 1467, issued on June 11, 1978, as a public sector–subsidized and credit-linked crop insurance program designed to protect farmers against natural disasters and to stabilize the finances of the lending institutions. The PCIC is owned by the GoP: at inception, its authorized capital was PHP 750 million, with paid-up capital of PHP 250 million to be fully subscribed by the government. The PCIC's mandate was to make insurance more affordable to farmers by providing partial premium subsidies funded by the National Treasury (Decree 1467). Crop multi-risk insurance was introduced in May of 1981 initially for rice: cover was made compulsory for loanees with seasonal production loans obtained under the supervised credit program³ and was voluntary for self-financed rice farmers.⁴ Crop insurance was subsequently expanded to include corn (maize) and HVCs, and livestock insurance was added in 1988. Fisheries insurance was introduced in 2011.

The PCIC's charter and mandate were substantially revised and strengthened in 1995 (Republic Act 8175, otherwise known as the Revised PCIC Charter). The revised charter was designed to make the crop insurance system more stable and beneficial to farmers. Key features of the 1995 act included expanding PCIC's mandate to offer non-crop insurance for agricultural assets, machinery, and equipment; specifying the types of farmers eligible for GPS; increasing PCIC's paid-up capital base to PHP 1 billion; exempting the PCIC from paying national, regional, provincial, and Local Government Unit (LGU) taxes on agricultural insurance premiums; creating a state reserve fund of PHP 500 million to cover catastrophe losses (claims) in excess of PCIC's pure risk premium; and authorizing the PCIC to spread its risk by purchasing reinsurance protection. There have been further amendments to PCIC's charter over time.

2.2. GOVERNMENT PREMIUM SUBSIDY SUPPORT TO THE PCIC

Since the launch of the PCIC in 1981, the GoP, through the General Appropriations Act (Republic Act 11518), has supported the program through GPS. In accordance with the Republic Act No. 8175 of 1995, GPS are strictly provided to subsistence farmers only, namely those farmers cultivating not more than 7 ha. Between 1981 and 2012, the PCIC offered partial premium subsidies averaging 50–55 percent of the commercial premium value for two of its Regular Programs: crop insurance for palay (rice) and for corn (maize). However, no premium subsidies were provided for its Regular Programs for HVCs, livestock, and aquaculture, and this situation continues up to today.

In the past decade, the government has substantially increased its commitment to the provision of public sector agricultural insurance by offering free (fully subsidized) agricultural insurance to Philippine subsistence farmers under the Special Programs of the PCIC. These started in 2012 with the introduction of free (100 percent–subsidized premium) agricultural insurance in several pilot programs, including the DA's Sikat Saka Program and the National Irrigation Administration (NIA)–Third Cropping Program, followed in 2013 by the Weather Averse Rice Areas Program and the Department of Agrarian Reform (DAR) Agrarian Reform Beneficiaries Agricultural Insurance Program (ARB-AIP). In 2014, the Department of Budget and Management launched fully subsidized programs for RSBSA farmers and fisherfolk with a budget of PHP 1.183 billion (Reyes et al. 2015). The General Appropriations Act includes a special provision stating that the amount of premium subsidy “shall be used for the full insurance premium of subsistence farmers and fisherfolk to cover crop, livestock, fisheries, and non-crop agricultural assets” (PCIC 2021). In 2014, GPS were set at PHP 1.183 billion; this amount was raised in steps to PHP 2.50 billion in 2017, and then to PHP 3.50 billion in 2018. It remained at this level until 2022, when the government raised the GPS to PHP 4.50 billion for RSBSA farmers.

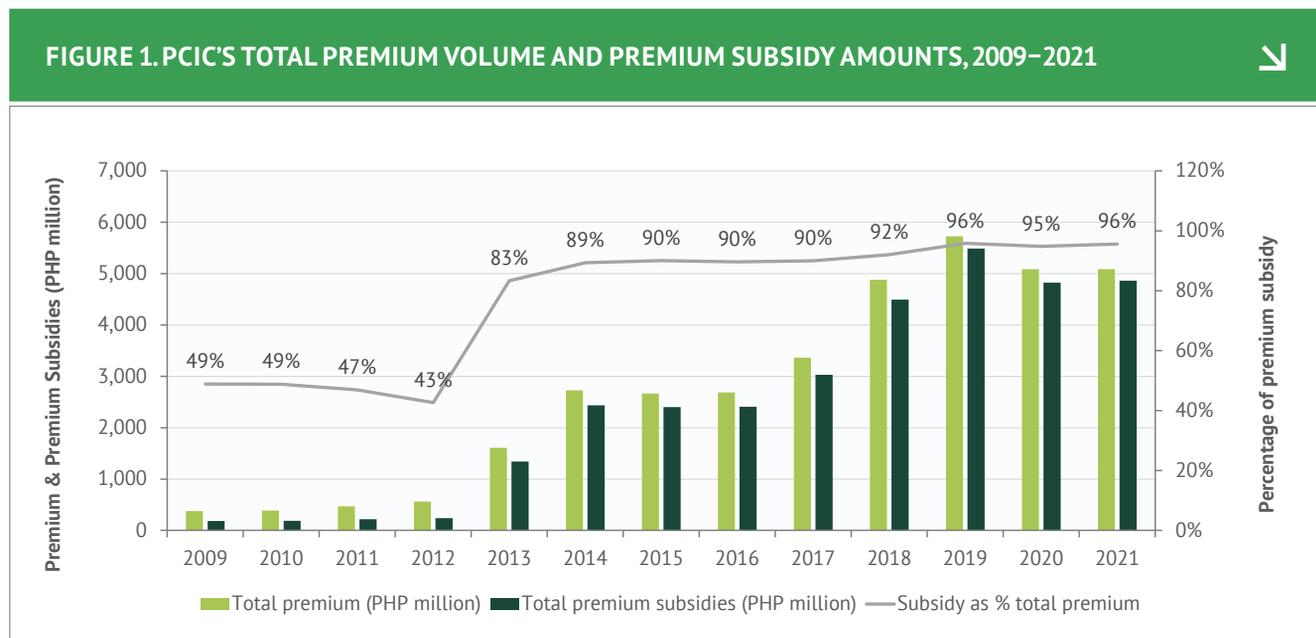
The PCIC is also authorized to receive additional premium subsidies from alternative sources. The Republic Act 10000—also called the Agri-Agra Reform Credit Act of 2010—requires banks to allocate at least 10 percent of their

3. Presidential Decree No. 1733 (October 21, 1980) was enacted in order to ensure that all lending institutions providing rice production loans to farmers under the government's supervised credit program automatically issued a rice crop insurance policy and collected the premium from the loanee on behalf of the PCIC. The lender was liable if it failed to make crop insurance cover compulsory for the loanee farmer and was subject to a fine of up to PHP 10,000 or imprisonment for up to six months.

4. This is similar to India, where a national crop-credit insurance program, the Comprehensive Crop Insurance Scheme (CCIS), was launched in 1980 with the objective of promoting access to credit by small and marginal farmers; in India, crop insurance was compulsory for loanees and voluntary for non-loanees. Today the Indian program is known as Pradhan Mantri Fasal Bima Yojana (PMFBY).

total lending portfolio to agrarian reform beneficiaries and 15 percent to farmers and fisherfolk.⁵ Banks failing to meet these levels of agricultural lending are subject to financial penalties; since 2011, the PCIC has received a share of the Agri-Agra penalties to finance its own premium subsidy support to two sets of programs: (i) non-RSBSA Special Programs, where beneficiaries receive 100 percent-subsidized premiums; and (ii) Regular Programs for rice and corn farmers, where beneficiaries receive partial premium subsidies (averaging about 55 percent). In 2020, PCIC's premium subsidies amounted to an additional PHP 1.32 billion from Agri-Agra penalties, PCIC's own funds, and other sources.⁶

Today, the PCIC is one of the most heavily subsidized national agricultural insurance programs in the world. Since the GoP elected to provide free agricultural insurance—that is, to fully subsidize premiums—for RSBSA-registered subsistence farmers in 2013, the share of premium subsidies in PCIC's overall premium income has risen steeply, reaching 96 percent in 2021. That year, the PCIC received PHP 4.86 billion in subsidies out of the total premium value of PHP 5.09 billion (Figure 1).



Source: PCIC annual reports, 2009 to 2020.

5. In 2020, banks were able to provide only PHP 663 billion in eligible credit and financing to the Agri/Agra sector, registering 10 percent overall compliance, or 15 percent short of the mandated credit quota. Banks have not been fully compliant since the law's effectivity in 2011. In fact, banks' overall compliance has been steadily declining over the past 10 years, with the 2020 compliance lower than the past year by two percentage points. See Department of Agriculture, "State of Agricultural Finance 2020," <https://acpc.gov.ph/wp-content/uploads/2021/05/2020-State-of-Agricultural-Finance.pdf>.

6. Agri-Agra funds received from the BSP totaled PHP 757.808 million in 2020, representing PCIC's 45 percent share (50 percent of 90 percent) of the penalties collected by the BSP from lending/banking institutions for noncompliance with the Agri-Agra Law (Republic Act No. 10000) (COA 2021).



Photo credit: EAP Photo Collection/ World Bank

2.3. PCIC'S ORGANIZATION AND MANAGEMENT, STAFFING, OPERATING BUDGET, AND EXPENDITURE

2.3.1. Organization, management, and staffing

The PCIC, as the national public sector agricultural insurer, has its headquarters in Manila and a network of 13 regional offices (ROs). At headquarters, the PCIC has a permanent staff of 52 employees involved in product design, actuarial and rating activities, marketing and promotion, underwriting and loss adjustment, and claims settlement. Additional administrative staff is responsible for accounting, IT and data processing, and reporting (Figure 2 and Table 1).⁷ The corporation maintains a small team of up to 14 authorized permanent staff in each of the 13 ROs, for a total of 201 employees in those offices. In addition, due to the huge expansion in PCIC's operations and the number of insured farmers in the past five to six years, the company employs an increasing network of contract (or job order) workers who have been hired by the ROs mainly to perform marketing and sales activities and underwriting services, as well as in-field inspections, loss assessment, and claims processing and settlement under the indemnity-based agricultural insurance programs. In 2016, the company employed only 413 job order workers; the number grew to 621 in 2017 (World Bank 2019b) and to 1,043 in 2020. The corporation also retains the services of three consultants (Table 1).

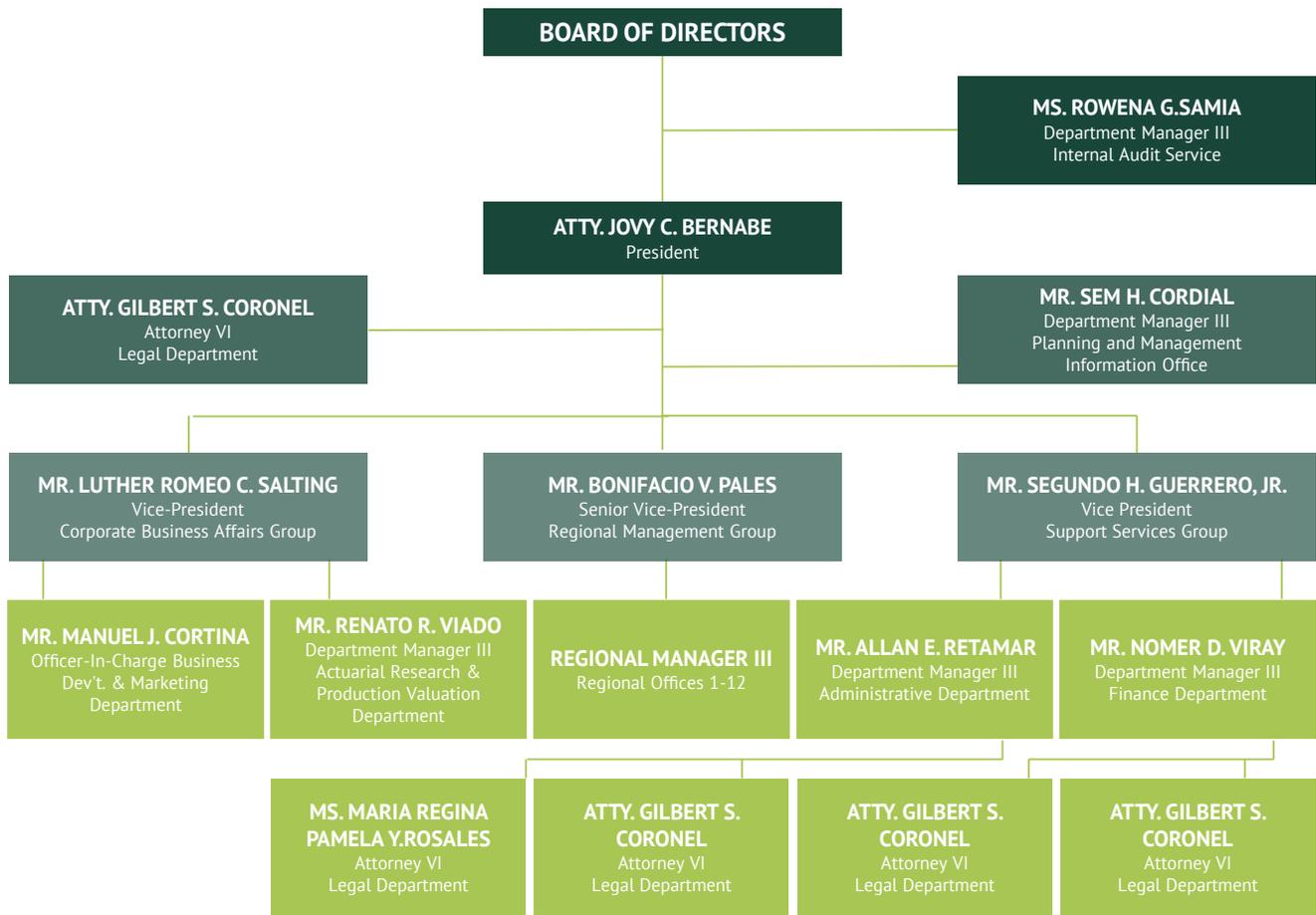
The PCIC reports to a Board of Directors, which as of 2022 was chaired by the secretary of the DoF, with the secretary of the DA serving as vice-chair. The other Board members include the president of the PCIC, the president and CEO of the LBP, the president and CEO of the Government Service Insurance System (GSIS), and a subsistence farmers' representative. The PCIC was for many years an entity attached to the DA, but under Executive Order No. 148 (September 14, 2021) the responsibility for PCIC's policy and program coordination, as well as its general supervision, was transferred to the DoF.

7. It is noted that the PCIC does not maintain a separate Underwriting Department responsible for vetting of policy applications, risk acceptance, setting of special conditions, policy issuance, and premium collection, but rather these functions are subordinated to the Business Development and Marketing Department at headquarters level and to the Sales and Marketing Departments in the regions. It is unusual for an insurance company of this size not to have a separate Underwriting Department either at headquarters or regional level. As part of the reform process, it is recommended that the PCIC review its current organizational and operational setup and determine the benefits of keeping it as it is versus creating a separate specialized Underwriting Department at the headquarters and regional levels.



Photo credit: EAP Photo Collection/ World Bank

FIGURE 2. PCIC HEADQUARTERS ORGANIZATIONAL CHART



Source: PCIC, “Organizational Chart,” <https://pcic.gov.ph/organizational-chart/>.

Note: PMGSD = Property Management and General Services Division.



Photo credit: EAP Photo Collection/ World Bank

TABLE 1. PCIC'S STAFF LEVELS: REGULAR EMPLOYEES AND JOB ORDER WORKERS IN THE HEAD OFFICE AND REGIONS, 2020



Office/RO	Authorized Positions	Regular Employees	Unfilled Positions	Job Order Workers	Contractual / Consultants	Total No. of Personnel
Head Office (HO)	65	52	13	22	3	77
I	14	12	2	68		80
II	14	11	3	93		104
III	14	12	2	51		63
III-A	14	12	2	34		46
IV	14	11	3	88		99
V	14	11	3	71		82
VI	14	11	3	98		109
VII	14	12	2	113		125
VIII	14	11	3	97		108
IX	14	12	2	75		87
X	14	12	2	97		109
X1	14	10	4	63		73
X11	14	10	2	93		105
Sub-Total Regional	182	149	33	1,041	0	1,190
GRAND TOTAL	247	201	46	1,063	3	1,267

Source: World Bank using information provided by PCIC in 2022.

2.3.2. Operating budget and expenditure

The PCIC currently loads its pure loss cost premium rates by 20 percent to cover its administration and operating overhead expenses (equivalent to a deduction of 15.4 percent of gross written premium). In 2020, PCIC's total premium income (including premiums paid by farmers and premium subsidies) amounted to PHP 5.086 billion, and a nominal 15.4 percent share of premium would therefore amount to PHP 783 million to cover overhead expenses.

In 2020, PCIC's total audited operating expenses amounted to PHP 711 million, or 14 percent of total premium (IC 2021b), slightly below the corporation's budgeted level of 15.4 percent of gross premium. Operating expenses were divided into Personnel Services, costing PHP 196 million (or 28 percent of total operating expenses), Maintenance and Other Operating Expenses, totaling PHP 492 million (69 percent of total), Financial Expenses (1 percent of total), and Non-Cash Expenses (3 percent of total). These operating expenses are high compared to those of the other public sector insurer, GSIS, where expenses are in the order of 5 percent of gross premium (IC 2021b). One of the main reasons for PCIC's high operating overhead is that it insures large numbers of subsistence farmers under its indemnity-based crop, livestock, and fisheries programs and so requires a large number of field staff in each region to conduct inspections and assess losses. This situation is a great improvement over the past, when PCIC's portfolio, and therefore its premium volume, were much smaller, and the corporation had to load its pure risk rates by 70 percent to cover its operating expenses (World Bank 2019b). See section 3.2 for further analysis of PCIC's operating overhead expenses.

2.4. PCIC'S AGRICULTURAL AND NONAGRICULTURAL INSURANCE PRODUCTS AND PROGRAMS

2.4.1. Agricultural insurance products

Agricultural insurance provides coverage for most types of agricultural production risks and assets, including crops, livestock, aquaculture, forestry, and greenhouses, and can include covers for equine (pleasure horses), bloodstock (racing horses), and pets. Agricultural insurance products can be broadly divided into three categories:

- **Indemnity-based products**, where losses are adjusted through inspections at the individual-farmer or policy level (e.g., a field or livestock operation)
- **Index-based (or parametric) products**, where indices based on weather, yield, satellite, or crop model data are used to settle claims without on-site loss inspections
- **Hybrid products**, where indices are typically used as first triggers, and losses are thereafter adjusted as under indemnity-based products (World Bank 2019b)

The PCIC currently offers traditional indemnity-based agricultural insurance for five major agricultural product lines: rice, corn, HVCs, livestock (including poultry), and fisheries/aquaculture. At its inception back in 1981, the PCIC offered conventional loss of yield, multi-peril crop insurance (MPCI) cover to rice and corn farmers, protecting them against losses due to climatic and natural perils and uncontrollable pests and diseases (P&D). However, due to the difficulties of establishing an average expected yield and the prohibitively high costs of measuring the actual yield and amount of insured yield loss (via field inspections and field-level loss adjusting at the time of harvest), the PCIC abandoned the MPCI model in the early 1990s and replaced it with a multi-risk damage-based policy that indemnifies losses according to the expected yield reduction, or percentage loss times the actual costs of production invested in growing the crop at the time of loss.

The HVC policy is a multi-risk damage-based loss of investment cost policy that insures against losses due to named natural perils and P&D, and cover is available for a wide range of 77 fruit, vegetable, tree, and plantation crops grown in the Philippines. The HVC policy pays out when the costs of production invested in growing the crop at the time of loss exceed the value of the remaining crop (termed the “salvage”). For the crop indemnity programs, damage/losses of less than 10 percent are not indemnified; losses between 10 and 90 percent are adjusted according to the actual percentage of damage; and losses above 90 percent are considered a total loss. The sum insured in the crop insurance programs is typically based on the direct costs of production, including inputs, labor, and (at PCIC's discretion) a portion of the value of the expected yield.⁸

The livestock insurance program offers individual-animal accidental death and disease cover for commercial and noncommercial livestock as well as flock cover for poultry; the sum insured is based on the nominal market value to replace the lost animal. The fisheries/aquaculture cover insures fish stock against natural disasters but excludes all P&D (see Box 1 and Annex B for further details).

Although the corporation has pilot-tested crop WII and AYII products in the past, none of these index programs has been implemented commercially (at scale and sustainably), and all have subsequently been suspended.⁹

2.4.2. Non-crop and nonagricultural insurance products

Under the Republic Act 8175 of 1995, the PCIC was authorized to offer non-crop agricultural asset insurance and credit and life term insurance. The NCI cover enables farmers to insure their buildings, machinery, and equipment against named perils, while the CLTI cover provides life insurance cover to the farmer and includes a loan protection option to guarantee that the loan is repaid in the event of death of the loanee (Box 1). It is relatively unusual for a specialized agricultural insurance company to also be authorized to underwrite life and personal accident covers; the insurance industry normally separates the life and non-life insurance business and restricts the underwriting of life cover and personal accident to life insurance companies alone.

8. Republic Act 8175 specifically states: “Such crop insurance shall cover, in every case, the costs of production inputs, the value of the farmer's own labor and those of the members of his household, including the value of the labor of hired workers, and a portion of the expected yield as the Board of Directors, in its discretion, decide to insure.”

9. Between 2010 and 2013, the PCIC, in conjunction with the German Agency for International Cooperation (GIZ), World Bank Group, and International Labour Organization, piloted (i) a crop weather index-based insurance scheme for rice and corn farmers, and (ii) an area-based yield index insurance mechanism for rice farmers in Leyte Island, where the program was disrupted by Typhoon Yolanda (PCIC 2013).



- **Rice crop insurance:** A multi-risk or multi-peril salvage-based, indemnity-based crop insurance policy that protects farmers against losses due to natural calamities as well as plant P&D. The insurance covers the cost of production inputs. The premium rate is variable per region, per season, and per risk classification. Subsistence rice farmers who are not participating in the agricultural insurance Special Programs with 100 percent-subsidized premiums are given a 55 percent premium discount by the PCIC. A flat premium rate is charged to farmers in the Special Programs.
- **Corn crop insurance:** A multi-risk or multi-peril salvage-based, indemnity-based crop insurance policy that protects farmers against losses due to natural calamities as well as plant P&D. The insurance covers the cost of production inputs. The premium rate is variable per region, per season, and per risk classification. Subsistence corn farmers who are not participating in the agricultural insurance Special Programs with 100 percent-subsidized premiums are given a 55 percent premium discount by the PCIC. A flat premium rate is charged to farmers in the Special Programs.
- **High-value crop insurance:** A damage-based indemnity product extended to farmers against losses of HVCs due to natural calamities and other perils such as P&D. High-value crops include abaca, ampalaya, asparagus, banana, cabbage, carrot, cassava, coconut, coffee, commercial trees, cotton, garlic, ginger, mango, mongo, onion, papaya, peanut, pineapple, sugarcane, sweet potato, tobacco, tomato, watermelon, white potato, etc. Around 77 different named peril insurance products have been developed for specific crops.
- **Livestock insurance:** An insurance protection for livestock raisers against losses of carabao, cattle, horse, swine, goat, sheep, poultry and game fowls, and other animals due to accidental death or diseases.
- **Fisheries/aquaculture:** An insurance protection for fish farmers/fisherfolk/fish growers against losses in unharvested crop or stock in fisheries due to natural calamities and fortuitous events.
- **Non-crop agricultural asset insurance:** An insurance protection for farmers against loss of their non-crop agricultural assets like warehouses, rice mills, irrigation facilities, fishing vessel/boats, and other farm equipment due to perils such as fire and lightning, theft, and earthquake.
- **Credit and life term insurance:**
 - **Agricultural Producers Protection Plan:** An insurance protection that covers death of the insured due to accident, natural causes, and murder or assault, as well as dismemberment of the insured.
 - **Loan Repayment Protection Plan:** An insurance protection that guarantees payment of the face value or the amount of the released agricultural loan upon the death or total permanent disability of the insured borrower.
 - **Accident and Dismemberment Security Scheme:** An insurance protection that covers death, dismemberment, or disablement of the insured due to accident.

Source: Adapted from Cajucom (2015) to reflect the fact that the rice and corn covers are no longer conventional loss of yield covers.

2.4.3. Agricultural Guarantee Fund

Section 7 of PD 1467 authorized the transfer of the Agricultural Guarantee Fund from the LBP to the PCIC. Under this program, the agricultural loans to farmers from the rural banks and other lending institutions were guaranteed by the PCIC using the Agricultural Guarantee Fund. The operations and performance of the fund fall outside the terms of reference of the current study and are therefore not considered further.

2.5. PCIC'S REGULAR PROGRAMS AND SPECIAL PROGRAMS FOR INSURANCE OF SUBSISTENCE FARMERS

PCIC's insurance operations are divided into two separate and distinct programs, namely (i) the Regular Programs for semicommercial and commercial farmers, where rice and corn insurance is partly subsidized by the PCIC, and (ii) the Special Programs for RSBSA subsistence farmers, which are fully subsidized by the government. In 2020 these programs included the following:

1. **The Regular Programs:** These include rice and corn crop insurance, with a 55 percent premium subsidy paid by the PCIC; and the HVC, livestock, fisheries, NCI, and CLTI product lines, with no premium subsidies at all. In 2020, the PCIC issued a total of 126,416 agricultural policies to crop, livestock, and fisheries producers, representing just 5.3 percent of its total agricultural insurance policies. It also issued a very large number of life policies under its CLTI program, raising its total Regular Program sales to 804,032 policies (Table 2).
2. **The Special Programs:** These cover a total of six subprojects/subprograms and are fully (100 percent) subsidized by the government through the General Appropriations Act and by the PCIC, the DA, and other partners, including the LBP and LGUs. The largest of these Special Programs is the Registry System for Basic Sectors in Agriculture Program. Under the RSBSA, farmers and fisherfolk included in the registry¹⁰ are entitled to 100 percent free insurance from the PCIC. Under the Special Provision of Republic Act No. 11465, dated January 6, 2020, for fiscal year 2020 the General Appropriations Act allocated PHP 3.5 billion to the PCIC to subsidize the crop, livestock, fisheries, and NCI insurance premiums of subsistence farmers and fisherfolk. In 2020, the free RSBSA Special Program insured a total of 1,749,665 farmers, livestock producers, and fisherfolk. With the inclusion of the other subprojects/subprograms, the Special Programs insured 2.281 million farmers and fisherfolk, representing 95 percent of total agricultural insurance policies. This number rises to 2.286 million policies when adding the nonagricultural insurance programs, representing 74 percent of the total 3.090 million policies sold in 2020. It is apparent from these figures just how important the fully subsidized Special Programs are in the PCIC's portfolio.

10. The creation of the RSBSA registry was a joint effort of the Department of Budget and Management, the National Statistics Office, the Department of Agriculture, the Department of Agrarian Reform, the Department of the Interior and Local Government, and the National Anti-Poverty Commission. The registry is a nationwide database of baseline information concerning farmers, farm laborers, and fisherfolk; it also includes geographical coordinates of agricultural and fishery workers and households. According to the Department of Budget and Management, the data should be used as the basis for developing programs and policies for the agriculture and fishery sectors, and serve as a targeting mechanism for the identification of the rural poor, to ensure that only the poor benefit from agricultural subsidy programs (Reyes et al. 2015).



Photo credit: Edwin Huffman from the World Bank Flickr

TABLE 2. PCIC-INSURED FARMERS, BY REGULAR AND SPECIAL PROGRAMS (2020)


Insurance Product Lines	PCIC Regular Program	Special Programs							Total No Farmers all Programs	Farmers as Percent of Total Programs
		RSBSA	Non-RSBSA	DA Rice & Corn	DA-Plea	DA-Sure	DA-DAR-LBP-APCP	Sub-Total Special Programs		
Rice	61,273	973,132	213,429	16,725	3,427	24	10,867	1,217,614	1,278,887	41.4%
Corn	20,782	303,937	96,707	378	2,679	51	1,443	405,195	425,977	13.8%
High value crops	6,276	196,880	77,272		1,982	280	2,109	278,523	284,799	9.2%
Livestock	36,025	243,273	89,651		1,051	30	316	334,321	370,346	12.0%
Fisheries	2,060	32,433	12,731		24	84		45,272	47,332	1.5%
Sub-Total Agricultural Insurance	126,416	1,749,655	489,790	17,103	9,173	469	14,735	2,280,925	2,407,341	77.9%
Percent of Agricultural Insurance	5.3%	72.7%	20.3%	0.7%	0.4%	0.0%	0.6%	94.7%	100.0%	
No	259	3,489	368					3,857	4,116	0.1%
CLTIP	677,357				785	652		1,437	678,794	22.0%
Total Agric.+Non-Ag. Programs	804,032	1,753,144	490,158	17,103	9,958	1,121	14,735	2,286,219	3,090,251	100.0%
Percent of AG.+Non-Ag. Policies	26.0%	56.7%	15.9%	0.6%	0.3%	0.0%	0.5%	74.0%	100.0%	

Source: PCIC 2020 annual report (DA 2020).

Note: The Special Programs include RSBSA and non-RSBSA programs, including those supported by the Department of Agriculture (DA): Sikat Saka Program, Production Loan Easy Access (PLEA), Survival and Recovery (SURE) Loan Assistance, Agrarian Production Credit Program (APCP), and the Hybrid Rice Program and Planters Products, Inc. (PPI). CLTI = credit and life term insurance; NCI = non-crop agricultural asset insurance.

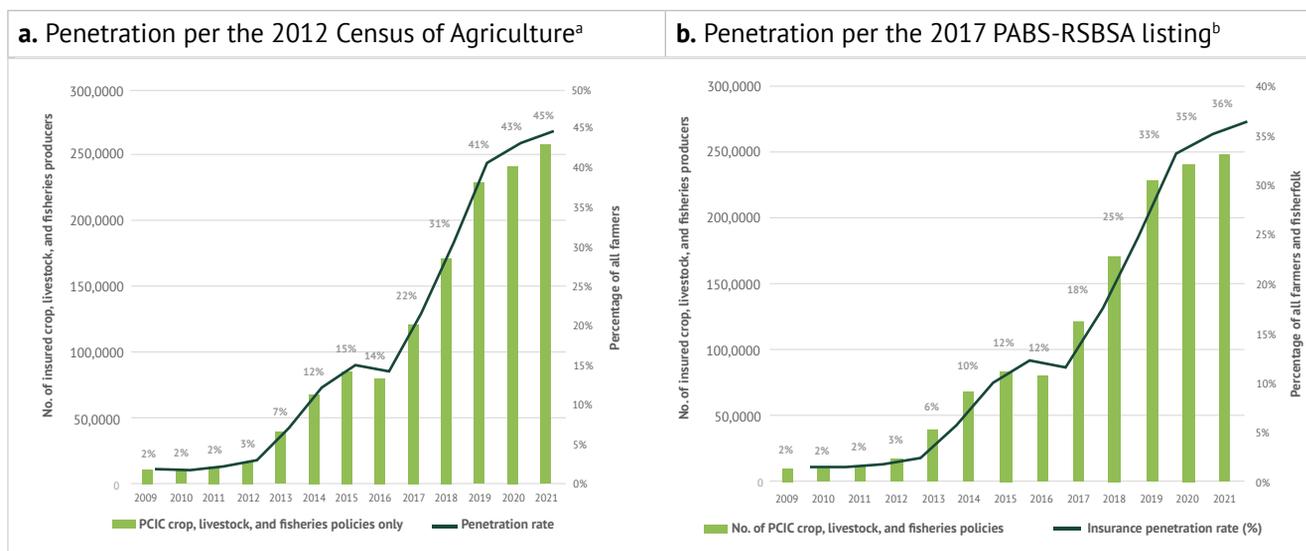
2.6. PCIC'S UPTAKE AND PENETRATION, 2009–2020

From 1987 to 2013, the penetration rate of PCIC's agricultural insurance products was extremely low: the rate on average was 4.5 percent of rice farmers and 0.9 percent of corn producers, well short of the targets set by the government for agricultural insurance sales and penetration. According to Reyes et al. (2017), some of the reasons for the low insurance penetration include limited awareness of agricultural insurance's existence and benefits, the limited geographical reach of the PCIC through its regional and provincial offices, and limited funding for certain policies that led to a "first come–first serve" approach to enrolling farmers.¹¹ Additionally, the ad hoc nature of implementing special insurance programs, which tend to have discontinuous funding, undermines the insurance system (Mina et al. 2015). The cost-intensive nature of indemnity-based insurance for smallholders and the high costs of loss adjustment further limit the PCIC's ability to enroll more farmers—more so if its resources and capital base do not increase accordingly.

In the past seven years, however, the PCIC has significantly scaled up its agricultural insurance operations, and in 2021 it recorded 2.49 million policy sales to farmers, livestock producers, and fisherfolk. This represents a penetration rate of 45 percent of the total 5.62 million farm households registered by the 2012 Census of Agriculture and Fisheries (PSA 2015) (Figure 3a), or 36 percent of the 2017 PCIC Automated Business System (PABS)-RSBSA listing that records 6.85 million farmers and fisherfolk (Figure 3b). The total number of policies issued by the PCIC to farmers (including agricultural insurance and nonagricultural insurance policies) increased from 148,000 policies in 2009 to 3.36 million policies in 2021, with a corresponding increase in the insured crop area from 155,000 ha to 2.1 million ha. The total sum insured has also increased considerably and reached PHP 110.1 billion (US\$2.2 billion) in 2021, with a corresponding premium of PHP 5.086 billion (US\$102.5 million).

There has been a significant increase in the insurance penetration rate and uptake of PCIC's agricultural insurance products by farmers in the past four years. Figure 3 shows that, for PCIC's agricultural insurance lines, the penetration rate (based on the number of farmers) has increased threefold, from about 12–15 percent of all the nation's farmers in 2015, to between 36 percent and 45 percent of all farmers in 2021 depending on the classification that is used. This represents a very significant scaling up of agricultural insurance provision by the PCIC in recent years; it now protects more than one-third of all the farmers in the Philippines.

FIGURE 3. PCIC'S AGRICULTURAL INSURANCE PENETRATION RATE, 2009–2021 (% OF TOTAL FARMERS)



Sources: PCIC annual reports, 2009–2021 (for number of insured farmers + livestock producers + fisherfolk); PSA 2015; 2017 PCIC Automated Business System listing.

Note: PAB = PCIC Automated Business System; RSBSA = Registry System for Basic Sectors in Agriculture.

a. Total number of farm holdings = 5,562,577 (PSA 2012).

b. Total number of farmers + fisherfolk = 6,845,747 (2017 PABS-RSBSA listing).

11. The premium subsidy budget allocated to insuring farmers registered under the RSBSA is relatively small, about PHP 2.5 billion in 2016–2017. If the government aims to cover all eligible rice farmers, the budget would need to be between PHP 4.8 billion and PHP 8.6 billion. Similarly, for corn, the PCIC would need between PHP 3.2 billion and PHP 6.2 billion to cover all eligible corn farmers. See Reyes and Mina (2017).

The increase in the PCIC's penetration rates (based on the percentage of farmers) has been achieved due to the GoP's major commitment to increase premium subsidy support to the company and due to the efforts of the PCIC not only to reach but to exceed the annual targets set by the government. In 2021, GPS amounted to PHP 3.5 billion (US\$71.0 million) for the fully subsidized RSBSA programs that focus on subsistence farmers.¹² With the inclusion of other PCIC and DA premium subsidies, total premium subsidies reached PHP 4.86 billion (US\$98.7 million), or 95.6 percent of total premium.¹³ This premium subsidy level is comparable to or even higher than in neighboring countries with major PPP agricultural insurance programs such as China and India. For 2022, the government has approved an increase in GPS for RSBSA subsistence farmers to PHP 4.5 billion (US\$85.5 million).

However, when looking at the percentage of cultivated area of major crops that is protected by the PCIC or at the number of animals that are insured, the penetration rates are much lower. In 2021, the PCIC insured 1,366,504 ha of rice (palay), which is equivalent to 29 percent of the 4.65 million ha of rice cultivated in 2021.¹⁴ In the case of corn, the penetration rate is 19 percent (2021 insured area of 475,920 ha compared to a total of 2.55 million ha planted). In the case of livestock (carabao, cattle, hogs, and goats; not including poultry and ducks) the penetration rate is 12.3 percent (2,376,000 insured head of animals compared to the national livestock headcount of 19,310,000 carabao, cattle, hogs, and goats).¹⁵

2.7. PCIC'S UNDERWRITING RESULTS AND PERFORMANCE, 1981–2021

2.7.1. Underwriting results

If agricultural insurance programs are to be financially sustainable they must meet three key aims: (i) achieve scale-up to enable insurers to cover their operational and administrative (O&A) costs; (ii) achieve a wide geographical spread of risk; and (iii) over an insurance cycle (usually 7 to 10 years), cover the claims paid to farmers and O&A expenses out of earned premium and (for commercial insurers) also generate reasonable profits.

For the PCIC to become a sustainable insurer and to effectively utilize taxpayer funds, it must develop and adopt a suitable financial risk management framework. This includes understanding the risk appetite of the business and setting up underwriting and reinsurance, investment, capital, and profit management strategies developed in tandem with one another and reviewed regularly. Section 4.6 provides further details about this framework.

In its first decade of operation, 1981 to 1990, the PCIC incurred very high losses; claims exceeded premiums in 6 out of the 10 years, with an average loss ratio of 118 percent and a peak loss of 204 percent in 1988. This was in part due to the small size of its MPCI portfolio for rice and maize farmers. Note that corn and maize are used interchangeably in this report.

Subsequent developments have led to improved underwriting results. Since 1990, the company has expanded and diversified its portfolio into HVC, livestock, fisheries, and nonagricultural insurance lines, while also achieving a much wider geographical spread of risk. In the past 33 years, the PCIC has experienced a negative underwriting result (paid claims greater than earned premium) in only one year, 1998, with a loss ratio of 108 percent (Figure 4).

12. In 2020, the PCIC insured a total of 1,753,144 farmers under the RSBSA programs.

13. PCIC's 2021 results were kindly provided by the PCIC in March 2022.

14. Data on cultivated area with rice and corn are from Philippine Statistics Authority database, "Palay and Corn: Area Harvested by Ecosystem/Croptype, by Quarter, by Semester, by Region and by Province, 1987–2022 by Ecosystem/Croptype, Geolocation, Year and Period", https://openstat.psa.gov.ph/PXWeb/pxweb/en/DB/DB__2E_CS/0022E4EAHC0.px/?rxid=ddf9d8da-96f1-4100-ae09-18cb3eae313.

15. Livestock numbers are from Philippine Statistics Authority database, "Livestock and Poultry: Inventory by Animal Type, as of 1 January 1950, 1955, 1960, 1965, 1970–2022," https://openstat.psa.gov.ph/PXWeb/pxweb/en/DB/DB__2E_LP/0012E4FILP0.px/?rxid=ddf9d8da-96f1-4100-ae09-18cb3eae313

FIGURE 4. EVOLUTION OF PCIC'S LOSS RATIO, 1981–2021

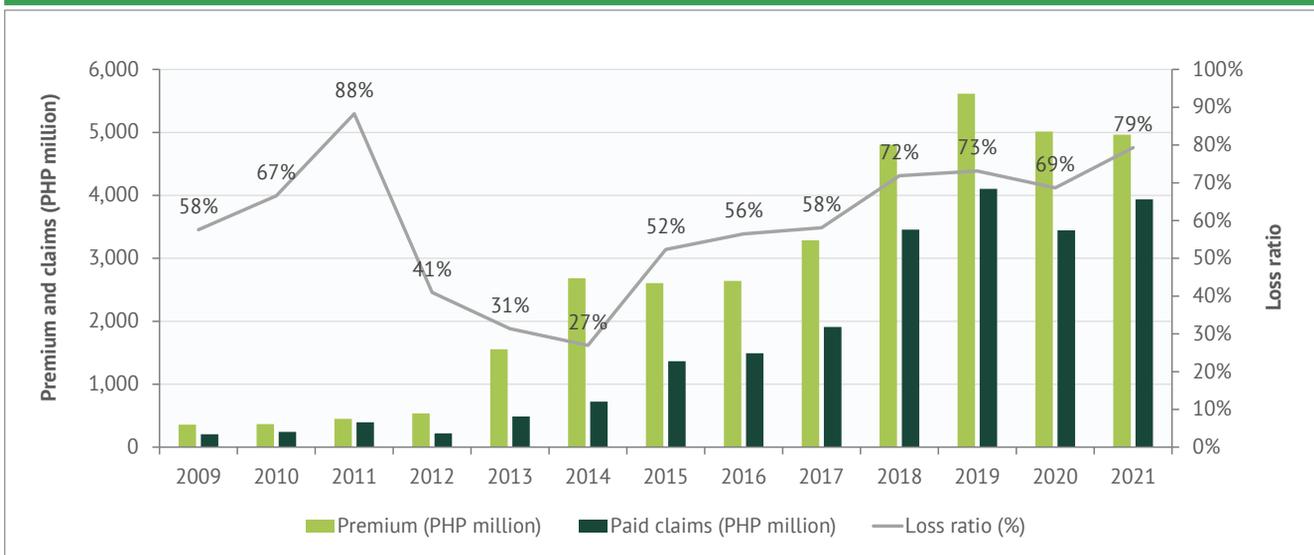


Source: World Bank analysis of PCIC annual results 1981 to 2021.

During the 13 years from 2009 to 2021, the long-term average loss ratio (LTALR) for PCIC's agricultural programs has been 63 percent, ranging from a low of 27 percent in 2014 to a high of 88 percent in 2011 (Figure 5). When including the nonagricultural insurance programs, the LTALR remains unchanged at 63 percent at the end of 2021.

However, in the years since 2013, when the 100 percent-subsidized Special Programs were introduced, the annual loss ratio has shown an increasing trend every year, reaching 79 percent in 2021 (Figure 5). This means that PCIC's combined ratio (including 30 percent of loadings) exceeded 100 percent in 2021, but the reasons for this trend are not clear.

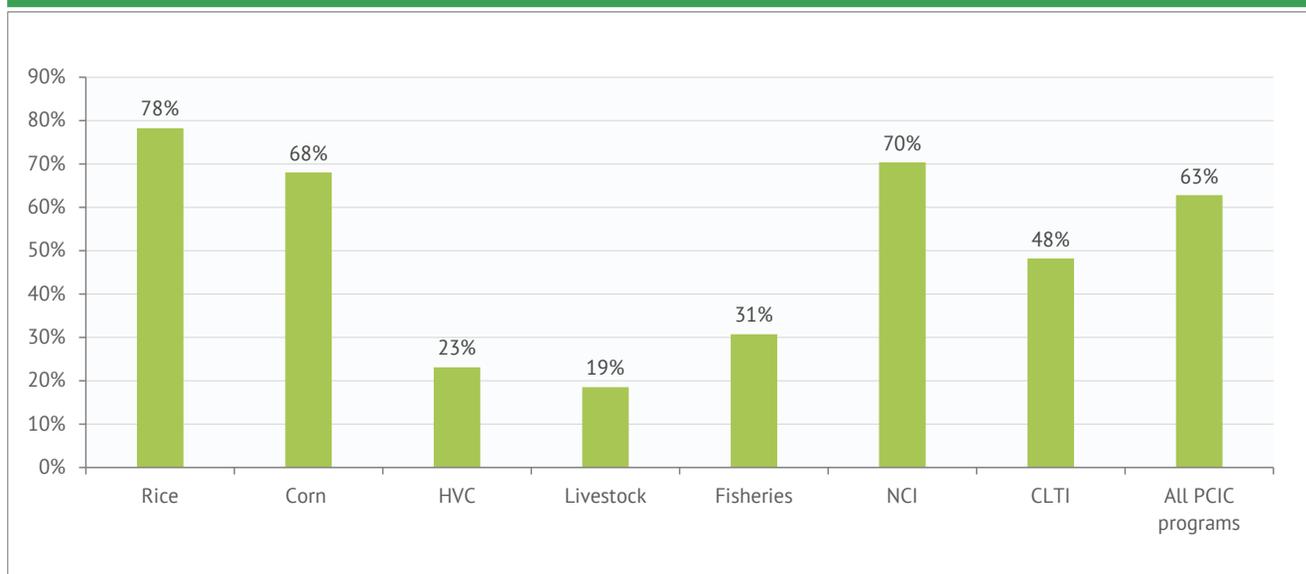
FIGURE 5. PCIC'S AGRICULTURAL INSURANCE PROGRAMS UNDERWRITING RESULTS: PREMIUMS, PAID CLAIMS, AND LOSS RATIO, 2009–2021



Source: PCIC annual reports, 2009–2021.

Over the 2009–2021 period, low claims have been incurred on the livestock, HVC, and fisheries programs. For the three programs, LTALR was 19 percent, 23 percent, and 31 percent, respectively, while the highest losses have been experienced in the rice multi-risk program, where the LTALR was 78 percent (Figure 6).

FIGURE 6. PCIC'S LONG-TERM AVERAGE LOSS RATIO BY PROGRAM, 2009–2021



Source: PCIC annual reports, 2009–2021.

Note: CLTI = credit and life term insurance; HVC = high-value crop; NCI = non-crop agricultural asset insurance.

2.7.2. Causes of losses on rice and corn multi-peril insurance programs

The PCIC does not consistently publish analyses of the main causes of losses and paid claims in its agricultural insurance programs. The most recent published data refer to paid claims in the rice and corn programs in 2015 and 2016. These results are presented in Figure 7.

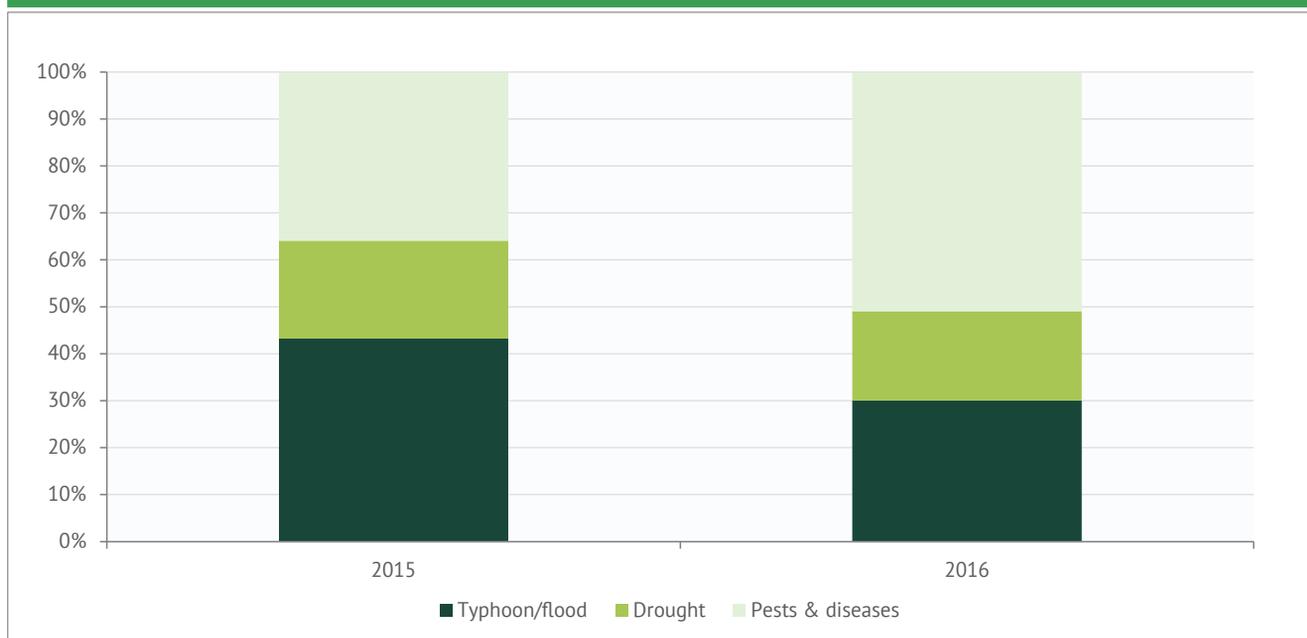
The most striking feature of the analysis of PCIC's claims paid in 2015 and 2016 is the extremely high number of claims paid for P&D damages. These represent 36 percent of total claims for the two crops in 2015, and an even higher share in 2016, when P&D claims valued at PHP 721.518 million represented 51 percent of total claims for the two crops (Figure 7).¹⁶ According to the PCIC, the very high number of P&D claims registered in 2016 was due to a widespread rat infestation in the provinces covered by ROs IV, VIII, IX, X, and XI; the prevalence of stemborer in the areas covered by ROs VIII, IX, XI, and XII; and the occurrence of corn borer in corn crops in the CALABARZON and MIMAROPA regions. Conversely, the losses due to typhoons, flood, and drought were much lower in 2016 (PCIC 2017). Two points should be highlighted here:

1. **Losses due to P&D are extraordinarily high and should be of concern to the PCIC because they suggest that farmers may not be adopting the control measures recommended by the DA's extension officers.** Cover for P&D is intended to protect farmers only against uncontrollable pests and diseases that fall outside the normal control measures recommended by the DA or another competent authority.
2. **Despite a low number of claims, the Philippines did experience a number of large typhoons in 2015–2016.** Typhoon Koppu in 2015 was the 10th most costly typhoon to ever hit the country.¹⁷ Typhoons Sarika and Haima, which hit within a week of one another in October 2016, were Category 5 storms and caused considerable damage to the Luzon area (NASA Earth Observatory 2016).

16. It is noted that, throughout PCIC's history, there have been extraordinarily high claims due to P&D in the rice and corn multi-risk programs. According to the PCIC, between 1981 and 2006, P&D claims accounted for 32 percent of the total value of claims paid in the rice program and 31 percent of total claims paid in the corn program (PCIC 2006).

17. Wikipedia, "Typhoon Koppu," [https://en.wikipedia.org/wiki/Typhoon_Koppu#:~:text=Throughout%20the%20affected%20regions%2C%2017%2C254,billion%20\(US%24313%20million.](https://en.wikipedia.org/wiki/Typhoon_Koppu#:~:text=Throughout%20the%20affected%20regions%2C%2017%2C254,billion%20(US%24313%20million.)

FIGURE 7. RICE AND CORN MULTI-RISK INSURANCE CLAIMS PAID BY CAUSE OF LOSS, 2015 AND 2016

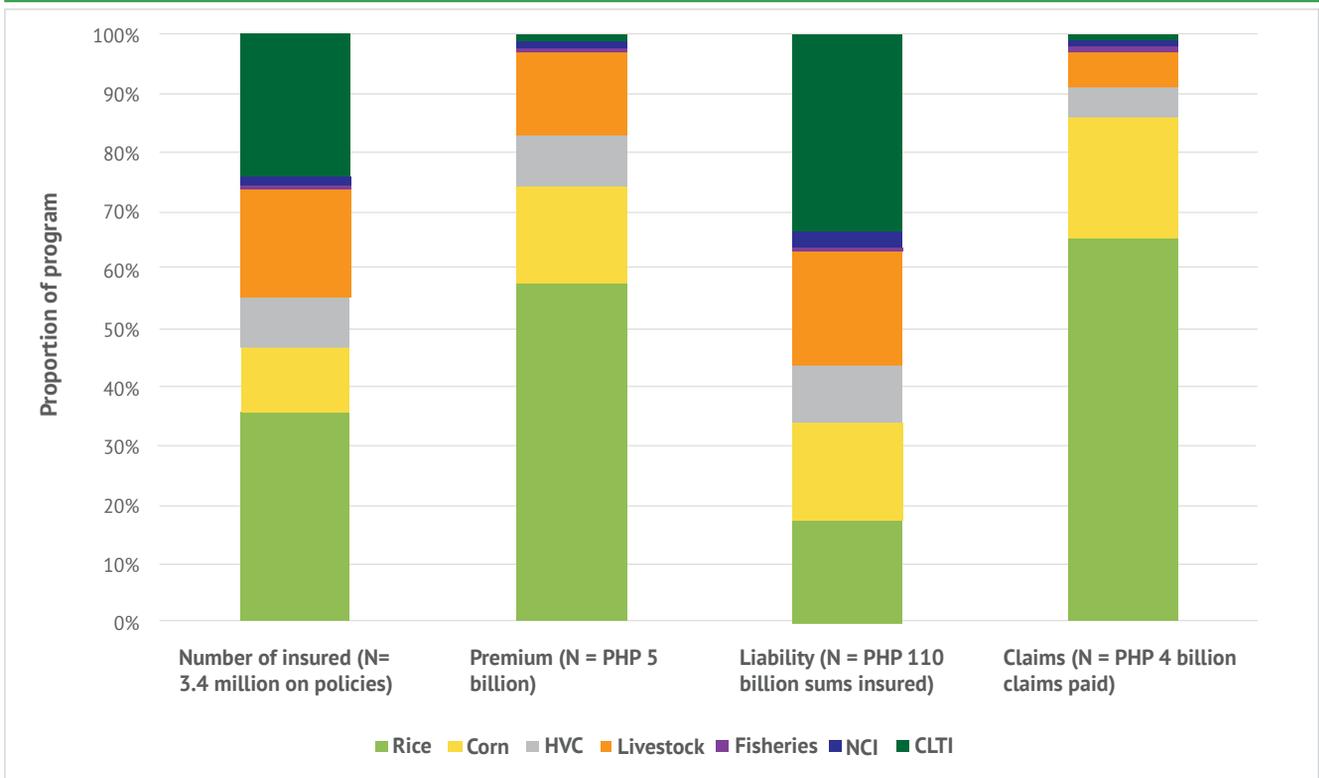


Source: PCIC 2016 annual report (PCIC 2016).

2.7.3. PCIC's portfolio composition in 2021

In 2021, PCIC's rice insurance program was its largest program, accounting for 1.21 million policy sales (36 percent of the total), 26 percent of total liability (total sum insured), 58 percent of premium, and 66 percent of claims. The next largest program was the nonagricultural CLTI program, accounting for 24 percent of all policies and a very significant 34 percent of total liability: because of the very low premium rates charged on life insurance policies, the CLTI program accounted for only 1.4 percent of total premium, although it is worth noting that it also accounted for just 1.3 percent of total claims paid. The CLTI program was hugely expanded by the PCIC in 2021—the reasons for this expansion are unknown to the authors of this report. Livestock was the second largest agricultural insurance program underwritten by the PCIC, accounting for 18 percent of all policies, 19 percent of total liability, 14 percent of premium, and 6 percent of claims in 2021. That year also saw a very significant expansion in PCIC's sales of livestock insurance policies (610,330 policies sold in 2021 compared to 379,346 in 2020). Livestock policies were followed by corn crop insurance (11 percent of total policies and 7 percent of total liability), but with very high claims that represented 20 percent of total claims in 2021. HVCs accounted for 9 percent of policy sales, 10 percent of total liability, 9 percent of premium, and only 5 percent of claims. The newest of the PCIC's programs, fisheries/aquaculture insurance, is also the smallest, accounting for only 0.5 percent of total policy sales in 2021 (Figure 8 and Annex D).

FIGURE 8. PCIC'S 2021 PORTFOLIO BY PRODUCT LINE (NUMBER OF POLICIES, LIABILITY, PREMIUM, AND CLAIMS)



Source: PCIC 2021 Final Accomplishments spreadsheet provided by PCIC.

Note: CLTI = credit and life term insurance; HVC = high-value crop; NCI = non-crop agricultural asset insurance.



Photo credit: Edwin Huffman from the World Bank Flickr.

3. ISSUES AND CHALLENGES FACED BY PCIC'S AGRICULTURAL INSURANCE OPERATIONS



In accordance with the request made by the government, this section presents a detailed review of the issues and challenges faced by the PCIC. The section starts with an assessment of PCIC's agricultural insurance products and the cover provided to farmers. It discusses the corporation's rating methodology and the adequacy of its premium rates, operational issues and challenges, and financial issues relating to premium subsidies and insurance and reinsurance. The section draws on the virtual meetings held with PCIC's management in March of 2022 and the data and information subsequently submitted by the corporation.

3.1. EXPOSURE OF AGRICULTURE TO NATURAL DISASTERS AND CLIMATE CHANGE

The Philippines is one of the most disaster-exposed countries in the world; it is subject to earthquakes and tsunamis, tropical storms and typhoons, droughts, flash floods, and landslides, and it is also highly impacted by climate change. A recent World Bank report (World Bank 2019b) highlights the social and economic costs of natural disasters for the country, including an annual average death toll of 934 people and average economic losses of US\$2.8 billion.

The agricultural sector is highly impacted by natural disasters. The average annual damage to agriculture from typhoons, droughts, and floods is estimated at 3 percent of total average output, although in extreme El Niño–Southern Oscillation (ENSO) years such as 1998, drought reduced crop production by 6.8 percent in 18 provinces. The DA estimates that total weather-related damage to crops in the Philippines was US\$2 billion between 2000 and 2010 (World Bank 2019b).

The country is very exposed to climate change, which is already having a negative impact on the agricultural sector. Climate change scenarios predict more extreme wet and dry seasons, accentuated flood and drought exposure, and increases in average temperatures and the frequency of typhoons. The impacts of climate change on agriculture will vary regionally and by crop type; rice yields in Luzon will likely be the most affected, with a projected yield decrease of 20 percent by 2050 (World Bank 2019b).

Agricultural insurance can play an important role in the process of adapting to climate change in the Philippines by helping farmers transfer their increased risks of crop failure—due to more frequent and extreme floods and droughts and increased temperatures—to insurance and reinsurance markets. Properly designed and effective agricultural insurance programs can stabilize farm income, reduce poverty, and ensure a climate safety net for food producers.

The high frequency and severity of catastrophic perils like typhoons, drought, and flood represent a significant challenge for agricultural insurers in the Philippines and their national and international reinsurers. Catastrophe exposure is cited by insurers as one reason why local private insurance companies have been very averse to entering the agricultural insurance arena.

3.2. VERY SMALL FARM SIZE AND CHALLENGES FOR THE PCIC AND PRIVATE INSURERS

3.2.1. Farm size distribution in the Philippines

According to the most recent (2012) agricultural census, the Philippines has 5.56 million farms/holdings covering 7.19 million ha with an average of 1.29 ha per farm holding (PSA 2015). This compares with the PABS-RSBSA listing, which records a slightly lower total of 5.48 million farmers. The 2012 agricultural census reports that 3.1 million (57 percent) of all farmers own or cultivate less than 1.0 ha of land, with an average of 0.28 ha per holding; 88.9 percent of all farmers own less than 3.0 ha and, at the other extreme, only 1.8 percent of farmers own more than 7.0 ha (PSA 2015). According to the PABS-RSBSA data from 2017, an even higher number, or 4.3 million farmers (79 percent of the total), own or cultivate less than 1.0 ha, and 98.1 percent of all farmers own less than 3.0 ha (Table 3).

Subsistence farmers in the Philippines who are eligible for free insurance under PCIC's Special Programs are defined as those owning less than 7 ha of land, and they account for 98.2 percent of all farms in the country. This means that practically all farmers in the Philippines are considered subsistence farmers and are therefore eligible for free crop

insurance on a maximum of 3 ha; if they want to insure additional crop area, they must pay for the corresponding premium in full. There is a need to revise the definition of a subsistence farmer for insurance purposes, not least because of the huge differences in income and wealth between a small-scale rice farmer with less than 1 ha, who produces a rice crop to meet the family's consumption needs, and a high-value crop farmer producing with more than 1 ha, who produces cash crops for sale, such as bananas, vegetables, or coffee, and who is not a subsistence farmer per se.

TABLE 3. COMPARISON OF FARM-SIZE DISTRIBUTION IN THE PHILIPPINES: CENSUS OF AGRICULTURE AND FISHERIES 2012 AND RSBSA 2017



Farm holding size (ha)	Census of Agriculture and Fisheries 2012	Percentage of farms	PABS-RSBSA listing 2017	Percentage of farms
< 0.50	2,159,963	38.8%	4,330,680	79.0%
0.50 < 1.00	1,004,633	18.1%		
> 1.00 to 1.50	1,780,702	32.0%	413,761	7.5%
> 1.50 to 2.00			356,934	6.5%
> 2.00 to 3.00			275,426	5.0%
> 3.00 to 7.00	518,046	9.3%	104,627	1.9%
> 7.00	99,233	1.8%		
Total farmers	5,562,577	100.0%	5,481,428	100.0%
Number of fisherfolk			1,364,319	
Total farmers + fisherfolk			6,845,747	
Agricultural laborers			4,069,433	
Grand total (RSBSA)			10,915,180	

Sources: 2015 Census of Agriculture and Fisheries (PSA 2015); PCIC 2021.

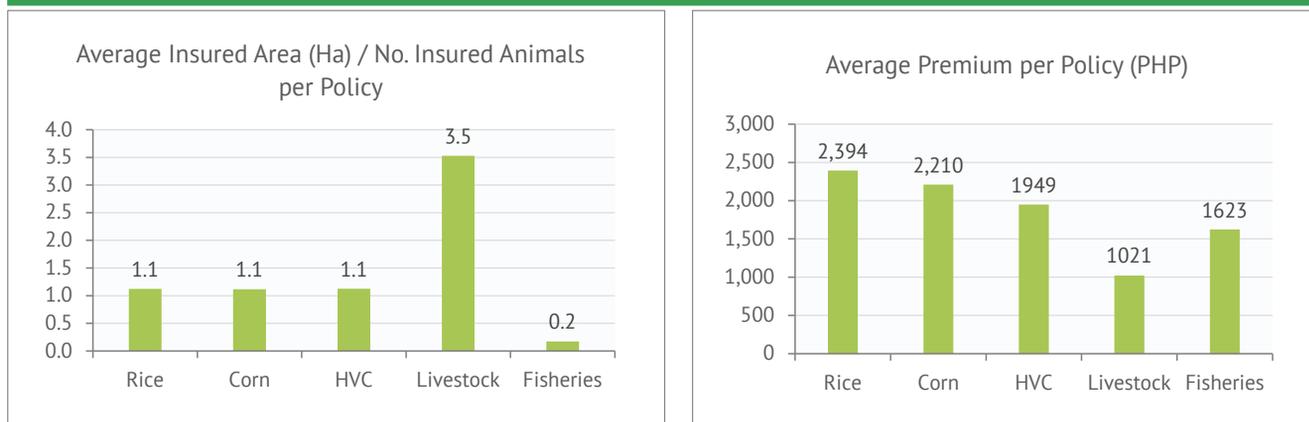
Note: PABS = PCIC Automated Business System; RSBSA = Registry System for Basic Sectors in Agriculture.

The agricultural insurance products offered by the PCIC today are inadequate for most farmers. The very small average farm size in the Philippines presents major challenges for insurers seeking to design appropriate crop and livestock insurance products that suit their risk transfer needs, and also to cost-effectively distribute and administer such products. Currently, all of PCIC's crop and livestock insurance products and programs are indemnity-based policies, which are extremely costly to underwrite and to adjust on small-farm holdings. In the case of the PCIC's rice and corn covers, these were formerly based on individual farmer multi-peril loss of crop yield (MPCI) policies that were originally designed in the United States for cereal producers cultivating several hundreds or even thousands of hectares of insured crops. Insurers in the United States benefit from the economies of scale offered by such large farms; also, the costs of pre-inspections, mid-season inspections, and final end-of-season in-field yield assessment to adjust losses are not charged to the premium paid by farmers, but are instead funded separately by the federal government.

3.2.2. Small average size of farms insured by PCIC, low average premium per policy, and high operating costs

In the case of PCIC's programs, the average size of insured rice, corn, and HVC policies has historically been very small; but the cost of administering such small indemnity-based policies has been very high, which in turn makes the commercial premium rates very expensive. In 2020, the average policy size was 1.1 ha for rice, corn, and HVC farmers; livestock producers insured an average of 3.5 animals/birds per policy; and the average size of insured fish farms was only 0.2 ha per policy. The corresponding premium generated per farmer per policy was very small, ranging from an average low of PHP 1,021 (US\$20) for livestock producers to a maximum average of PHP 2,394 (US\$47) per policy for rice farmers in 2020 (Figure 9 and Annex D).

FIGURE 9. AVERAGE INSURED AREA/NUMBER OF ANIMALS PER POLICY (LEFT) AND AVERAGE PREMIUM PER POLICY (RIGHT), 2020



Source: PCIC 2021; PCIC 2020 annual report (DA 2020).

Note: HVC = high-value crop.

The very small size of rice and corn indemnity-based policies and very low premium generated per policy is a major issue for the PCIC, and in the past, the corporation had to load its technical risk premium rates (RPRs) by 70–75 percent to cover its operating expenses (World Bank 2019b)—expenses that included most notably the high costs of in-field yield loss assessment at the time of harvest. As a result premiums were very expensive for PCIC’s two largest crop insurance programs. It is noted that, as these programs have been hugely scaled up in recent years, the PCIC has capped the loadings it applies to its technical rates at 20 percent to cover O&A expenses and a further 10 percent load to contribute toward a surplus/reserve.

One of the solutions to the very high operating costs would be for the corporation to develop index-based crop (and possibly livestock) insurance policies for its target group of very small subsistence farmers. The operating expenses on an index policy are usually much lower than on an indemnity-based product, especially because an index-based cover requires no in-field loss assessment, and this offers the potential for insurers to sell crop insurance with lower premium rates (see section 4.10 for further discussion).

3.3. LACK OF APPROPRIATE PCIC INSURANCE PRODUCTS FOR EACH SEGMENT OF THE FARMING POPULATION

There are two distinct types of crop insurance products that are available in the international agricultural insurance markets:



Traditional indemnity-based crop insurance, which protects individual farmers against actual physical damage to or loss of yield of the crops that they grow in their fields and which involves an in-field assessment of the losses. There are three main indemnity-based crop insurance products: (i) named peril crop insurance (NPCI), (ii) multi-peril crop insurance (MPCI), and (iii) crop revenue insurance.



Newer index-based insurance, which uses a proxy index that correlates closely with crop yield, such as the amount of rainfall as measured at a local weather station, and pays out when the actual amount of precipitation recorded during the crop growing season falls short of a pre-agreed threshold. Thus an index cover does not make payouts according to the actual crop losses experienced by individual farmers on their own fields. Crop index insurance products include (i) weather index insurance, which uses ground-located weather stations and is typically designed to insure against rainfall shortage or excess rainfall; (ii) remote sensing or satellite-based weather indices; (iii) area yield index insurance; and (iv) specialized indices such as flood index insurance.

Section 2 highlighted the fact that currently all PCIC’s crop insurance policies are indemnity-based. For rice and corn, the PCIC offers a hybrid/modified MPCI cover that has been adapted from a conventional MPCI loss of yield cover to an estimated percentage yield loss/damage-based policy, while a named peril percentage damage-based policy is used in one form or another for the more than 77 HVCs insured by the corporation.

3.3.1. Drawbacks of indemnity-based MPCl and NPCl products and programs for small farmers

Rice and corn farmers

Currently, the PCIC offers its multi-risk damage-based/percentage yield loss policy to all its insured rice and corn farmers. In 2020, this included more than 1.62 million RSBSA subsistence farmers with between 0.5 and 7.0 ha of land, but free/fully subsidized insurance was capped at 3 ha per RSBSA beneficiary. Additionally, this policy covers another 82,055 PCIC regular rice and corn farmers; this group includes mainly very small farmers as well as some who are more commercially oriented with more than 7 ha. It is important to note that standard multi-peril insurance products include coverage against all risks; however, the PCIC's multi-risk policies for rice and corn cover only the perils named in the policy.

Multi-peril crop insurance is an individual farmer loss of yield policy that protects the farmers against crop production losses and yield losses on their own farm. The MPCl policy provides comprehensive protection against all unavoidable natural, climatic, and biological perils that may cause yield loss. It is a product that is widely demanded by farmers both in developed and developing countries because it provides all-risk protection against loss of crop production and yields. Nearly all crop insurance programs in the world that insure against drought adopt a loss of yield basis for insurance and indemnity, because drought is a progressive peril that cannot be accurately assessed using damage-based procedures; rather, it is necessary to wait until harvest to measure the actual yield and the yield loss due to drought. An insured yield (e.g., tons/ha) is established as a percentage of the historical average yield of the insured farmer: the insured yield is typically set at between 50 percent and 75 percent of the average yield on the farm, although for irrigated agriculture, where yields tend to be much more stable, insurers may be willing to insure up to 90 percent of the farmer's average yield. The actual yield is measured by an independent assessor at the time of harvest, and if the actual yield is less than the insured yield, an indemnity is paid equal to the difference between the actual yield and the insured yield, multiplied by a pre-agreed value of sum insured per unit of yield.

International experience with individual-farmer MPCl is, with few exceptions, extremely poor, characterized by low uptake,¹⁸ high levels of anti-selection and moral hazard, high administrative and operating costs, and underwriting results that are usually negative. Most voluntary individual grower MPCl programs suffer from very high levels of anti-selection and moral hazard; for example, farmers may purchase cover only for fields in low-lying areas that are subject to flooding and waterlogging (anti-selection) or may apply suboptimal levels of husbandry and pest, disease, and weed control (moral hazard), with the expectation of then claiming the yield loss on their crop insurance policy. MPCl programs are usually very exposed to systemic drought, frost, and windstorm losses, which correlate at the regional and national level, and the premium rates that have to be charged to cover the combination of high losses and high administrative costs are often in excess of 10–15 percent of the sum insured. MPCl policies are expensive to operate and administer because they require up to three inspections during the growing season by a qualified crop loss inspector: (i) at the time of crop emergence to confirm the planted area, stand density, and crop condition, (ii) at mid-season to ensure husbandry practices such as weed control and P&D control are being followed, and (iii) at the time of harvest to measure the actual crop yield in order to determine if an indemnity is due and, if so, the amount. Nearly all individual-grower MPCl programs operate at a financial loss (negative underwriting results) and are dependent on GPS to make the cover more affordable and acceptable to farmers and/or to pay out excess claims.

Furthermore, individual-grower MPCl is a product insurance companies normally offer only to large commercial farmers because the high costs of administering such a cover make it prohibitively expensive to operate with small farmers. MPCl is the most widely marketed product to large cereal and oilseed producers in the United States and Canada. In Brazil, MPCl is offered to medium and large cereal and oilseed farmers, usually linked to credit provision; and in China, several regional MPCl programs are implemented for smallholder farmers, but only as mandatory schemes where all farmers are insured. All these MPCl programs carry very high levels of premium subsidy.

The PCIC abandoned its individual-grower loss of yield MPCl policy for rice and corn in the early 1990s. This was in response to the difficulties of establishing an accurate average yield and the appropriate insured yield for its very small rice and corn farmer client base, combined with the prohibitively high costs of inspections and yield-based loss assessment at the time of harvest. Since 1992, the PCIC has operated a multi-risk damage-based/percentage yield loss policy under which damage due to all perils, including progressive perils such as drought, is assessed on a percentage damage basis at the time the loss is declared; it then applies individual peril damage matrices that, according to the crop growth stage at the time of the loss, convert each percentage of assessed damage into a final estimated yield loss

¹⁸ A major exception is the United States' Federal Crop Insurance Program (FCIP), where uptake rates for major grain crops such as wheat and maize are extremely high and the share of all eligible sown acreage exceeds 85–90 percent. High uptake rates also apply to soya and sunflower. One major reason for the high uptake rates of the FCIP for these crops is the very high premium subsidy rates offered by the government to insured farmers. However, for minor crops, uptake rates are much lower despite the high premium subsidies.

percentage. These damage matrices take into account the potential for crop recovery between the time of damage and the final crop harvest. It is noted that the PCIC is one of very few companies in the world insuring against drought and other progressive perils using a damage-based indemnity product rather than a loss of yield policy.

High-value crop farmers

Named peril crop insurance is an individual-farmer damage-based indemnity crop insurance policy where the insurance claim is calculated by measuring the percentage of damage in the field soon after the damage occurs. The percentage of damage measured in the field, less a deductible expressed as a percentage, is applied to the pre-agreed sum insured. The sum insured may be based on production costs or on the expected value of crop output (yield × sales price). Where damage cannot be measured accurately immediately after the loss occurrence, the assessment may be deferred until later in the crop season. Damage-based indemnity insurance is best known in temperate climates (United States, Europe, Argentina, parts of South Africa, Australasia), where it is offered against hail for cereals and high-value fruit and grape crops, but is also used for other named peril insurance products (e.g., those covering frost, excess rainfall, wind).

NPCI is difficult to operate cost-effectively on very small farm units of less than 1 ha because of the high costs associated with field inspections and loss adjustment. These involve sending a qualified loss assessor to the field to assess the damaged area and estimate the percentage of physical damage to the crop (and, in some cases, the qualitative damage, as in the case of hail damage in tree fruit), while also taking into account the potential for recovery in some HVCs and the need to apply damage-indemnity matrices.

The PCIC underwrites all its HVCs using named peril damage-based indemnity policies in one form or another. These policies adopt the principle of assessing damage at the time of loss and then converting this loss into a final estimated percentage yield loss. For each vegetative stage, the maximum indemnity is capped according to whether the peril is deemed to be a localized peril or a catastrophe peril; for example, losses due to many P&D are capped at 25–30 percent of the sum insured, while losses from catastrophe flooding may be indemnified at up to 100 percent of the sum insured or the actual costs of production invested in the crop at the time of loss, whichever is lower. In the case of perennial tree crops such as bananas, coconuts, coffee, cocoa, etc., the PCIC estimates the number and percentage of plants/trees/bushes that have been lost (totally damaged) and then applies the percentage damage to the costs invested in the crop at the time of loss. All HVC policies are subject to a deductible.

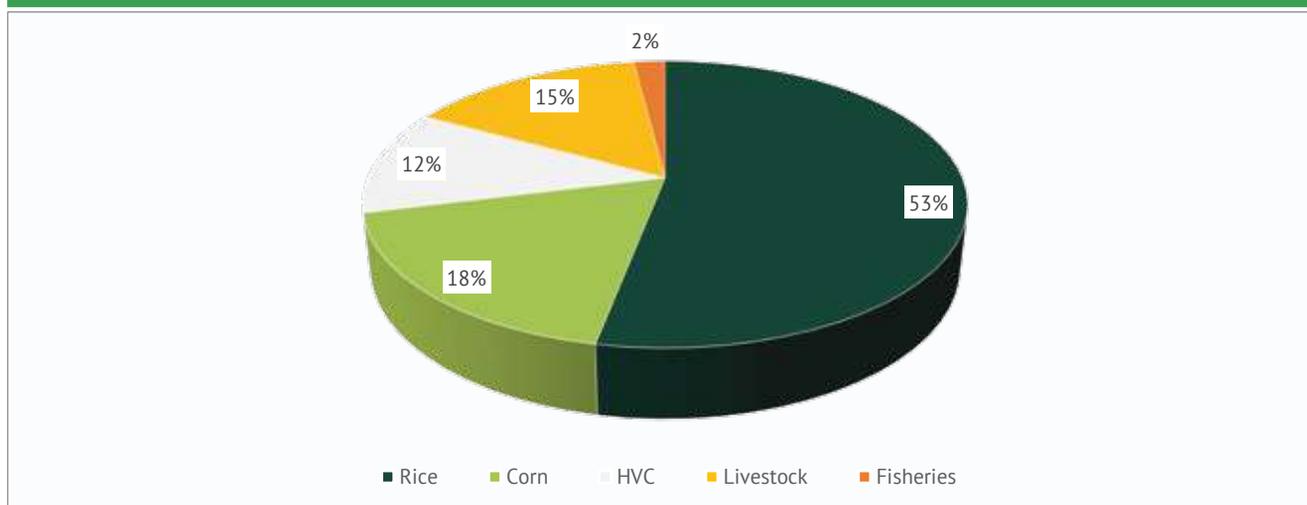
3.3.2. The need to segment farmers according to their risk management and risk transfer needs

To date, the PCIC has marketed its indemnity-based multi-peril percentage damage policies for rice and corn farmers and named peril percentage damage-based policies for HVCs to all farmers, irrespective of their socioeconomic circumstances. The bulk of PCIC's policies sold in 2020 were for rice and corn (71 percent of agricultural insurance policies) and HVCs (12 percent of agricultural insurance policies); some of these were sales to semicommercial farmers who contract seasonal crop loans provided by the LBP and other credit providers. At the other end of the scale, in 2020, the PCIC used the same indemnity-based policies in its free Special Programs to insure more than 1.9 million rice, corn, and HVC farmers, most of them small subsistence farmers cultivating less than 1 ha of land (Figure 10).



Photo credit: Dominic Chavez from the World Bank Flickr.

FIGURE 10. PARTICIPATION OF INSURED CROP, LIVESTOCK, AND AQUACULTURE FARMERS IN THE TOTAL NUMBER OF PCIC'S POLICIES, 2020 (N = 2,407,341 POLICIES)



Source: PCIC 2020 annual report (DA 2020).

Note: HVC = high-value crop.

There is a need to segment Philippine farmers according to their socioeconomic circumstances and risk management and risk transfer needs. This issue has been highlighted by the World Bank in previous reports (World Bank 2019b, 2020), which recommended a new definition of subsistence farmers, historically defined as those with less than 7 ha of land under cultivation. Based on farm size data from the 2012 census, the following segmentation or risk layering according to farm size is proposed (Box 2):

BOX 2. SEGMENTATION OF THE AGRICULTURAL SECTOR IN THE PHILIPPINES BY FARM SIZE



- 1. Subsistence and small farms with classified landholdings below 1 ha**, which represent 56.9 percent of all farm parcels; average size of < 0.28 ha per farm holding
- 2. Semicommercial farmers with landholdings of 1–7 ha**, which represent 41.3 percent of all farm parcels; average size of 2.05 ha per farm holding
- 3. Commercial farmers with landholdings over 7 ha**, which represent 1.8 percent of all farm parcels; average size of 16.1 ha per farm holding

Each farming segment has different risk transfer requirements and exposure.

Source: PSA 2015; World Bank 2019b (for classification categories).

The traditional indemnity-based crop and livestock insurance products offered by the PCIC are not best suited to the risk transfer needs of farmers with less than 1 ha of land; this group, which represents 57 percent of all farmers in the Philippines, is mostly made up of subsistence farmers (World Bank 2019b). Crop insurance is best suited for commercial and semicommercial farmers who produce part or all of their crops (and livestock) for sale, who access credit and/or purchase inputs (such as seeds, fertilizers, agro-chemicals, and animal feed), and who therefore have a financial exposure in the event of severe crop loss or death of their animals. In this case, crop and livestock insurance is a tool to ensure that farmers remain creditworthy in times of major loss and are able to repay their loans. Conversely, for subsistence farmers in the Philippines—who cultivate an average of only 0.28 ha and who primarily produce food crops for their own consumption—a commercial indemnity-based rice or corn crop insurance product that costs on average about 10 percent of the sum insured may not be the best risk management tool for their needs.

For subsistence farmers in the Philippines, alternative options may include the promotion of savings and credit to cover their consumption needs in times of major production shocks, or conversely design of suitable large-scale parametric or index-based insurance products and programs providing social protection cover against catastrophic climatic and natural disasters. Therefore, if the PCIC wishes to scale up its protection of these vulnerable subsistence

farmers in the future, it may wish to develop more suitable index-based insurance covers that protect livelihoods for the 3.2 million predominantly subsistence farmers with less than 1 ha of land (World Bank 2019b, 2020).

For semicommercial farmers who farm 1 to 7 ha and who use credit to invest in improved seed and fertilizer technology, individual-farmer NPCI products may be suitable for specific HVCs. However, for food crops such as rice and corn, alternative index-based insurance products may be more suited to meet farmers' risk transfer needs. These products may include both WII covers and AYII (see section 4.10 for recommendations).

Micro-level or individual-farmer crop index insurance is not a panacea for all crops and all types of farmers in the Philippines. Great caution will need to be exercised in the design of alternative WII and AYII covers in order to minimize the basis risk that has been a major issue for most of the first generation WII pilots that have been launched in the Philippines over the past 15 to 20 years. PCIC's traditional multi-peril and named peril indemnity-based products will continue to play a dominant role for commercial farmers and for certain types of crops.

3.4. ISSUES RELATED TO THE LOW AVERAGE SUMS INSURED OFFERED BY THE PCIC

Previous evaluations of the PCIC have highlighted the very low levels of the sums insured (and therefore protection) offered by the corporation on its crop insurance programs; in many cases, they do not cover the production costs of growing the crop (World Bank 2019b). The PCIC has traditionally set its sum insured/compensation levels quite low in order to extend insurance cover to a greater number of farmers within its limited premium subsidy budget (the lower the sum insured, the lower the cost of premium, and therefore the bigger the opportunity to spread premium subsidies over more farmers). There are potential drawbacks to capping the sum insured at such a low level: (i) in the event of a loss, the compensation paid to the farmers may be too low to cover their outstanding debt to banks; and (ii) farmers may be unable to get back into production, which could lead to dissatisfaction with the insurance program. This section provides an updated and detailed analysis of PCIC's current coverage levels for rice and yellow corn for all regions of the country, comparing PSA data on the average yields of these crops and the current costs of production and expected returns.

3.4.1. Current sums insured offered by the PCIC

In accordance with the Revised Charter of the Philippine Crop Insurance Corporation Act of 1995, PCIC's crop insurance policies provide cover (protection) against loss of the direct production costs invested by the farmer in growing the crop. These include the cost of production inputs, the value of the farmer's own labor and that of the members of his or her household, and the value of hired labor, plus a portion (currently set at a maximum of 20 percent) of the expected value of the crops as determined by the Board of Directors.¹⁹ For livestock, the basis of valuation and sum insured is set according to the nominal market value of the cost to replace the dead animal, while for aquaculture, the policy insures the direct costs of production.

The PCIC sets maximum cover ceilings for rice and corn according to whether the farmer is insured under its Regular Programs or its free Special Programs (Table 4). For Regular Program clients, the cover ceiling for rice varies between PHP 41,000/ha and PHP 50,000/ha depending on the production system, and for corn between PHP 68,000/ha and PHP 76,000/ha. In the case of the free Special Programs for subsistence farmers, the PCIC offers a standard fixed sum insured of PHP 20,000/ha (US\$390/ha) to all rice and corn producers throughout the country. In 2020, the actual average sums insured were PHP 21,329/ha (US\$416/ha) for rice growers and PHP 19,015/ha (US\$371/ha) for corn growers. With the available data, it is not possible to separate out the 2020 average sums insured for PCIC's Regular Program farmers from the average sums insured for Special Program farmers, but given the fact that 95 percent of PCIC's insured farmers were Special Program clients, the average sums insured could be close to the fixed PHP 20,000/ha sum insured for these clients. (Further information on the Special Program sums insured for crops, livestock, and fisheries is contained in Annex B).

19. For rice and corn, the insurance covers the cost of production inputs per the Farm Plan and Budget (FPB), plus an additional amount of optional cover (decided by the farmer) up to a maximum of 20 percent to cover a portion of the value of the expected yield, subject to the prescribed cover ceilings per ha.

TABLE 4. PCIC'S MAXIMUM COVER CEILINGS FOR RICE AND CORN



Crop	Production system	PCIC Maximum Cover Ceiling Regular Program Clients(PHP/Ha)	PCIC Cover Ceiling Special Program Clients (PHP/Ha)*	PCIC Regular and Special Programs:2020 Actual Average Sum Insured(PHP/ Ha)
RICE	Inbred			
	Irrigated/Rainfed	41,000	20,000	21,329
	Seed Production	50,000		
	Hybrid			
	Commercial Production{F1}	50,000		
	Seed Production(AxR)	65,000		
CORN	Hybrid	76,000		
	Open-Pollinated	68,000		

Source: PCIC.

Note: It is understood that the PHP 20,000/ha cover ceiling for Special Program corn farmers applies to yellow corn, while a lower ceiling of PHP 10,000/ha applies to white corn.

3.4.2. Relationship between PCIC's sums insured for rice and corn and the costs of production and expected returns

The PSA conducts quarterly surveys of agricultural crop production and yields, as well as costs of production, prices, and returns for palay (rice) by season (both irrigated and rainfed), and for corn (both white and yellow) in each of the country's 13 regions. For this study, PSA data from 2019 to 2021 were used to conduct a detailed assessment of the adequacy of the coverage levels provided by the PCIC: the analysis uses the standard sum insured of PHP 20,000/ha offered by the PCIC on the bulk of its rice and corn portfolio. The results of this analysis are summarized below, and full details are presented in Annex G.

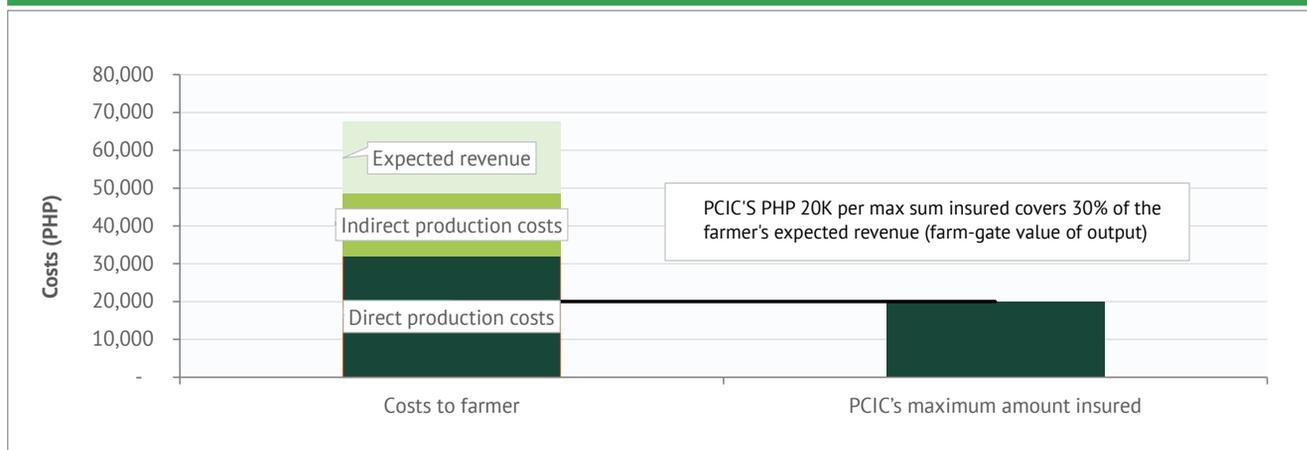
Palay (rice)

The average yield of rice grown in the Philippines is 3,762 kg/ha, but yields vary considerably by region, from a high of 4,613 kg/ha in RO III to a low of 2,814 kg/ha in RO VII. Using PSA's farm gate price data gives an average expected value of output (revenue) for rice of PHP 67,408/ha, varying from PHP 85,916 in RO I, to a low average of PHP 52,619 in RO XII (Annex G).

The annualized average total production cost (including direct and indirect costs) for irrigated and rainfed rice grown across the Philippines amounts to PHP 48,572/ha. There are, however, considerable variations in average rice production costs across the 13 regions, ranging from a high average value of PHP 62,000/ha in RO I, to a low of PHP 36,423/ha in the ARMN region in the south of the country (Annex G).

PCIC's current average coverage level (sum insured) for rice of about PHP 20,000/ha insures about two-thirds (62 percent) of the direct costs of production, 41 percent of the direct and indirect costs of production, and only 30 percent of the farm gate value of the expected yield (Figure 11). This is a very low level of protection both for subsistence farmers and for semicommercial and commercial farmers.

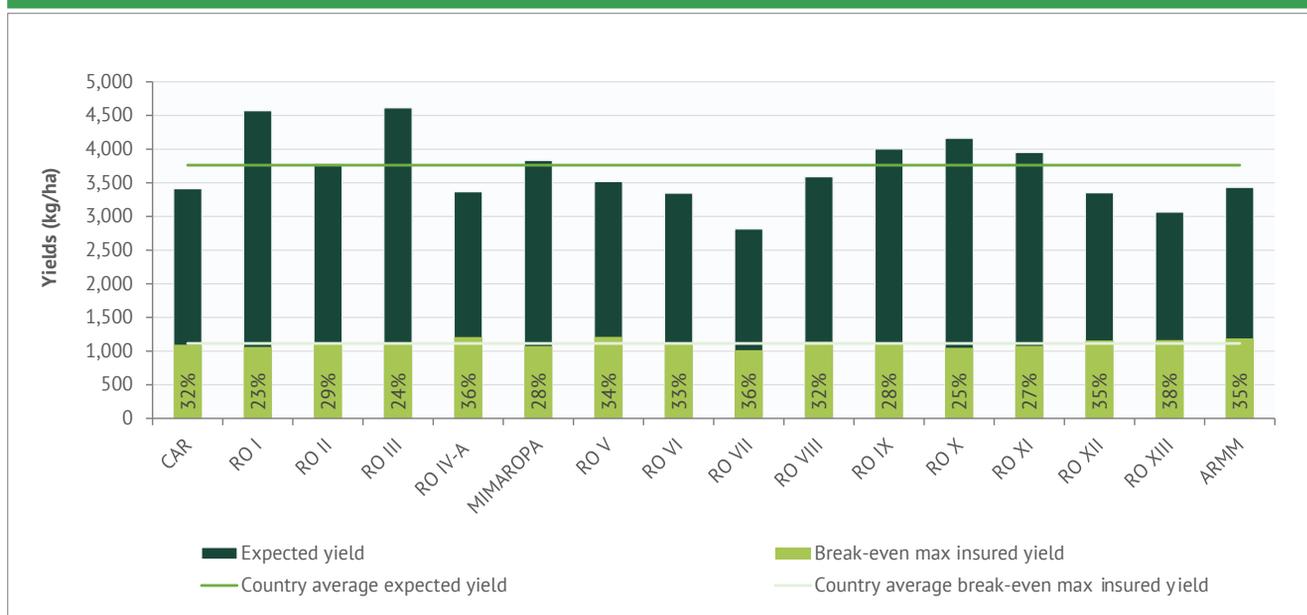
FIGURE 11. PALAY (RICE): FARMER'S AVERAGE COSTS OF PRODUCTION AND EXPECTED REVENUE VERSUS PCIC'S MAXIMUM INSURANCE COVERAGE



Source: PSA.

Production costs, expected yields, and farm gate prices vary by region. With this in mind, PCIC's PHP 20,000/ha coverage can be converted into a break-even yield using the average farm gate price and then compared to the expected yield at the regional level, as shown in Figure 12. The proportion of expected rice yield insured by the PCIC varies between a low of 23 percent for RO I and a maximum of 38 percent for RO XIII. This amounts to a very low level of rice yield protection.

FIGURE 12. PALAY (RICE): PCIC'S INSURANCE COVERAGE (BREAK-EVEN YIELD) AS A PERCENTAGE OF EXPECTED YIELDS (KG/HA), BY REGION



Source: PSA.

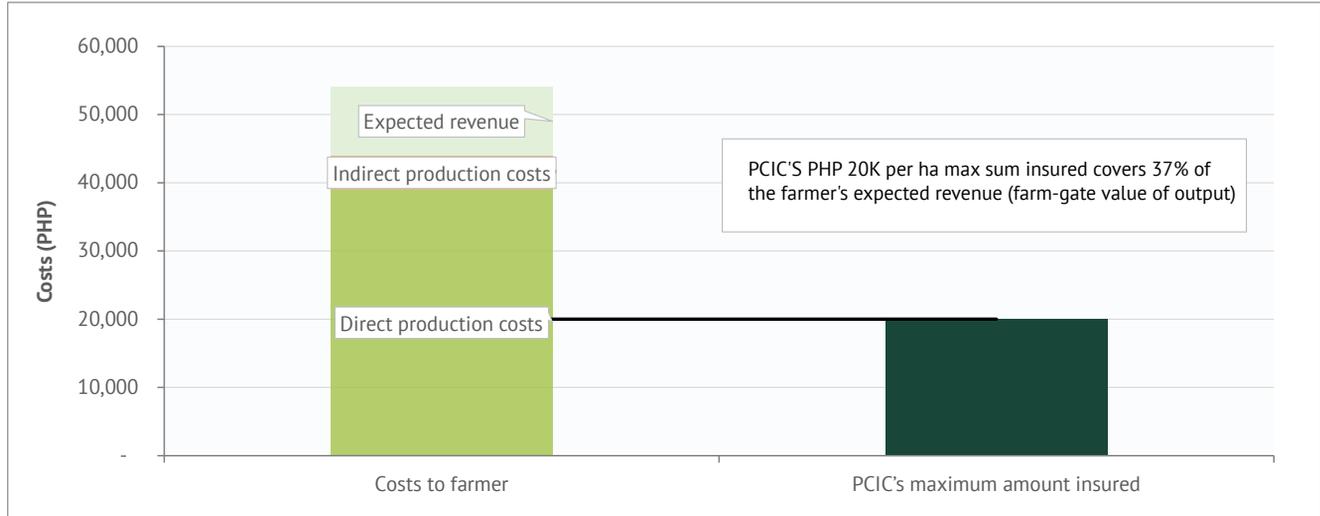
Yellow corn (maize)

The average yield of yellow corn in the Philippines is 4,166 kg/ha, but yields vary considerably by region from a high of 6,618 kg/ha in RO III to a low of 3,297 kg/ha in RO XII. Using PSA's farm gate price data gives an average expected value of output (revenue) for yellow corn of PHP 54,056/ha, varying from PHP 86,043 in RO III, to a low average of PHP 52,619 in RO XII (Annex G).

The annualized average total production cost (including direct and indirect costs) for yellow corn grown across the Philippines amounts to PHP 43,955/ha. There are, however, considerable variations in average yellow corn costs across the 13 regions, ranging from a high average value of PHP 57,000/ha in RO III, to a low of PHP 18,000/ha in MIMAROPA (Annex G).

PCIC's current average coverage level (sum insured) for yellow corn of about PHP 20,000/ha insures about half (51 percent) of the direct costs of production, 43 percent of the direct and indirect costs of production, and only 37 percent of the farm gate value of the expected yield (Figure 13). This is a very low level of protection both for subsistence farmers and for semicommercial and commercial farmers.

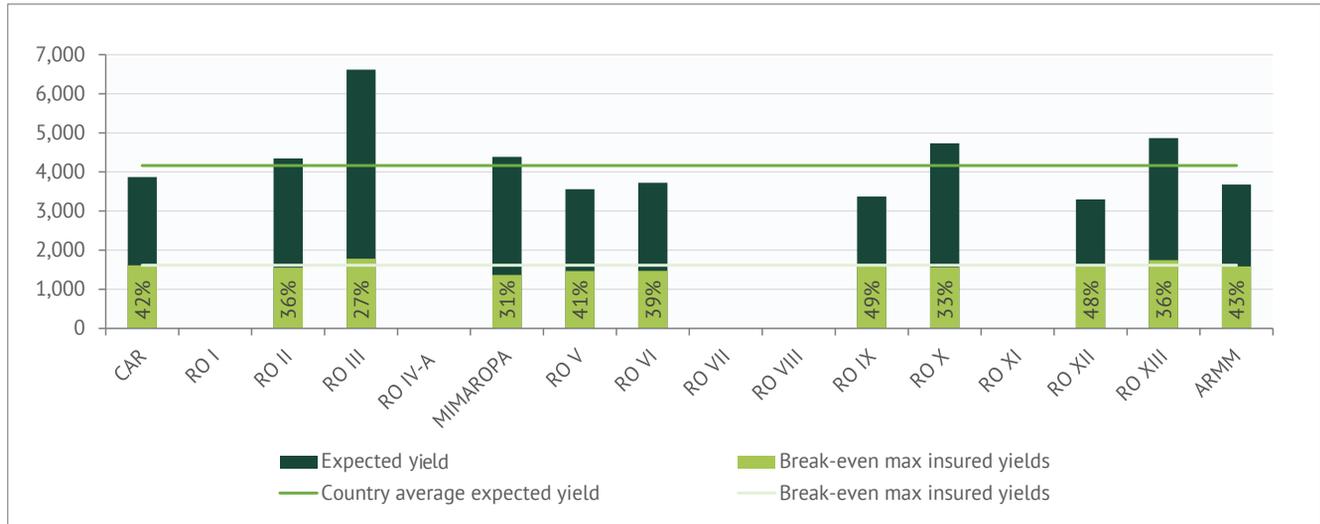
FIGURE 13. YELLOW CORN: FARMER'S AVERAGE COSTS OF PRODUCTION AND EXPECTED REVENUE VERSUS PCIC'S MAXIMUM INSURANCE COVERAGE



Source: PSA.

Production costs, expected yields, and farm gate prices vary by region. With this in mind, PCIC's PHP 20,000/ha coverage can be converted into a break-even yield using the average farm gate price and then compared to the expected yield at the regional level, as shown in Figure 14. The proportion of expected yellow corn yield insured by PCIC varies between a low of 27 percent for RO III and a maximum of 49 percent for RO IX. This amounts to a very low level of yellow corn yield protection.

FIGURE 14. YELLOW CORN: PCIC'S INSURANCE COVERAGE (BREAK-EVEN YIELD) AS A PERCENTAGE OF EXPECTED YIELDS (KG/HA) PER REGION



Source: PSA.

The analysis shows that under a social protection program for subsistence farmers and farm laboring households, a fixed compensation level of PHP 20,000/ha may be adequate to maintain livelihoods, but for semicommercial rice and maize smallholders investing in improved yield technology, the average levels of sums insured offered by the PCIC are far too low to cover costs of production, let alone contribute toward expected revenue. There is an urgent need for the PCIC to review the actual sums insured that it offers on its Regular Programs to semicommercial and commercial rice and corn farmers.

3.5. ISSUES RELATED TO THE BASIS OF INDEMNITY AND THE APPLICATION OF DAMAGE-BASED INDEMNITY MATRICES

All of PCIC's current agricultural insurance policies for crops, livestock, and fisheries are essentially percentage damage-based indemnity policies. This section briefly reviews the basis of indemnity for these programs and then examines several crop claims (kindly provided by the PCIC for this review).

There are two stages in the indemnity and claims settlement process for crops:

1. **A team of claims adjusters** composed of two members, one from the PCIC and the other from the DA/Department of the Interior and Local Government (DILG), LGU, DAR, NIA, or concerned lending institution, verifies the claim. The claims adjusters need to visit the affected farm to complete a Claims Adjustment and Verification Report (CAVR). The assessment requires the adjusters to confirm the data of loss and that the cause of loss is an insured peril(s); to confirm that the actual planted area is the same as the one declared by the insured at the time of submitting the application; to enter the costs of production invested by the farmer in the crop at the time of loss; to then assess the extent of insured area that is damaged by walking around the field and inspecting the damage; to confirm the loss (< 10 percent yield loss or damage = no loss; 10–90 percent = partial loss; and > 90 percent = total loss); to then assess the quality of the crop stand and to apply an adjustment factor that ranges from 1.0 for a perfect crop to 0.65 for a very poor crop; and finally, and most importantly, to assess/estimate the amount of yield loss or percentage damage to the crop and to complete the Computed Yield Loss Percentage using visual estimation techniques. The hand-filled report is then transmitted to the claims processor in the RO.
2. **The claims processing team** then completes the Claims Settlement Sheet, which is automated to apply a series of adjustment factors to the estimated percentage yield loss in order to calculate the amount of indemnity and where applicable the value of salvage and deductions (e.g., application of a deductible expressed as a percentage of the sum insured). The net indemnity amount is arrived at in this way.

The indemnity procedures are summarized below for rice and corn, for HVCs, and for livestock and fisheries. One of the main drawbacks of the complex indemnity calculation procedures for crops is that, at the time of the in-field loss assessment, farmers may be present and made aware of the estimated percentage yield loss/percentage damage to their crop, but they have no way of knowing what the final indemnified damage and claim settlement will be.

3.5.1. Rice and corn

The indemnity is calculated as per the yield loss percentage, which is determined based on the prevalence and severity of the damage, applicable loss prediction models, loss caps, damage matrices, and crop stand as outlined in the Revised Claims Settlement Approaches and Procedures (RECSAP) manual, which are applied to the cost of production inputs (material inputs and labor) already applied at time of loss per the adjusters' report, provided that the cost of labor does not exceed 50 percent of the total, and subject to an adjustment factor according to the quality of the crop stand at the time of loss and a distribution factor as determined from time to time by the Board of Directors. For rice and corn no separate excess (deductible or coinsurance) is applied to the calculated claim.

3.5.2. High-value crops

The indemnity is calculated according to (i) the **estimated percentage yield loss or extent of damage**, which is applied to (ii) the **actual costs of production inputs applied at the time of loss** (plus a ratable proportion of the coverage for the portion of yield, if any, subject to the **pre-estimated loss limits** according to the age of the crop when the loss occurred), minus the estimated value of **salvage** of the remaining crop at the time of loss (applies only to partial losses), after which a **deductible**, normally 10 percent of the total sum insured, is applied to the claim to derive the net indemnity.

3.5.3. Livestock

The PCIC sets the sum insured at a maximum of 70 percent of the market value for each animal species, and in the event of a loss, the indemnity is based on 100 percent of the sum insured value. In the case of fattening animals, this calculation is adjusted according to the age of the animal at the time of loss and subject to (i) a deductible, which may be applied on a per farm or per head of animal basis (usually 10 percent of the total sum insured for commercial and noncommercial herds); and (ii) a deduction of any salvage value as applicable.

The claim procedure for livestock insurance differs from that for crop and fishery insurance in that the PCIC does not usually conduct verification and loss assessment for livestock claims. The livestock producer only needs to submit to the PCIC's RO a pro forma NL8 loss notification form within 10 days from the death of the insured animal, and to submit all other required documents, including the claim for indemnity or loss report, within 30 days. Claims for indemnity are merely based on documents submitted by the producer and are settled within 45 days from receipt of the complete set of claim documents (Reyes et al. 2015). For the current study, it has not been possible to review the loss assessment procedures for livestock; however, it might be advisable for the PCIC to examine if, in the absence of any formal farm visits to inspect losses or to verify that the cause of loss was due to an insured peril, some farmers may be submitting fraudulent claims.

3.5.4. Fisheries

For bangus (milkfish), the basis of indemnity is the percentage yield loss or extent of damage (between 10 and 90 percent) reported by the team of adjusters, which is applied to the costs of production incurred at the time of loss or as per PCIC's indemnity matrix, whichever is lower. The indemnity is subject to a deductible equal to 10 percent of the net exposure, followed by a coinsurance percentage, to arrive at the net indemnity. The purpose of applying both a deductible and coinsurance on the claim is not clear.

3.5.5. Examples of crop claims (rice, corn, and HVCs)

For this review, the PCIC made available a sample of actual claims adjustments for rice, corn, and two HVCs, squashes and bananas. The results of these adjustments are presented in Table 5.

In the four claims provided for rice and corn, the indemnity formula results in a net indemnity that is between 91 and 108 percent higher than the assessed yield damage presented in the loss adjuster's field report.

However, in the case of the HVCs, the indemnities paid to farmers are very heavily discounted by the salvage-based indemnity procedures and the application of the damage matrices/maximum sums insured at the time of loss, as well as the deductibles. In the case of the squash producer, who suffered a 100 percent loss 50 days after she planted her crop, the final net indemnity was only 43.3 percent of the sum insured. For the banana grower, who incurred a loss of 64 percent of his banana plants (matts), the net indemnity represented only 42 percent of the sum insured, after the deduction of the salvage value on the remaining undamaged plants and then the deductible. For the squash producer, who had already invested PHP 21,600/ha into growing the crop at the time the total loss was suffered, the application first of the 74 percent adjustment factor that reduced the claim to PHP 15,984, and then of the separate deductible, reduced the final settlement to only PHP 12,984. This result seems highly punitive given that this was a total loss scenario. Had the farmer used credit to pay for her production costs, the net indemnity would have been far too little to repay the loan.

TABLE 5. EXAMPLES OF CLAIMS ADJUSTMENTS FOR RICE, CORN, AND HVCS



Item	Rice	Rice	Corn	Corn	Squashes	Banana
Cause of Loss	Disease	Pest	Disease	pest	Typhoon	Typhoon
Deada red Area(Ha)	2.0	2.0	1.5	1.0	1.0	1.0
TSI(PHP)	40,000	40,000	30,000	20,000	30,000	28,000
Actual Planted Area(Ha)	2.0	2.0	1.0	0.5	1.0	1.0
Corrected TSI(PHP)	40,000	40,000	20,000	10,000	30,000	25,000
Assessed Area Damaged CAVR Report	2.0	2.0	1.0	0.5	1.0	1.0
Type of Loss/Damage CAVR Report	Partial	Partial	Partial	Partial	Partial	Partial
Assessed Yield Damage(%) CAVR Report	19.60%	25.34%	20.00%	15%	100%	missing
Yield Loss(Average Percentage Damage). Claims Settlement Sheet	19.6	25	20	15	100%	64%
CPI Actual(PHP)	31,650	43,550	33,580	13,600	21,600	25,000
Indemnity factor	264	330	228	191		
Distribution Factor	0.8	0.8	0.7	0.8		
Adjustment factor	0.8	0.8	0.8	0.8		
CPI Matrix(50 days old)					74%	
Total Loss/Indemnity(php)	8,448	10,560	3,648	1,528	15,984	14,000
Value Salvage/Undamaged Crop					0	4,800
Total Loss/Indemnity (PHP)	8,448	10,560	3,648	1,528	15,984	9,200
Deductable(10% TSI)	n.a	n.a	n.a	n.a	3,000	2,500
Net Indemnity	8,448	10,560	3,648	1,528	12,984	6,700
Net Indemnity as % of TSI	21.1%	26.4%	18.2%	15.3%	43.3%	26.8%
Percentage of assessed damage indemnified	108%	104%	91%	102%	43%	42%

Source: Claims indemnity worksheet examples provided by PCIC, March 2022.

Note: CAVR = Claims Adjustment Verification Report; CPI = cost of production investments; TSI = total sum insured.

PCIC's indemnity procedures and damage matrices were largely prepared in the early 1990s, and since then, with few exceptions, the procedures have remained the same. The PCIC should conduct an in-depth review of its crop indemnity procedures and, where necessary, modify and strengthen them to ensure that farmers who incur high losses are properly and fairly compensated, especially in the HVC crop insurance program. The assumptions in the damage matrices should also be reviewed to ensure that they remain appropriate. Furthermore, the methodologies and procedures on which the loss adjustment is based are complex and very difficult for farmers to follow; this may deter many self-financing farmers from purchasing cover, regardless of the level of premium subsidy. It is recommended that the indemnity procedures be simplified so that they are more easily understood by farmers.

3.6. ACTUARIAL AND RATING

This subsection presents an overview and review of PCIC's rating methods and its premium rates for both Regular Program and Special Program clients; it also presents some analyses of the adequacy of the current premium rates. This section draws on PCIC's rating guidelines (PCIC 2022).

3.6.1. PCIC's pricing methods

Historical burning cost method

Today, the PCIC bases most of its pricing on the last 10 years (2011–2020) of historical burning costs for each program, adding simple loadings to cover the corporation's administrative expenses and a surplus reserve. To calculate the indicative premium rate (IPR), the PCIC uses the formula

$$IPR = RPR + 20\% RPR + 10\% RPR,$$

where IPR = indicative premium rate in %, RPR = risk premium rate in % (equal to the damage rate, also known as the “loss cost rate” or “pure rate”), and where the loadings are 20% administrative cost + 10% surplus reserve.

Based on PCIC’s rating methodology, the IPR is currently 10.65 percent for rice and 10.58 percent for maize. This is calculated on the basis of the average annual damage rate for rice for the period 2011–2020 of 8.19 percent × 1.3 = 10.65 percent, and the corresponding average annual damage rate for maize of 8.14 percent × 1.3 = 10.58 percent (Table 6).²⁰

TABLE 6. PCIC’S RATING METHODOLOGY FOR RICE AND MAIZE					
Rice indicative premium rate			Maize indicative premium rate		
IPR	=	RPR + RPR (20% + 10%)	IPR	=	RPR + RPR (20% + 10%)
	=	RPR + 20% RPR + 10% RPR		=	RPR + 20% RPR + 10% RPR
	=	8.19% + 8.19 (30%)		=	8.14% + 8.14 (30%)
IPR	=	10.65%	IPR	=	10.58%

Source: PCIC 2022.

Note: IPR = indicative premium rate; RPR = risk premium rate.

The same historical burning cost rating method is also used by the PCIC for all its other product lines, including HVCs, livestock, fisheries, and the NCI and CLTI programs.

World Bank Group’s comments on PCIC’s burning cost rating methodology

- **The burning cost rating methodology is a pragmatic and simple rating method** that can easily be applied to all program lines now that the PCIC has up to 40 years of historical results for each program; these can be used to establish actuarially based premium rates and adjusted as necessary every year based on the updated pure loss cost or risk premium rates.
- **Historically, the PCIC adopted regional risk ratings for rice and corn according to low-risk, medium-risk, and high-risk zones** (see Annex B for the regional premium rates that applied up to 2014). Subsequently, in order to simplify its insurance offerings under its fully subsidized Special Programs for RSBSA-registered and other subsistence farmers, the corporation adopted a system of single national premium rates for each agricultural insurance line, which are reviewed and updated periodically according to the actual loss history. It is not known whether the PCIC continues to levy regionally adjusted premium rates for its Regular Program clients.
- **The main drawback of adopting a single weighted-average premium rate is that farmers in low-risk regions end up subsidizing farmers in high-risk regions.**
- **Furthermore, non-borrowing Regular Program farmers who can purchase PCIC’s rice and corn policies on a purely voluntary basis may select against the company.** Farmers in low-risk regions may decline to buy the cover if they consider the flat premium rate expensive; conversely, farmers in high-risk zones may purchase the below-actuarially priced cover knowing that they are getting cheap insurance protection. Besides the lack of differentiation by region, there is also no differentiation between crop varieties (for example, yellow versus white corn, which have differing yields and investment levels), crop modalities, or seasons.
- The PCIC currently applies a **simple load of 30 percent** to its RPR for rice, corn, and all other programs. The 20 percent loading for administrative costs amounts to only 15.4 percent of the IPR, while the 10 percent surplus/reserve load amounts to only 7.7 percent of the IPR (Table 7). In its 2021 review of PCIC’s operations, the IC proposed that administrative expenses and surplus/reserves should be treated as a **gross-up** applied to the risk premium rate. Table 7 shows that if a 30 percent gross-up was applied to PCIC’s rice and corn RPRs in 2021 (as per the IC recommended formula below), this would increase the IPR rates to 11.70 percent for rice and 11.63 percent for corn:

$$\text{IPR} = \text{RPR} / (1 - 20\% \text{ administrative costs} - 10\% \text{ surplus or reserve})$$

- **Regardless of the method used, the expense loading (or gross-up) should be determined based on a full understanding of PCIC’s costs, and should be set in a manner consistent with the approach taken** (gross-up or loading).

20. According to PCIC’s 2013 annual report (PCIC 2013), corn claims in 2013 totaled PHP 68.388 million (compared to the PHP 38.388 million used by the PCIC in this calculation), which would increase corn’s 10-year average damage rate to 8.21 percent and the IPR to 10.67 percent.

- The authors suggest that applying a 10 percent load to produce a surplus (PCIC currently pays dividends to the government) and/or to provide a reserve in above-average claims years is too simplistic. This approach should be replaced by a formal actuarial and risk modeling exercise to calculate the catastrophe risk exposure of the overall program and of each of the subprograms.

TABLE 7. DIFFERENCES BETWEEN THE SIMPLE LOAD AND GROSS-UP OPTIONS APPLIED TO RPR TO DERIVE INDICATIVE PREMIUM RATES, 2011–2020



Item	Rice	% of IPR	Corn	% of IPR
Method 1. PCIC Loading of the RPR				
Risk Premium Rate(RPR)	8.19%	76.9%	8.14%	77%
Adm in load(20%)	1.64%	15.4%	1.63%	15.4%
Surplus Reserve Load(10%)	0.82%	7.7%	0.81%	7.7%
Indicative Premium Rate(IPR)	10.65%	100.0%	10.58%	100%
Method 2. Gross-up applied to RPR				
Risk Premium Rate(RPR)	8.19%	70%	8.14%	70.0%
Goss-up on RPR(30%)	3.15%	30%	3.49%	30.0%
Indicative premium Rate(IPR)	11.70%	100.0%	11.63%	100.0%

Source: World Bank analysis.

Note: IPR = indicative premium rate; RPR = risk premium rate.

Analysis of time series of crop production and yield data

For HVCs, the PCIC commonly uses the PSA's time series of crop production and yield data at the regional, national, and subnational levels to calculate the damage rates (pure loss cost rates) for these crops. PSA's crop production and yield data are available via CountrySTAT/OpenSTAT, a web-based information system. An example of PCIC's rating methods for bananas is illustrated in Table 8 and Figure 15. In this case, the PCIC calculates the average yield (13.27MT/ha) for the 18 years of data; it then calculates the years in which the yields fall short of the average, and finally calculates the damage rate. In this example, actual yields were below the average in six years (2002 to 2007), resulting in an estimated risk premium rate (RPR) or damage rate of 3.46 percent. The PCIC then loads the RPR 1.3 times to derive an indicative premium rate of 4.5 percent, which is subject to a stamp duty of 12.5 percent. This approach has several drawbacks and could usefully be strengthened:

- It is always necessary to check the time series yield data for increasing or declining trends and to detrend the yields accordingly prior to calculating the damage rate. In this banana example, there is a clear increasing yield trend between 2002 and 2010. It is important to detrend historical data where possible so that the years can be compared and volatility represents the true volatility in yields. Panel b in Table 8 show this analysis detrended.²¹ Removing the linear trend reduces the coefficient of variation by 35 percent and the IPR to 3 percent (from approximately 5 percent).

²¹ Detrending involves removing the effects of trend from a data set to allow values between different years to be compared to one another. In this case, the linear upward trend in the 2002–2019 period has been removed.



Photo credit: Dominic Chavez from the World Bank Flickr.

- **The seasonal aggregate regional or provincial yield data do not reflect actual yield variability and exposure to damage or loss at the local level.** The banana data set exhibits very little variation in average yields year on year, as shown by the coefficient of variation in mean yield of only 8.4 percent (5.5 percent when detrended). The level of yield variation typically increases as one moves from the regional to the municipality level, barangay level, and finally individual-farmer level, and the rating exercise must take this into account. Bananas are very susceptible to typhoon damage, which at a localized barangay or municipality level will damage up to 100 percent of the banana matts, with the corresponding loss of production and yields for the next nine months. Equally, excess rain leading to waterlogging and/or flooding will kill the matts in 48 to 72 hours. If this time series were applied to a single barangay (or individual farmer, on detrended figures), assuming a 100 percent loss of banana production due to a severe typhoon in 2017, this would reduce the average yield to 12.81 MT/ha, increase the coefficient of variation to 15.6 percent, increase the average damage rate to 6 percent, and increase the IPR to 7.8 percent.
- **It is incorrect to price a high-value crop cover for bananas assuming the insured yield is set at 100 percent of the average yield,** or 13.52 MT/ha in the PCIC example (using the detrended figures). Assuming yields are normally distributed, this would give rise to a yield shortfall in 50 percent of the years, and the premium rate would be very high. An individual-farmer cover of this type normally identifies only losses, for example, when the actual yield falls below 75 percent of the average yield, or 10.1 MT/ha. In this case, based on the regional aggregated banana production and yield data, there would never have been a loss and the implied damage rate would be zero. However, using the more realistic example at the individual-farmer level, and with 2017 as a total loss year, a 75 percent insured yield of 9.6 MT/ha ($12.81 \text{ MT/ha} \times 75 \text{ percent}$) results in only one loss in 18 years, namely in 2017, with a 100 percent damage rate equivalent to an average damage rate of 3.95 percent and an IPR of 5.13 percent.



Photo credit: EAP Photo Collection/ World Bank

TABLE 8. PCIC'S PREMIUM RATE COMPUTATION FOR BANANA, WITHOUT AND WITH DETRENDING



a. Without detrending

Year	Yield(MT/ Ha)	Yield shortfall(MT/ Ha)	Damage Rate %
2002	11.5	1.74	13.1%
2003	11.2	2.06	15.5%
2004	11.1	2.19	16.5%
2005	11.9	1.37	10.3%
2006	12.6	0.68	5.1%
2007	13.0	0.24	1.8%
2008	13.8	-	0.0%
2009	14.2	-	0.0%
2010	14.2	-	0.0%
2011	14.1	-	0.0%
2012	14.1	-	0.0%
2013	13.9	-	0.0%
2014	14.1	-	0.0%
2015	14.4	-	0.0%
2016	13.6	-	0.0%
2017	13.6	-	0.0%
2018	14.0	-	0.0%
2019	13.5	-	0.0%
Total	238.8		62.3%
Average	13.27		3.46%

Source : PCIC 2022.

Note: Below is the calculation of the indicative premium rate

$$\text{Indicative Premium Rate (IPR)} = 3.46 + (0.2 \times 3.46) + (0.1 \times 3.46)$$

$$\text{IPR} = 3.46 + 0.69 + 0.35$$

$$\text{IPR} = 4.5 \text{ approximately } 5\%$$

Other charges: Documentary stamp tax of 12.50% of basic premium

World Bank Group note:

St.Dev. 1.11

CoV(%) 8.4%

b. With detrending

De-Trended Yield(MT/ Ha)	Yield shortfall(MT/ Ha)	Damage Rate %
13.10	0.42	3.1%
12.63	0.89	6.6%
12.34	1.18	8.7%
13.01	0.51	3.8%
13.54	-	0.0%
13.83	-	0.0%
14.44	-	0.0%
14.73	-	0.0%
14.50	-	0.0%
14.23	-	0.0%
14.14	-	0.0%
13.81	-	0.0%
13.78	-	0.0%
13.99	-	0.0%
12.96	0.56	4.1%
12.85	0.67	5.0%
13.05	0.47	3.5%
12.46	1.06	7.9%
243.36		42.7%
13.52		2.37%

Source : PCIC 2022.

Note: Below is the calculation of the indicative premium rate

$$\text{Indicative Premium Rate (IPR)} = 2.37 + (0.2 \times 2.37) + (0.1 \times 2.37)$$

$$\text{IPR} = 2.37 + 0.47 + 0.24$$

$$\text{IPR} = 3.08 \text{ approximately } 5\%$$

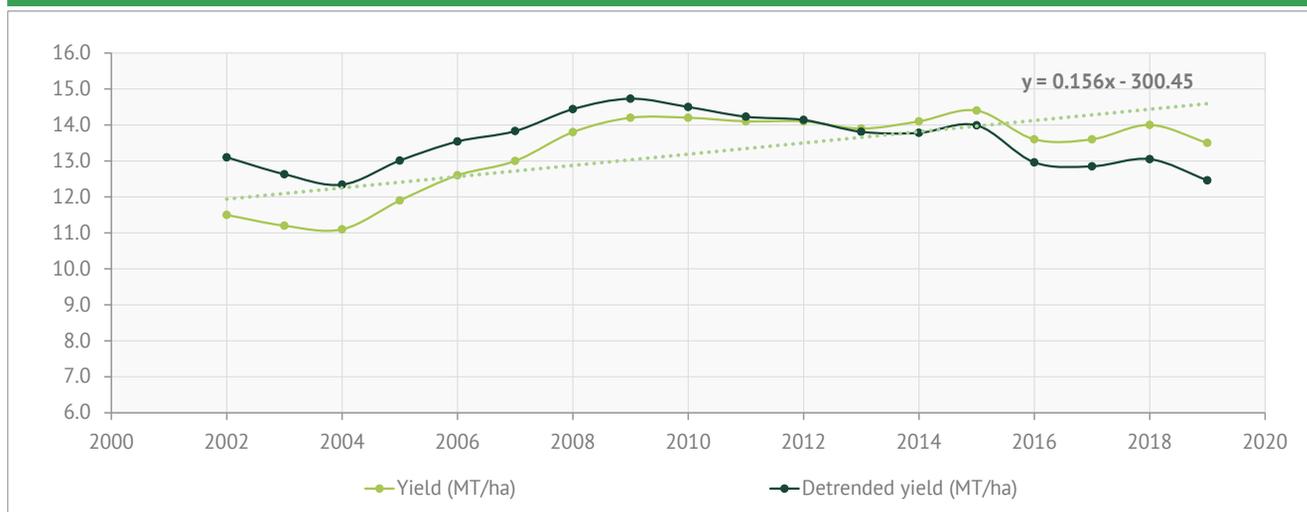
Other charges: Documentary stamp tax of 12.50% of basic premium

World Bank Group note:

St.Dev. 0.74

CoV(%) 5.5%

FIGURE 15. BANANA YIELDS: ACTUAL AND DETRENDED

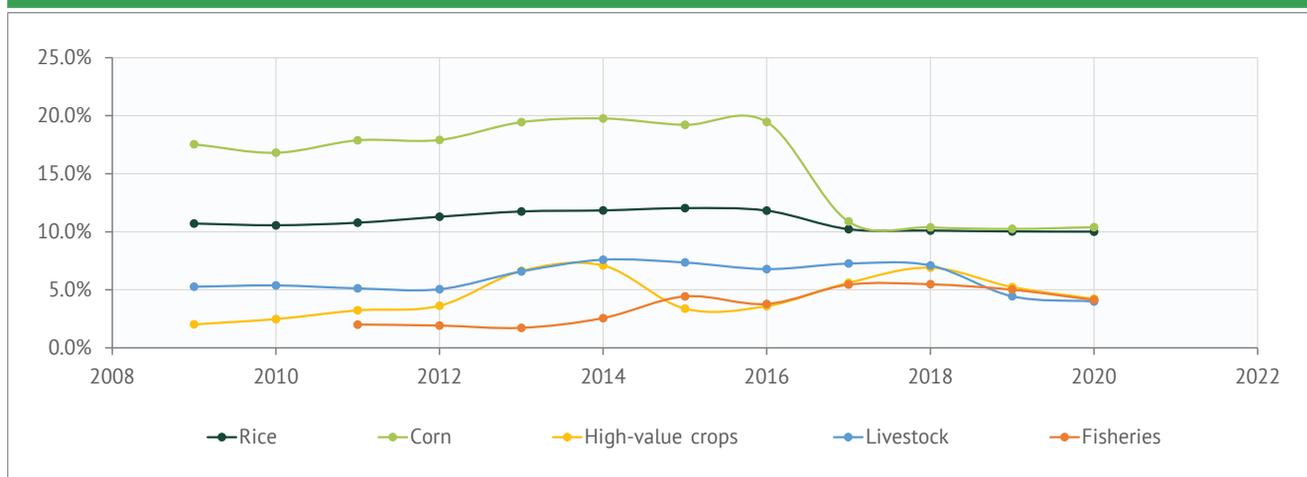


Source: PCIC 2022.

3.6.2. PCIC's premium rates: Regular Program and Special Program clients

Between 2009 and 2020, average premium rates for PCIC's major crop insurance programs, i.e., rice and corn, were very high, averaging 10.5 percent and 15.8 percent respectively, with a maximum rate for rice of 12.0 percent in 2015 and a maximum rate for corn of 19.8 percent in 2014; however, since 2017, the premium rates for these two crops have been revised down to a fixed 10.0 percent for the Special Programs. Over the same period, the average premium rates for the other agricultural insurance programs have been as follows: HVCs, 4.5 percent; livestock, 6.0 percent; and fish farming (aquaculture), 3.6 percent (Figure 16 and Annex B).

FIGURE 16. PCIC'S AVERAGE PREMIUM RATES: PERCENTAGE RATE APPLIED TO SUM INSURED, 2009–2020



Source: World Bank analysis of PCIC annual reports, 2009–2020.

PCIC's Regular Programs

PCIC's current indicative premium rates for its agricultural insurance lines are set out in Table 9.

The average premium rates of more than 10 percent for rice and corn are quite high for a smallholder crop insurance program and reflect the high exposure to loss on these multi-peril covers that include P&D. Conversely, the rates for HVCs are considerably lower, and the average rates for livestock are exceptionally low. The premium rates for swine (fatteners and breeders) were last updated on an actuarial basis in 2014 and should be revised in accordance with the

claims record at the end of 2021 or the latest underwriting year. The premium rates for extended disease cover on the cattle and swine programs are between 0.25 and 0.50 percent for each selected disease; it is understood that disease cover is conditional on the animal being vaccinated against the named disease, or in other words, that the policy insures against vaccination failure. Most of the insurable diseases are Class A epidemic or highly contagious diseases, and the PCIC should closely monitor losses due to these perils, such as the recent African swine fever outbreaks in Southeast Asia between 2019 and 2021, which led to severe losses in the swine industry, particularly in China.

PCIC's Regular Program policies sold to rice and corn farmers are exempt from payment of a stamp duty and other taxes. However, for all other classes of agricultural insurance, farmers insured under the Regular Programs have to pay an additional 12.5 percent on top of the commercial premium rate to cover a stamp duty.

TABLE 9. PCIC'S REGULAR PROGRAMS: INDICATIVE COMMERCIAL PREMIUM RATES, 2022



Class Insurance	Indicative Premium Rates(IPR)	Comments
Rice	10.65%	Policy is exempt from Documentary Stamp Charges
Com	10.58%	Policy is exempt from Documentary Stamp Charges
HVC	2% to 7%	Documentary stamps of 12.5% of Basic Premium Payable
livestock		Documentary Stamps of 12.5% of Basic Premium Payable on all classes of livestock insurance
Swine	1.75% fattens (4 months) to 3.5% Breeders(12 month cover)	Premium rates last set in 2014 according to actuarial experience 2006 to 2013.Documentary Stamps of 12.5% of Basic Premium Payable
	Up to 7 mainly class A epidemic diseases insurable in Swine:rates 0.25% to 0.5% per disease.Full cost +2.5%	Extended cover for diseases and allied perils in Swine
Cattle & Carabou	5% to 7.5%	Premiums vary according to age,breed,purpose,husbandry and management and sum insured(PHP 7,000 to Maximum PHP 20,000/animal)
	Up to 10 mainly class A epidemic diseases insurable in Cattle/Carabou:rates 0.25% per disease.Full cost +2.5%	Extended cover for diseases and allied perils in Cattle/Carabou
Sheep and Goats	IPR=1.56%(1.2%APR+0.12%+0.24%)	
Poultry	IPR=0.25%(0.2%APR+0.02%+0.04%)	
Fisheries	2% TO 12%	Documentry stamps of 12.5% of basic premium payable onm fisheries insurance
No		Rates as per PCIC Premium rating guide lines 2021
CLTI		Rates as per PCIC Premium rating guide lines 2021

Source: PCIC 2022.

Note: CLTI = credit and life term insurance; HVC= high-value crop; NCI = non-crop agricultural asset insurance.

PCIC's Special Programs

In order to simplify the implementation of the fully subsidized Special Programs, the PCIC's Board has elected to charge single average premium rates on all related agricultural and nonagricultural insurance programs. The PCIC notes that, since the corporation's primary mandate is to provide social protection, the computed premium rate for the fully subsidized insurance programs for both rice and corn **was rounded down to 10 percent.** For HVCs, rates vary from 2 percent to 5 percent according to the crop and are lower than those advised by the PCIC for its Regular Programs. For livestock, the PCIC charges flat rates that are almost identical to its Regular Program rates in the case of swine; however, for cattle and carabao, premium rates were reduced in 2021 to 4 percent and 5 percent respectively for island-born and imported breeds of animals. It is important to note that, since the Special Programs are all free for farmers (100 percent subsidized by the government), they are exempt from any form of premium taxes—stamp duty, value added tax (VAT), fire tax on NCI and LGUs, etc.; see Table 10.

TABLE 10. RSBSA PREMIUM RATES BY INSURANCE PROGRAM, 2021



Program	Premium rate
Rice and corn crops	Standard premium rate of 10.00 percent (PCIC Board Resolution no. 2016-066, Series of 2016)
High-value crops	Premium rate of 3.0 percent for coconut crop and 5 percent for other crops; includes coverage for all types of pests and diseases (as agreed at National Management and Planning Conference, January 27–29, 2020)
Livestock	Current special premium rates
Swine	
Fattener	1.75 percent per growing period
Breeder	3.5 percent per year
Cattle, carabao, horse	
Island born	4.0 percent a year (5.0 percent in 2020)
Imported	5.0 percent a year (7.0 percent in 2020)
Goat, sheep	
Island born	6.0 percent a year
Imported	8.0 percent a year
Poultry (chicken, duck)	
Broilers	1.0 percent per rearing period
Pullets, layers	2.6 percent a year
Fisheries/aquaculture	< 7.00 percent depending on pre-coverage inspection
Non-crop agricultural assets	
Fishing boats	Per PCIC Resolution no. 2020-044, series of 2020
Non-motorized	3.0 percent
Motorized	2.0 percent
Other nonagricultural assets	Existing premium rates

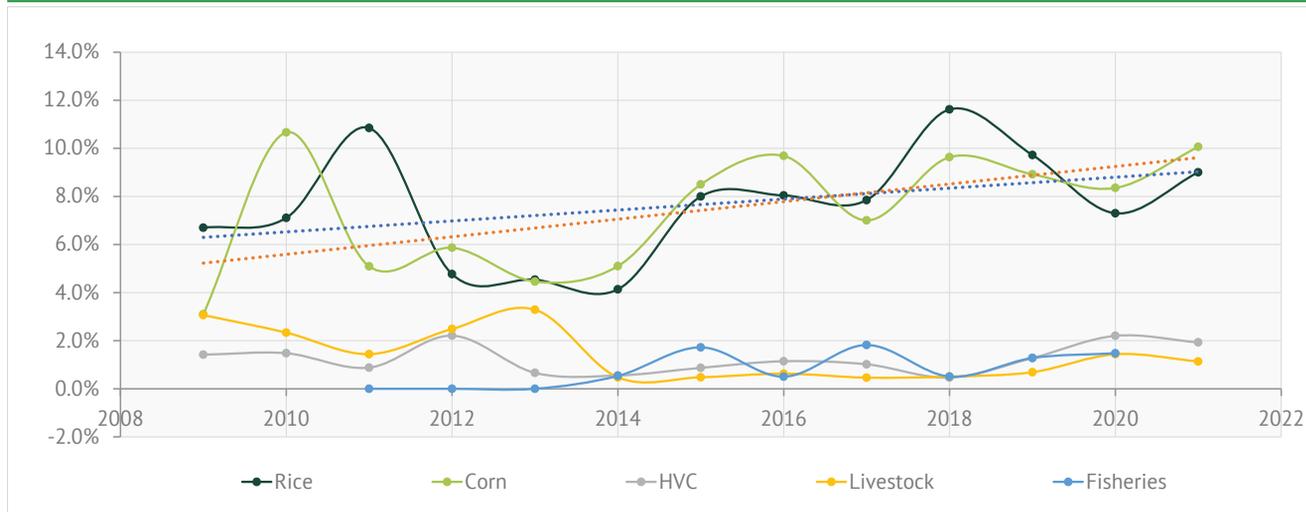
Source: PCIC 2021.

3.6.3. Adequacy of PCIC's premium rates

Over the past 13 years (2009 to 2021) the PCIC has reduced its average premium rates in most of its programs. Between 2009 and 2013, the average premium rate for all its agricultural insurance and nonagricultural insurance programs was 6.2 percent; however, between 2018 and 2021, the PCIC reduced its rates in the HVC, livestock, and fisheries programs as well as capped the rates for rice and corn at 10 percent; these reductions, coupled with an increase in the very low-rated CLTI business, have seen a reduction in the average premium rate to 5 percent over the past three years, representing an overall 20 percent reduction in the schemes' average premium rate.

Since 2015 there has been an increasing trend in the annual claims costs and damage rates in the rice and corn programs, but this trend does not apply to the other agricultural insurance programs (Figure 17). Reasons for the increased damage rates are not known, and the PCIC has not amended its indemnity procedures accordingly over this period, but such increase may be a reflection of climate change trends, with important implications for the pricing of the rice and corn programs.

FIGURE 17. TRENDS IN RICE AND CORN DAMAGE RATIOS (LOSS COSTS), 2009–2021



Source: PCIC.

In 2021, the IC conducted an actuarial review of the PCIC's programs and highlighted the fact that, in accordance with PCIC's pricing formula of damage (or risk premium) rate (RPR) × 1.3 loading, both the rice and corn programs were underpriced at 2020 premium rates (IC 2021). This issue is illustrated in Table 11, which shows that, over the past five years (2017 to 2021), the IPR rates required to meet the condition of RPR × 1.3 would not have been met. The actual average premium rates in 2021 for rice and corn were 10.0 percent and 10.2 percent, respectively, or only 85 percent and 88 percent of the required IPR rates of 11.8 percent and 11.6 percent for these two crops. For all its other agricultural insurance programs, PCIC's 2020 premium rates were well above the RPR × 1.3 requirement; however, the current CLTI premium rate is barely adequate. If the PCIC were to use the IC-recommended **gross-up** to derive its IPR rates (equivalent to a loading factor of RPR × 1.43), this would mean that the rates for rice and corn would need to be increased to 12.95 percent and 12.75 percent, respectively.

Assessing the adequacy of rates for rice and corn by region using the RPR × 1.3 methodology shows that certain regions are under-rated (for rice, these regions are Ilocos; West, Central, and Eastern Visayas; Zamboanga, Northern Mindanao; Davao; and Salsargab). This again highlights the need to differentiate pricing by region to allow for the different levels of risk.

These findings suggest that going forward (starting in 2022), the PCIC needs to increase its premium rates for rice and corn, and that there may be some room to reduce rates on other agricultural insurance programs, as long as the PCIC does not amend the basis of indemnity on these other programs.



Photo credit: Danilo Pinzon from the World Bank Flickr.

TABLE 11. COMPARISON OF PCIC'S LOSS COSTS (DAMAGE RATES) FROM 2009–2021 AND 2017–2021 AND ADEQUACY OF 2021 AVERAGE PREMIUM RATES



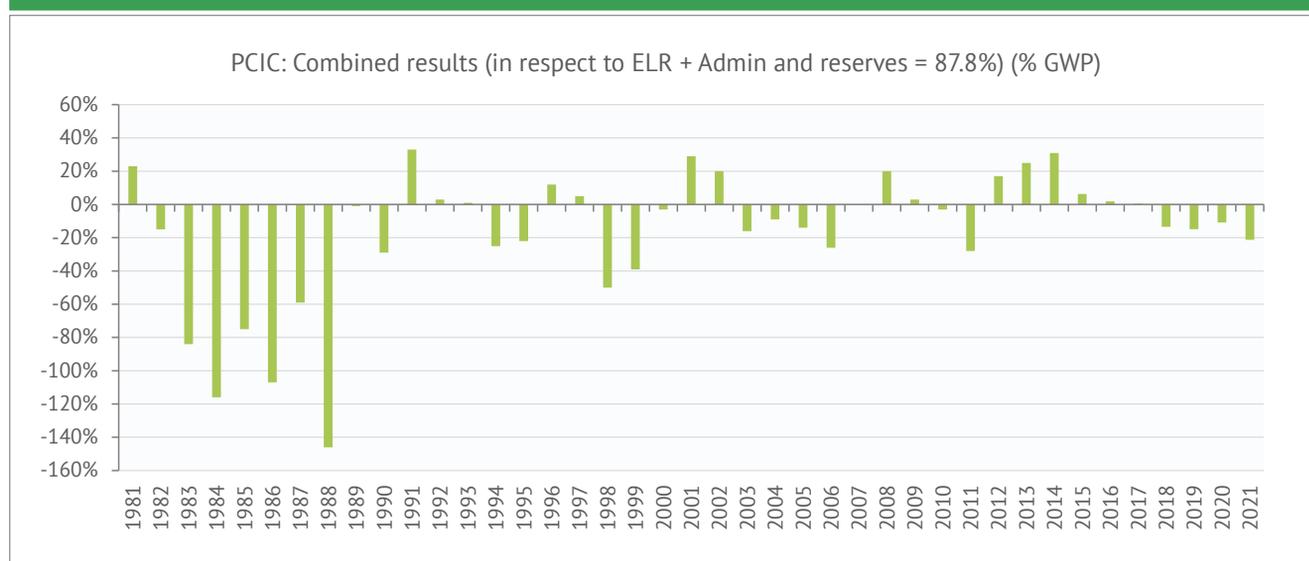
Program	2021 Average Premium Rate(%)	Loss cost 2009-2021(%)	Loss cost 2009-2021(%)*1.3(%)	Loss cost 2017 to 2021(%)	Loss cost 2017 to 2021(%)*1.3(%)	2021 Premium rate as % of RPR(2017-21)
Rice	10.0%	8.3%	10.08%	9.1%	11.8%	85%
Corn	10.2%	8.5%	11.0%	8.9%	11.6%	88%
HVC	4.2%	1.2%	1.6%	1.3%	1.7%	241%
Livestock	3.3%	0.9%	1.2%	0.9%	1.2%	272%
Fisheries	6.3%	1.5%	2.0%	1.6%	2.0%	312%
All Agri-Programs	7.1%	5.4%	4.0%	5.6%	7.3%	97%
NCI	1.7%	0.9%	1.1%	0.8%	1.1%	159%
CLTI	0.2%	0.1%	0.2%	0.1%	0.2%	104%
All PCIC Programs	4.6%	3.5%	4.6%	3.8%	4.9%	94%

Source: World Bank analysis of PCIC data.

Note: CLTI = credit and life term insurance; HVC = high-value crop; NCI = non-crop agricultural asset insurance.

In 19 of the past 40 years, the PCIC would have operated above the combined ratio target, including the last two years (combined ratio = loss ratio + administration and operating expenses at 30 percent). This finding again shows that there is a need for the PCIC to review and increase its premium rates in the rice and corn programs. In Figure 18, positive percentages show years when the PCIC would have operated at a level lower than the combined ratio target; conversely, negative percentages show years when the PCIC would not have operated at a combined ratio higher than the target.

FIGURE 18. PCIC'S COMBINED RATIO RESULTS (LOSS RATIO + ADMINISTRATIVE AND RESERVE LOADING = 99.7%) (% GWP)



Source: World Bank analysis of PCIC data.

Note: ELR = expected loss ratio; GWP = gross written premium.

3.7. DISTRIBUTIONAL ISSUES AND LINKAGE TO CREDIT (COMPULSORY INSURANCE)

3.7.1. Bundling of agricultural insurance with agricultural credit

When the PCIC was established, a specific objective of the program was to leverage small rice farmers' access to credit by protecting their loans, and cover was specifically made compulsory for any palay (rice) farmer getting seasonal loans from a bank or other financial institution (FI). The FI was held responsible for processing the farmer's credit application and the corresponding rice crop insurance policy, as well as for collecting premiums on behalf of the PCIC, and in return it received a 2 percent commission for its services. Subsequently, other crop, livestock, and fisheries insurance programs were added to PCIC's product lines, and more recently, since 2014, with the introduction of the free Special Programs for RSBSA-registered subsistence farmers, insurance cover has also been made compulsory for borrowers under these new product lines.

In many countries agricultural insurance is explicitly linked or bundled with agricultural credit; arguably, this provides a better value proposition for small-scale farmers than just selling crop insurance as a stand-alone product. From the farmers' viewpoint, bundling provides access to credit; FIs are more willing to lend to them because their loans are protected in the event of severe climatic or other shocks. Also, where farmers are unable to provide title deeds to their land as a form of collateral (which is a major issue for farmers in the Philippines), banks are more willing to use the insurance policy as collateral.

For the FIs, the main benefit is that agricultural insurance can enable farmers to repay their loans in times of major crop losses or death of animals, thereby reducing their exposure to loan rescheduling, loss of interest earnings, and in extreme cases default.

For insurers, the bundling of bank credit and agricultural insurance provides access to a low-cost distribution channel for their products and services under a partner-agent model. Insurers can save on major costs and effort, as they do not need to market and promote sales of their policies to individual farmers; banks are often willing to pre-finance the farmers' premiums and add this amount to their loans against repayment at harvest; and typically insurers insist on exercising first rights to any claim payment on the insurance policy in order to recover their loans and the costs of the premiums.

In Asia, several other leading countries make agricultural insurance mandatory (compulsory) for farmers borrowing from FIs: India, which has more than 40 years of experience in compulsory crop-credit insurance for loanee (borrowing) farmers under the Pradhan Mantri Fasal Bima Yojana (PMFBY) program; Thailand, where rice and maize farmers who borrow from the state's Bank for Agriculture and Agricultural Cooperatives (BAAC) are mandated to purchase Tier 1 crop insurance from the Thailand National Crop Insurance Scheme (TNCIS); and Indonesia, where the state insurer, PT Asuransi Jasa Indonesia (Jasindo), and state banks offer bundled (compulsory) crop, livestock, and aquaculture insurance and credit.

3.7.2. Importance of bundled insurance and credit under PCIC's programs in 2021

Given PCIC's traditional mandate to insure small-scale farmers borrowing from the LBP and other lenders, it is perhaps surprising that only 5 percent of PCIC's 3.36 million agricultural and nonagricultural insurance policies were linked to credit in 2021 (Table 12). This represents a major reduction in the proportion (percentage) of insured farmers borrowing credit since 2013–2014, when they accounted for more than one-third (nearly 38 percent) of all PCIC-insured farmers, and as many as 71 percent of insured farmers in Region IIIA. In general, 74 percent of insured palay (rice) farmers were self-financed and 26 percent were borrowing farmers (Virola 2017).

In the case of PCIC's Regular Programs, the corporation insured only 35,334 farmers, livestock producers, and fisherfolk—a very small number; of these, 28,008 insured farmers (79 percent of the subtotal) were borrowing farmers, but with major differences in that less than 10 percent of the insured rice and corn farmers were borrowers, while between 94 percent and 99 percent of livestock, HVC, and fisheries farmers were borrowers. In addition, under PCIC's Regular Programs, a very high proportion, or 98 percent, of NCI policies were issued to borrowers. Key features of the pattern of compulsory and voluntary sales include the following:

- **It is not known why so few (less than 10 percent) of PCIC's Regular Program rice and corn farmers appear to have access to seasonal credit.** It might have been expected that 40 years of collaboration between the PCIC, the LBP, and other FIs to promote access to agricultural finance would have led to a higher proportion of PCIC's Regular Program rice and corn farmers accessing credit.

- **The high voluntary demand for rice and corn insurance by self-financed rice and corn farmers is likely due to the 55 percent–subsidized premiums provided by the PCIC on these two programs.** The reduced average premium rates of about 5 percent are probably very attractive to farmers located in higher-risk regions of the Philippines.
- **The Regular Program insurance policies for HVC, livestock, and fisheries do not carry any premium subsidies at all, which may have led to the very low demand by self-financed farmers.** Around 1 percent of fisheries policies and 6 percent of livestock policies were purchased on a voluntary basis by self-financing farmers. In addition, self-financing HVC, livestock, and fisheries producers may not be aware of the PCIC's insurance products.

In the case of Special Program clients, only 98,726 farmers, or 4 percent of the 2,503,770 policies issued in 2021, were borrowers. This finding suggests that today, the PCIC is predominantly insuring very small subsistence farmers who do not have access to credit to purchase improved seed and fertilizer technology; they produce for their own consumption rather than for sale.

This shift away from insuring semicommercial borrowing farmers to self-financing farmers is primarily due to the government's policy to promote free (100 percent–subsidized) insurance to subsistence farmers registered under the RSBSA who do not have access to credit and who are insured under PCIC's Special Programs.

TABLE 12. NUMBERS OF BORROWERS AND SELF-FINANCED FARMERS INSURED BY PCIC, BY PROGRAM, 2021

Programs	Regular Programs			Special Programs(RSBSA farmers)			Total Farmers		
	Borrowing (NO. Farmers)	Self-financing (NO. Farmers)	Borrowing (% of total)	Borrowing (NO. Farmers)	Self-financing (NO. Farmers)	Borrowing (% of total)	Borrowing (NO. Farmers)	Self-financing (NO. Farmers)	Borrowing (% of total)
Rice	406	4,201	9%	76,648	1,128,317	6%	77,054	1,132,518	6%
Corn	123	1,448	8%	11,601	346,930	3%	11,724	348,378	3%
HVC	4,353	113	97%	6,252	285,067	2%	10,606	285,180	4%
Livestock	23,026	1,563	94%	942	584,799	0%	23,968	586,362	4%
Fisheries	100	1	99%	1,255	16,072	7%	1,355	16,073	8%
Sub - Total Agric	28,008	7,326	79%	96,698	2,361,185	4%	124,706	2,368,511	5%
NCI	5,945	112	98%	1,902	43,759	4%	7,847	43,871	15%
CLTI	18,830	793,649	2%	126	0	100%	18,956	793,649	2%
Sub - Total Non - Agric	24,775	793,761	3%	2,028	43,759	4%	26,803	837,520	3%
Total	52,783	801,087	6%	98,726	2,404,944	4%	151,509	3,206,031	5%

Source: World Bank analysis of PCIC data provided in April 2022.

Note: CLTI = credit and life term insurance; HVC = high-value crop; NCI = non-crop agricultural asset insurance.

3.7.3. Sales distribution channels and procedures for PCIC's Special Program clients

Under the current study, it was not possible to conduct a detailed review and analysis of PCIC's distribution channels for Special Program subsistence farmers who are fully subsidized. However, a brief overview is presented below based on a paper prepared by Reyes et al. 2015 and PCIC's latest guidelines for the selection and targeting of RSBSA clients (PCIC 2021).

Given the relatively small number of permanent marketing and sales employees, and the onerous paper-based policy application procedures, the PCIC cannot market voluntary cover at the individual-farmer level; therefore, its approach under the Special Programs has been to work with the DA, the DAR, the NIA, and regional and local government authorities to identify and register the groups of eligible beneficiaries at the local (barangay) level who will receive free (fully subsidized) crop, livestock, fisheries, and other insurance, subject to pre-agreed rules on the maximum insured acreage or number of insured animals.

In 2013, the **DAR Agrarian Reform Beneficiaries (ARB) Agricultural Insurance Program (AIP)** was launched to insure rice, corn, and livestock producers through the PCIC, with a budget of PHP 1 billion for premium subsidies from the General Appropriations Act. The core objective of this program is to enhance credit access for agrarian reform beneficiaries (ARBs) by lessening the cost of borrowing via an agricultural insurance premium subsidy, and to protect them from losses against extreme weather events and P&D.

Beneficiary selection for PCIC's agricultural insurance protection is conducted by the DAR provincial offices (DARPOs). The DARPOs are responsible for preparing a priority list of eligible Agrarian Reform Beneficiary Organizations (ARBOs) and Farmer Organizations (FOs). From this initial list of eligible ARBOs/ FOs, the municipal agrarian reform officer (MARO) prepares the list of eligible farmers from the member roster based on the criteria shown in Box 3. For fully subsidized PCIC insurance, 3 ha per farmer was the maximum insured area, and three (large) animals per livestock producer the maximum number of insured animals.

BOX 3. ELIGIBILITY CRITERIA FOR COVERAGE BY PCIC



- Farmer must be an ARB or ARB household member cultivating or managing his/her respective farm.
- Farmer must be a member of an ARBO or FO.
- Farm area per farmer must not exceed 3 ha, and in case of group or collective farming, the average area per farmer must not exceed 3 ha.
- For livestock, insurance covers a maximum of three animals per farmer for large ruminants (cattle, carabao) and 10 for small ruminants and swine.
- A maximum of three crop insurance covers per year for multiple cropping is allowed.
- Coverage is for rice, corn, and HVCs such as coconut, coffee, cacao, sugarcane, mango, banana, pineapple, oil palm, abaca, tobacco, cassava, rubber, and other crops. Livestock, including cattle, carabao, goat, swine (breeder), and poultry, is also covered.

Source: Reyes et al. 2015.

The DARPOs and the MARO provide the list of qualified farmers eligible for the 100 percent-subsidized premiums to the selected ARBOs/FOs. They also provide information to the selected organizations on the various ways farmers can avail themselves of the free premium subsidy and conduct awareness and education campaigns for large groups of farmers on ARB-AIP guidelines in coordination with the PCIC. The DAR regional offices consolidate the list of qualified ARBOs/FOs and the indicative number of farmer-beneficiaries under each organization, and then submit the lists to the relevant PCIC ROs.

PCIC's enrollment procedures for rice and corn producers require each eligible farmer to complete a very detailed Application for Insurance (ACI) form, a Location and Sketch Plan (LSP), and a Standard Farm Plan and Budget (SFPB) listing the planned investments in inputs and the costs of production. These documents are then submitted by the ARBO/FO to the MARO to certify that the list of beneficiaries includes only eligible ARBs, after which the MARO issues a DAR certificate. If the farmer is a borrower, the ARBO/FO then submits the farmers' documents, the list of beneficiaries, and the DAR certificate to the FI for review, processing, and issuance of the Certificate of Insurance Cover (CIC); or it sends the documents directly to the PCIC in the case of self-financed farmers (Table 13). The FI then forwards the CIC to the corresponding PCIC's RO. In 2013, FIs were entitled to receive 10 percent of the borrowing farmer's premium as their service fee, but today this service (commission) fee has been reduced to 2 percent. This paper-based application process is extremely time-consuming and labor-intensive for PCIC's staff.

TABLE 13. DAR-ARB-AIP ENROLLMENT PROCEDURE FOR RICE AND CORN FARMERS IN 2013



Step	Agency	Task	Documentary Requirement
1	Eligible Farmer	Complies with the requirements for enrollment and submits to ARBO/FO where a member	Application for Crop Insurance(ACI) location and Sketch plan(LSP) Standard farm plan and Budget(SFPB)
	ARBO/FO	Summarizes the farmer list of beneficiaries in alphabetical order,and requests DAR certification	List of Beneficiaries(LOB) Note: For Contiguous ,are as, a single LSP can be prepared
	MARO	Certifies LOB that beneficiaries are ARBSs and issues DAR certificate to ARBO/FO	list of Beneficiaries. Issues DAR Certificate. Note: for contiguous are as, a single LSP can be prepared
2	ARBO/FO	-(if borrowing from a PCIC accredited lending institution):Submits requirements of farmer-member,LOB and DAR certificate to lending institution as part of loan requirements -if(self-financed or borrowing from a non-accredited institution) Submits requirements of farmer-member,LOB and DAR certificate to accredited to PCIC under writer or directly to PCIC regional office,if needed can also submit a deed of assignment of their agricultural insurance cover in favor of their creditor,and submit the same to the DA-PCIC office.	ACI,LSP,SFPB,LOB,DAR Certificate Deed of Assignment (of Agricultural insurance)
	Accredited Financing institution(if borrowing from a PCIC accredited lending institution)/Accredited PCIC underwrite/Regional PCIC Office(if borrowing from a non-accredited lending institution)	Reviews LOB and support documents,and determine the coverage,premium amounts,* based on the provisions of the program and PCIC's regional guidelines for rice and corn,issue the Certificate of Cover (CIC) to the ARBO/FO. Forwards the CIC to the PCIC Regional Office,net of 10% service fee	ACI,LSP,SFPB,LOB,DAR Certificate Issues Certificate of Cover
3	PCIC	PCIC Receives the CICs/approves Deed of Assignment	CICs,Deed of Assignment

Source: Reyes et al. 2015, based on <https://media.dar.gov.ph/source/2021/02/16/m-c-no-01-s-13-guidelines-in-evaluating-the-performance-of-darab.pdf>.

Note: ACI = Application for Insurance; ARB-AIP = Agrarian Reform Beneficiaries Agricultural Insurance Program; ARBO = Agrarian Reform Beneficiary Organization; CIC = Certificate of Insurance Cover; DA = Department of Agriculture; DAR = Department of Agrarian Reform; FO = Farmer Organization; LOB = list of beneficiaries; LSP = Location and Sketch Plan; SFPB = Standard Farm Plan and Budget.

Special Programs beneficiary enrollment procedures today

Farmer application and enrollment procedures remain largely unchanged in 2022 for both the PCIC's Regular Programs and its Special Programs. Individual borrowers or self-financed farmers are required to submit an Application for Insurance by completing a PCIC Proforma Individual Application, along with their Farm Plan and Budget (FPB). Borrowing or self-financing farmers applying as a group must complete a PCIC Proforma Group Application (listing all the farmers and their individual cropping details and crop insurance needs), along with their FPBs. Similar application forms are used for livestock and fisheries. The paper-based insurance application procedures are extremely time-consuming, and very large numbers of job order workers were required in each RO to process the more than 3 million applications received by the PCIC in 2022.

Each year, the PCIC reviews the eligibility requirements, determines the maximum insured area and number of insured animals per beneficiary, and sets standard sums insured as well as a single national premium rate for each class of insurance business. These steps streamline enrollment, the underwriting process, and issuance of cover for several million fully subsidized Special Program farmers, livestock producers, and fisherfolk. The 2020 applicable limits for fully subsidized insurance for Special Program clients are listed in Table 14. In 2020, the maximum insured area for LBP and Development Bank of the Philippines borrowers was fixed at 5 ha and for all other farmers at 3 ha.

TABLE 14. LIMITS IN INSURANCE COVERS/POLICIES FOR THE RSBSA PROGRAM IN 2020



Program	Maximum crop area, number of animals, area of fish farms, and nonagricultural assets covered by insurance
Crops	
Rice, corn, HVC	Maximum area of farmland per household: 5 ha under LBP and DBP agri-credit/financing assistance programs and 3 ha under other agri-credit/financing assistance programs
Livestock	
Cattle, carabao, horse, swine, goat, and sheep	Insurance coverage must be under the noncommercial mortality insurance cover category
Poultry: Broilers	Maximum of 5,000 head/birds per rearing period
Poultry: Pullets/layers	Maximum of 1,000 head/birds
Fisheries	
Inland fishpond	Maximum of 2,500 square meters
Mariculture parks/offshore (fish cage, fish pen)	Maximum of 1,000 square meters
Seaweed farm	Maximum of 1,000 square meters
Non-crop agricultural assets	
Farming	Maximum of three agricultural equipment/machines used in farming operations
Livestock	Poultry house/piggery house/stable used for housing of the allowed number of livestock and poultry mentioned above
Fisheries	Maximum tonnage for fishing boats is 3 tons
Fishing boat	Boat issued by BFAR to fisherfolk shall be the basis for eligibility for insurance coverage of the boat
Fish cage/fish pen/fishpond	Facilities within the allowed area mentioned above

Source: COA 2021.

Note: BFAR = Bureau of Fisheries and Aquatic Resources; DBP = Development Bank of the Philippines; LBP = Land Bank of the Philippines.

Between 2019 and 2021, PCIC's government premium subsidy (GPS) budget for RSBSA Special Program clients was fixed at PHP 3.5 billion, which is adequate to insure approximately 1.80 million (or 26 percent) of the total 6.85 million farmers and fisherfolk listed in the PABS-RSBSA register. The PCIC allocates/prorates the annual PHP 3.5 billion GPS budget by administrative region and by province according to the total number of RSBSA-registered farmers and fisherfolk, and by the importance of agriculture in each region/province. In 2021, Western Visayas was the largest recipient of RSBSA premium subsidies, with a total of PHP 369.440 million for a target of 190,512 farmers and fisherfolk, while CAR was the smallest recipient, with a total of PHP 79.478 million for a target of 39,279 RSBSA farmers (see Annex L for further details).

The PCIC's guidelines for selecting the 1.8 million RSBSA free insurance beneficiaries prioritize the smallest farmers first, i.e., those tilling an area of 1.5 ha and below, followed by those tilling between 1.5 and 2.0 ha, and finally those tilling more than 2.0 ha and up to 3.0 ha. Other priority RSBSA beneficiaries include farmers and fisherfolk participating in DA programs, groups of farmers under the Sagip Saka Program, and beneficiaries of other DA-assisted programs for women, youth, and indigenous peoples (PCIC 2021).²²

With the planned increase in GPS to PHP 4.5 billion in 2022, the PCIC will be able to correspondingly increase the coverage of its Special Programs to about 2.3 million RSBSA farmers and fisherfolk.

Under this study it was not possible to analyze the agricultural insurance renewal rates either by farmers insured under PCIC's Regular Programs or those insured under the free Special Programs. Renewal rates are a useful indicator of the perceived value of an insurance program by the targeted farmers: those who understand the benefits of risk transfer and agricultural insurance and who have received indemnity payments tend to renew their cover in subsequent years, while those who do not understand insurance and have not received a claims payment may be less likely to purchase cover at the time of renewal. In the case of PCIC's Regular Programs farmers accessing seasonal loans are required on

²² Prioritization of targets is as stated in PCIC (2021, III.A.4c).

a mandatory basis to purchase crop insurance cover; non-loanees can purchase cover as they wish, on a voluntary basis. However, PCIC Regular Program crop, livestock, and fisheries farmers have declined dramatically, from 126,416 insured farmers in 2020 to only 35,334 farmers in 2021, suggesting a very low renewal rate by these farmers. In the case of PCIC's Special Program RSBSA clients, the premium subsidy budget is currently adequate to provide free insurance to about one-third of RSBSA farmers: it would be useful for PCIC to confirm whether it tends to insure the same RSBSA smallholder farmers each year, or if it tries to rotate cover and to include a large number of new beneficiaries each year to ensure that farmers do not feel they are being excluded from the program.

3.8. ISSUES RELATED TO LOSS ADJUSTMENT AND CLAIMS SETTLEMENT

The success or failure of large-scale indemnity-based agricultural insurance programs that rely on field-based loss assessment is highly dependent on the accuracy of the loss assessment procedures in determining the true loss, as well as the timeliness for adjusting the loss and settling the claim of the farmer. In the past, several major national programs—such as ANAGSA in Mexico and COSESP in Brazil—have failed largely because of the lack of governance and very poor loss adjustment and claims settlement mechanisms (Mahul and Stutley 2010). India's PMFBY, which is the national flagship crop-credit insurance scheme based on an AYII cover, has suffered for many years from major delays as well as inaccuracies in the area yield estimation at harvest (using crop cutting experiments, CCEs). As a result, claims settlements are often delayed by 6 to 12 months or more. Under the current review of PCIC's operations, the World Bank Group team conducted a brief review of PCIC's 1992 Revised Loss Settlement Approaches and Procedures Manual for rice and maize, but did not see similar loss assessment procedural manuals for HVCs or for livestock and fisheries. The team's assessment is therefore based on the rice and corn procedures manual, the data and statistics on the organization and staffing of the loss adjustment area, and copies of specimen claims adjustment and verification reports and claims settlement sheets kindly provided by the PCIC.

3.8.1. High number of claims, inadequate staffing, and excessively high workload of the regional field loss adjusters

One of the biggest challenges faced by the PCIC is that all its agricultural insurance programs are indemnity-based products that require in-field loss assessment to determine the amount of loss or damage. Over recent years, with the huge expansion in the number of Special Program clients receiving free insurance, the PCIC has had to increase the number of job order staff it employs in its 13 Regional Administration and Finance Departments, Marketing and Sales Departments, and Claims and Adjusting Departments (CADs). Table 15 shows that in 2021, the PCIC employed 1,041 job order staff across the 13 regions, of which the majority, 528 staff (51 percent), were employed in Marketing and Sales (which includes underwriting),²³ and a further 322 staff (31 percent of total) were employed in CADs. In addition, in each region there were two PCIC regular employees involved in supervising claims adjusting and settlement work. Given the importance of a timely loss assessment and claims settlement, it is surprising that the CAD job order teams are so small in several regions, including Region III (9 staff), Region IIIA (6 staff), and Region V (8 staff).

PCIC's regional staff face a huge burden in assessing losses and adjusting claims for a program that in 2020 underwrote more than 2.4 million crop, livestock, and fisheries policies. In some cases, this results in a backlog of late claims settlements. In its audit of the 2019 and 2020 programs, the Commission of Audit (COA) noted that “settlements of indemnity claims totaling PHP 513.116 million under various insurance programs/insurance lines to 108,954 registered farmers and fisherfolk in ROs I, II, IV and VIII were delayed by one to 797 days in violation of the prescribed period set in the PCIC's Operational Manual, thus, defeating the purpose of providing speedy assistance to farmers and fisherfolk in the restoration of their farm land and the prompt settlement of their financial obligations to lending institutions” (COA 2021).

²³ As noted in section 2.3, the World Bank Group firmly believes that the PCIC should consider establishing a separate Underwriting Department in each RO that is adequately staffed by regular employees and job order workers.

TABLE 15. BREAKDOWN OF JOB ORDER STAFF BY FUNCTION AND REGION



Region	Admin & Finance(AFD)	Marketing & Sales(MSD)	Office of Regional Manager(ORM)	Claims & Adjusting(CAD)	Commission of Adult(COA)	Total ^a	Calims & Adjusting as Percent of Total
I	10	40	3	14	1	68	21%
II	10	43	1	39		93	42%
III	11	23	6	9	2	51	18%
III-A	3	22	2	6	1	34	18%
IV	12	49	2	25		88	28%
V	6	57		8		71	11%
VI ^a	23	39		31		93	33%
VII	12	67	5	29		113	26%
VIII	13	51	5	28		97	29%
IX	10	34	3	27	1	75	36%
X	18	38	1	40		97	41%
XI	6	26	3	28		63	44%
XII	13	39		38	3	93	41%
Total	147	528	31	322	8	1,036	31%
% of Total	14%	51%	3%	31%	1%	100%	

Source: World Bank Analysis of PCIC data (PCIC List of JOs-12312020), March 2022.

a. There is a total of 1,041 job order staff, but information is lacking for five staff in Region VI.

The CAD employs three types of job order staff: (i) loss adjusters, (ii) enumerators, and (iii) claims processing staff.

Table 16 presents a breakdown of the 322 CAD staff by function. Because there is a lack of consistency in job titles across ROs, it is not possible to provide a full picture of the numbers of trained staff who are deployed in each of the specialized areas of field-level crop loss adjustment, livestock mortality assessment, and adjustment of claims on fish farms. Where data are available, they show that only 129 staff (40 percent of CAD's total staff) are officially designated as insurance adjusters or claims adjusters, followed by 88 staff (27 percent of total) designated as claims processors, and a further 6 percent as claims encoders. There is a high number of clerical staff in certain regions, such as RO IV and RO VI, and it is likely that many of these staff are also involved in field-level loss assessment. In addition, in Region VIII, the RO retains 13 emergency encoders. No region appears to have emergency loss adjusters on standby for cases of catastrophe events where large numbers of claims would need adjusting.



Photo credit: EAP Photo Collection/ World Bank

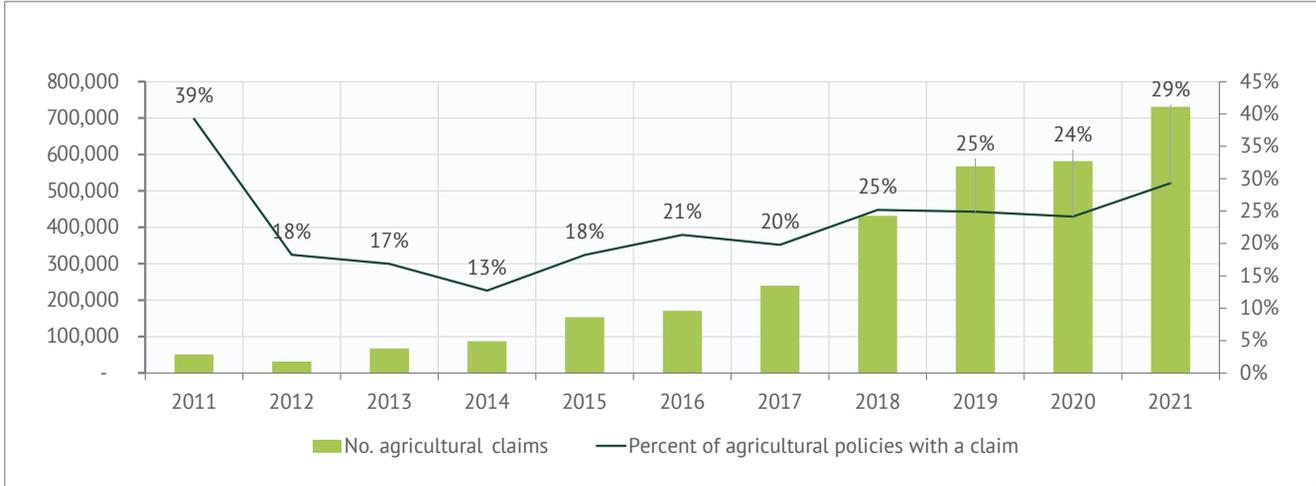
TABLE 16. CLAIMS ADJUSTING DEPARTMENT: STAFF FUNCTIONS AND NUMBER OF WORKERS


Region	Insurance/Claims Adjuster	Claims Processor	Claims Encoder	Tecjrical Staff	Clerks(Senior & Junior)	Support Staff	Admin Staff	Total
I				6	8			14
II	21	17	1					39
III					9			9
III-A					2	3	1	6
IV					14	4	7	25
V	3	5						8
VI					31			31
VII	11	14	4					29
VIII	14	6	7		1			28
IX	16	11						27
X	21	18	1					40
XI	21	7						28
XII	22	10	6					38
Total	129	88	19	6	65	7	8	322
% of Total	40%	27%	6%	2%	20%	2%	2%	100%

Source: Source: World Bank Analysis of PCIC data (PCIC List of JOs-12312020), March 2022.

With the expansion of PCIC’s portfolio to over 3 million policies, there has been a corresponding increase in the total number of claims to be adjusted and settled; over the past three years (2019–2021), the corporation has paid out on an average of nearly 627,000 agricultural insurance claims each year and on as many as 730,869 agricultural insurance claims in 2021. In 2014, slightly less than 15 percent of PCIC-insured farmers received a claims settlement, but since then there has been a major, and unexplained, increasing trend in the proportion of insured farmers who receive a claims payment, reaching nearly a third (or 29 percent) of all insured agriculture policies/farmers in 2021 (Figure 19). The 730,869 adjusted and paid agricultural insurance claims represent a very high percentage, or nearly 1 in 3 (29.3 percent), of the 2,493,217 agricultural insurance policies issued by the PCIC in 2021; in the case of rice and maize, the percentage of policies with claims was even higher, at 43.7 percent and 41.3 percent, respectively (1 in every 2.5 farmers) (Figure 20). This represents a huge workload for PCIC’s crop/livestock and fisheries loss adjusters, especially when considering that the total number of claims that they had to assess was considerably higher—that is, it includes both paid claims and claims that were rejected because the actual loss was assessed to be below the 10 percent threshold.

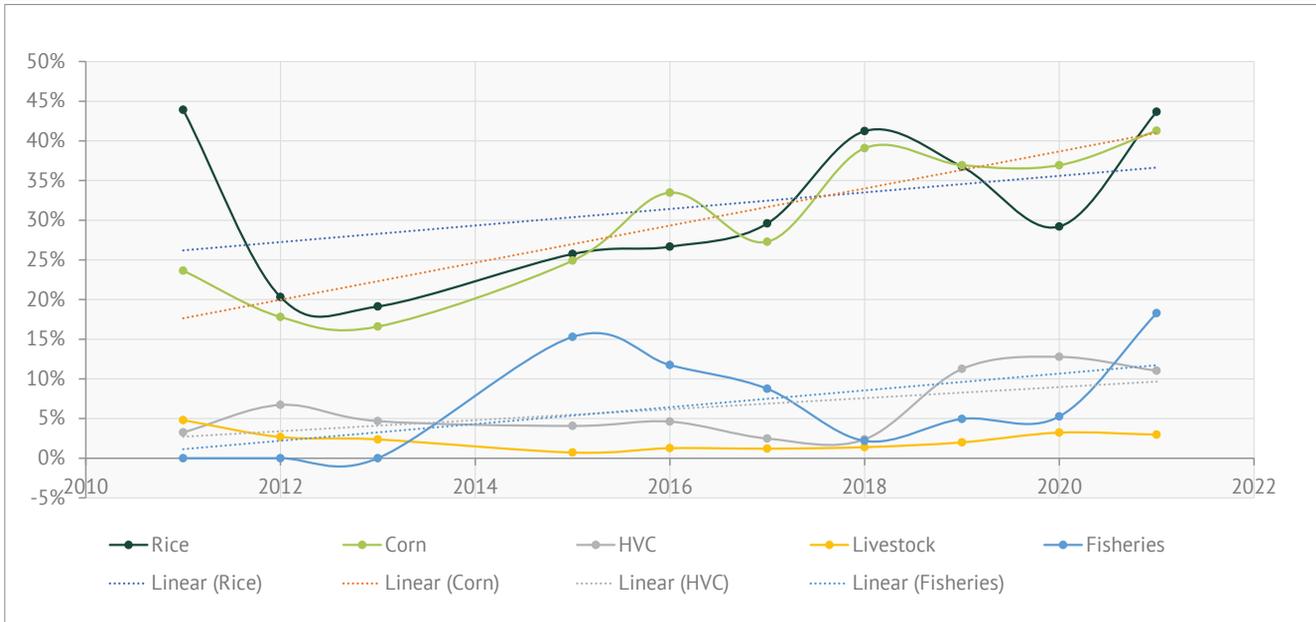
FIGURE 19. NUMBER AND PERCENTAGE OF PCIC AGRICULTURAL POLICIES WITH AN ADJUSTED AND PAID CLAIM, 2011–2021



Source: World Bank analysis of PCIC annual reports, 2011–2021.

There are definite increasing trends in the number and percentage of insured corn and rice farmers receiving claims since 2013, and in the case of HVCs there has been a big jump in the last three years (Figure 20). This may reflect climate change trends affecting agriculture and making it riskier, or a change in the cover design and indemnity structure of the products.²⁴ The increasing trend in the number and percentage of rice and maize farmers filing claims will place an increasing burden on PCIC’s claims adjusters and require recruiting additional staff to cope with this workload.

FIGURE 20. PERCENTAGE OF INSURED CROP, LIVESTOCK, AND FISH FARMERS RECEIVING A CLAIM PAYOUT, BY YEAR



Source: World Bank analysis of PCIC claims data 2011 to 2021.

Note: HVC = high-value crop.

24. In this context, the Land Bank of the Philippines states: “There is a need to further study to determine why the claims rate is high. This could be attributed to deviation from proper farming technology/technique or lack of technical experts to guide the farmer/fisher to address concerns on pests and diseases” (Communication from LBP to World Bank, October 21, 2022).

In 2020, the 129 specialist claims adjusters would each have needed to adjust an average of 4,744 individual paid claims, or—on the assumption that all the 322 CAD staff were deployed to perform field-level loss adjusting—an average of 1,901 paid claims per person (Table 17).²⁵ As noted above, this workload does not include assessed claims that were rejected because the loss was below the deductible. It is clear that with this huge implied workload, it would be impossible for PCIC’s loss adjusters to conduct individual-farmer field-by-field or animal-by-animal loss assessments,²⁶ and therefore, it is likely that a very high proportion of loss events are being adjusted as if they were a calamity (major flooding or typhoon damage)—that is, on a “collective loss adjustment basis,” which is normally carried out at the barangay level if cropping systems and damage levels are homogeneous.²⁷ Furthermore, it is not known what proportion of claims can actually be assessed in field in regions such as RO III, RO IIIA, and RO V, which have very small teams of less than 10 CAD staff. In many ROs it appears that clerical staff are primarily employed to conduct office-based investigations, observations, and evaluations of claims for indemnity filed by the farmers.

25. In 2021, with the even higher number of paid agricultural insurance claims (730,869), the implied workload for the 129 claims adjusters would have been considerably higher, amounting to an average of 5,665 claims per adjuster, or assuming all 322 CAD staff were involved in loss adjusting, an average of 2,270 adjusted claims per CAD job order worker.

26. The Spanish national agrarian insurance program, Agroseguero, provides an international comparison. The company currently employs 407 crop loss adjusters and 118 livestock adjusters. The workload of an Agroseguero crop loss adjuster has involved an average of 250 individual crop loss assessments per year over the past decade, equivalent to about 6 percent of the workload of a PCIC crop loss adjuster. While accepting that average farm size is much larger in Spain, making an individual adjustment considerably more time-consuming than in the Philippines, it is clear that the workload for the PCIC’s staff is impossible to conduct on an individual-farmer basis for many or most events.

27. PCIC’s 1992 loss adjustment procedural manual for rice and corn sets out the procedures for calamities and deployment of the “General Assessment Team” to conduct an initial area-based (at the barangay or municipality level) damage assessment, after which individual claims adjusters are deployed to the field to adjust individual-farmer losses.



Photo credit: Philippine Rural Development Project-Department of Agriculture

TABLE 17. TOTAL NUMBER OF PAID PCIC CLAIMS REQUIRING IN-FIELD LOSS ADJUSTING AND WORKLOAD PER LOSS ADJUSTER BY REGION I TO XII, 2020

RO	Rice	Corn	HVC	Livestock	Fisheries	Na	CLTI	Total	% of Total Paid claims	No claims Adjusters/Region	Average No. Claims/ Adjuster	No CAD staff/ Region	Average No. Claims/CAD Staff
	NOFF	NOFF	NOFF	NOFF	NOFF	NOFF	NOFF	NOFF					
I	21,022	864	2,745	614	7	14	467	25,711	4%	0	?	14	1,837
II	18,487	47,695	201	147	27	4	145	65,714	11%	21	3,177	39	1,711
III	13,171	152	164	587	3	9	4	14,090	2%	0	?	9	1,566
III-A	6,403	155	106	234	37	-	39	5,972	1%	0	?	6	1,162
IV	14,341	7,686	12,049	3,245	320	-	35	37,676	6%	0	?	25	1,507
V	10,314	2,226	14,805	118	137	153	17	27,770	5%	3	9,257	8	3,471
VI	96,619	15,369	119	967	493	65	205	113,841	19%	0		31	3,672
VII	29,612	20,151	2,147	4,804	757	-	331	57,802	9%	11	5,255	29	1,993
VIII	55,255	2,746	2,528	174	7	-	36	60,746	10%	14	4,339	28	2,170
IX	21,618	23,130	1,058	83	832	-	83	46,804	8%	16	2,925	27	1,733
X	29,649	18,283	307	373	104	-	39	43,755	8%	21	2,322	40	1,219
XI	34,518	4,833	950	604	32	-	149	41,086	7%	21	1,956	28	1,467
XII	34,323	29,163	279	122	27	8	109	64,031	10%	22	2,911	38	1,685
Total	385,332	172,455	37,456	12,072	2783	253	1647	611,998	100%	129	4,744	322	1,901
% of Total	63.0%	28.2%	6.1%	2.0%	0.5%	0.0%	0.3%	100.0%					

Source: PCIC 2020 annual report (DA 2020).

Note: CAD = Claims and Adjusting Department; CLTI = credit and life term insurance; HVC = high-value crop; NCI = non-crop agricultural asset insurance; NOFF = number of farmers receiving a claims payment; RO = Regional Office.

Where losses are assessed on a “collective loss adjustment basis,” and the workload and time constraints do not permit subsequent individual-farmer and field-by-field loss adjustment, it is impossible to (i) apply the crop stand quality “adjustment factor”; (ii) quantify the production costs each individual farmer has actually invested in growing the crop up to the time of loss; (iii) verify the actual planted and damaged area of each farmer; or (iv) objectively determine what distribution factor should be applied where insured crops are at different phenological growth stages. These issues suggest that it would be very important for PCIC’s CAD and loss adjustment specialists to conduct a detailed review of their current loss assessment and indemnity procedures and adjustment factors, and to rationalize the procedures that are used when adjusting losses on an area basis.

An immediate short-term recommendation is that the PCIC should conduct a review of its loss assessment staffing levels in all regions to evaluate the loss adjusters’ workload and, where necessary, recruit more staff to bring the anticipated level of claims assessed per adjuster to a more realistic level. If this is not done, the work overload is likely to demoralize the CAD staff and possibly lead to a deterioration in the quality of the loss adjustments and/or delays in claims assessment and claims processing and settlement.

3.8.2. Value for money for farmers

Between 2011 and 2021, the PCIC paid claims to a total of 3.11 million crop, livestock, and fisheries producers, or nearly one in four farmers (23.7 percent of all insured farmers/ agricultural insurance policies), although when including the nonagricultural insurance programs the share of claims was 17.4 percent of total policies. There were, however, major difference across the agricultural insurance programs: only 2.1 percent of insured livestock producers, 5.6 percent of insured fish farmers, and 7.6 percent of insured HVC farmers received a claims payment; but one-third of rice producers (34.4 percent) and corn producers (52.8 percent) received a claims payment (Figure 21a). These results suggest that rice and

corn production is much riskier than growing HVCs and that there is very little risk at all associated with livestock production and fish farming in the Philippines. It is questionable whether livestock producers would do better by self-insuring, considering such low levels of claims settlements. The nonagricultural insurance programs have also experienced incredibly low numbers of claims, ranging from 3.4 percent of insured NCI policies to only 0.2 percent of CLTI policies over the 11-year period from 2011 to 2021. Overall (with the inclusion of agricultural and nonagricultural insurance policies between 2011 and 2021), the PCIC issued a total of 18 million policies and paid out 3.13 million claims, representing 17.4 percent of total insured policies (Figure 21a).

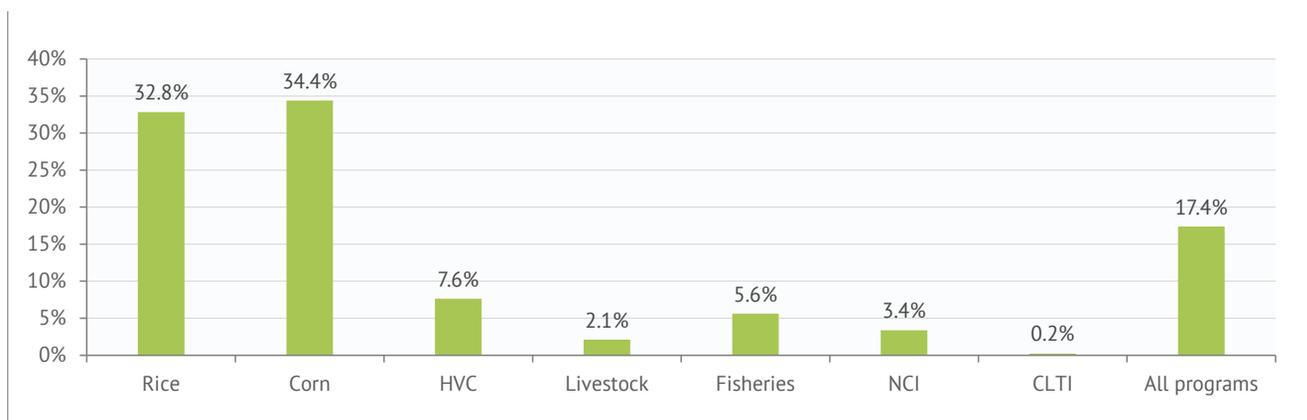
Over the past 11 years (2011 to 2021), the average size of the claims payments to crop, livestock, and fisheries producers has been PHP 6,908 per claimant, ranging from an average of PHP 6,245 for maize claimants to an average of PHP 11,571 for livestock claimants. However, much higher average claim payments have been made to NCI and CLTI claimants (Figure 21b).

A comparison between the average size of claims payments and the average sum insured per policy shows that, for all the PCIC's agricultural and nonagricultural insurance programs, the average value of the claim payment has only been 20 percent of the average sum insured, ranging from an average low of 16 percent for HVCs, to 25 percent for both rice and corn, to a maximum average of 56 percent of sum insured for the CLTI program (Figure [21c]). These very low average levels of damage compensation in the crop insurance programs are a result of (i) the complex loss adjustment process and the high burden of documentation on the farmer; and (ii) the basis of indemnity in the HVC program (salvage-based policies where farmers need to lose about two-thirds of their crop before receiving any indemnity) coupled with the indemnity matrices that are applied to each peril according to the stage of crop growth, which further reduce the number of claims paid. It is debatable whether the very low average claims payments on most of the agricultural insurance programs are adequate to compensate farmers for their damages and financial losses, enable them to repay their loans, and get back into production for the next cropping season. This in turn raises questions about the value for money that farmers are receiving from the heavily subsidized national agricultural insurance program underwritten by the PCIC.

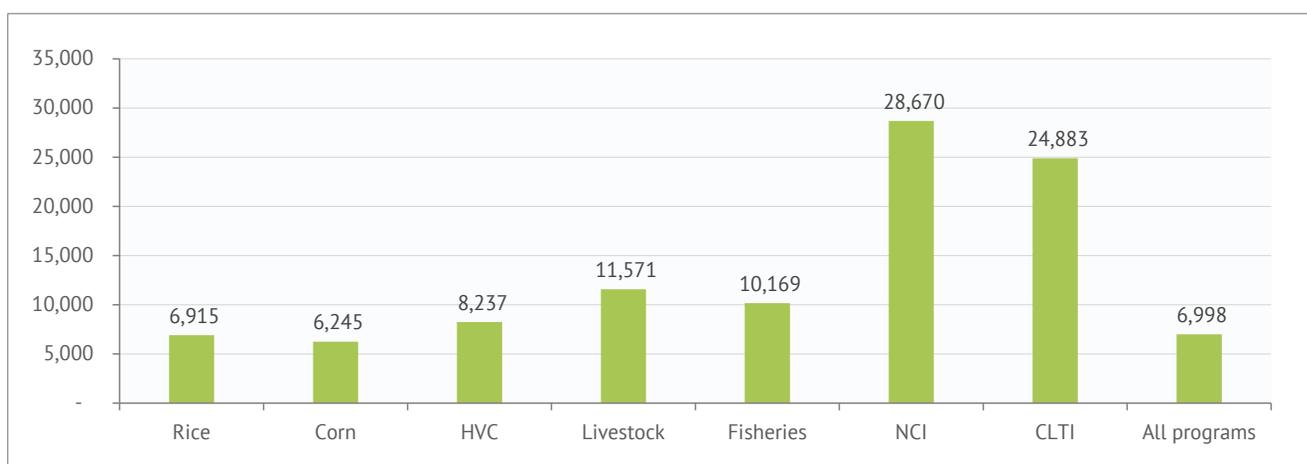
FIGURE 21. PCIC'S CLAIMS SETTLEMENT STATISTICS, 2011–2021



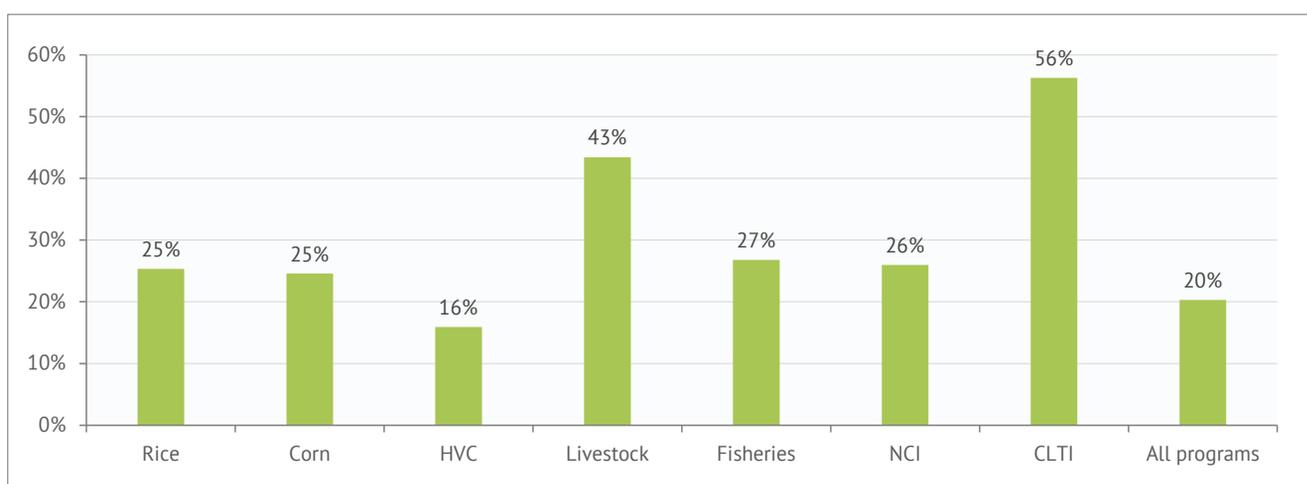
a. Percentage of insured farmers receiving a claims payment



b. Average size of claims settlement per farmer (PHP/policy)



c. Average size of claim as percentage of the average sum insured per policy

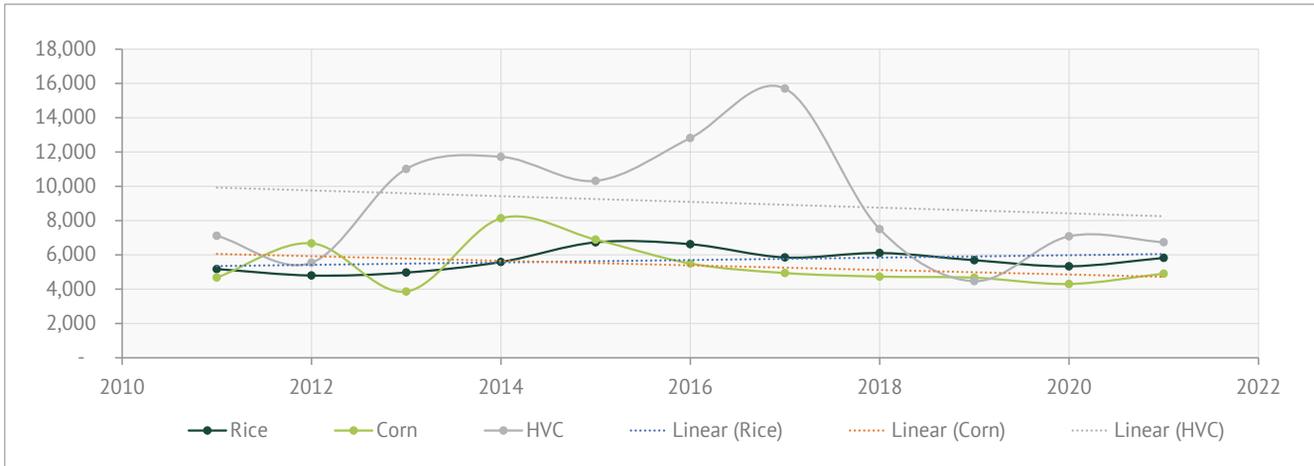


Source: PCIC, March 2022.

Note: CLTI = credit and life term insurance; HVC = high-value crop; NCI = non-crop agricultural asset insurance.

For some crop insurance programs, such as the HVC program, there has been a decrease in the average size of claims payments (per insured ha) in the 11 years from 2011 to 2021. The main reason appears to be the reduction in the average size of insured HVC farms and the corresponding reduction in the average sum insured over time. However, in the case of rice and corn, the average size of claims payments per farmer has remained very constant over the past 11 years (Figure 22).

FIGURE 22. AVERAGE SIZE OF CROP INSURANCE CLAIMS PAYMENTS PER INSURED HA, 2011–2021 (PHP/POLICY)



Source: PCIC, March 2022.
 Note: HVC = high-value crop.

3.9. GOVERNMENT’S EXPOSURE TO CATASTROPHE LOSSES THROUGH PCIC’S LACK OF REINSURANCE

The PCIC has never been supervised by the IC, and hence its capital requirements, investments and retention levels, reinsurance, and accounting and reserving systems and procedures differ from the normal procedures and the legal and regulatory requirements set by the IC for private sector commercial life and non-life insurance companies in the Philippines. This section briefly reviews some of the key issues and concerns that have been raised by the IC and the DoF since 2021 related to these differing norms.

3.9.1. PCIC’s policy toward reinsurance

The Revised Charter Republic Act 8175 of 1995 authorized the PCIC to seek reinsurance protection whenever it may be available; however, for most of its history the company has not purchased reinsurance for its agricultural insurance portfolio (World Bank 2019b). Currently, the company purchases some limited property fire reinsurance protection from the National Reinsurance Corporation of the Philippines (Nat Re) on its NCI portfolio as required by law.

In 2022, the PCIC stated the reasons for not reinsuring its agricultural insurance portfolio: (i) it has not been able to access international reinsurance protection at affordable rates; and (ii) its own internal actuarial analyses show that it is more financially beneficial to retain 100 percent of its agricultural risks than to pay away reinsurance premiums, as only a tiny reinsurance claim would have been triggered once in the past 30 years. Rather, the company is seeking to increase its capital base from PHP 2 billion to PHP 10 billion as previously authorized under Republic Act 8175, but never enacted; it is also seeking to modify the current practice whereby 50 percent of any annual operating surplus is paid back to the government as a dividend, and instead retain such surpluses to build its claims reserves. Finally, the company noted that in the event of a severe loss year with claims exceeding its premium earnings, the company is authorized to draw on the PHP 500 million state reserve fund for catastrophe losses (created under Section 8A of Republic Act 8175).

As of 2021, the company had a huge agricultural crop, livestock, and fisheries liability of PHP 75.0 billion (US\$1.52 billion), and without any form of reinsurance protection it remains very exposed to catastrophe losses. The PCIC is only one of a handful of either public sector or private sector agricultural insurance companies that underwrites a

national portfolio of crops, livestock, and fisheries against catastrophe (covariate) risks such as drought, flood, typhoon, and P&D, while being totally un-reinsured. Compared to 1998, the PCIC's exposure is now 10 times larger, and a catastrophe event would result in much larger losses with its current exposure.

International experience shows how dangerous it is either to be inadequately reinsured, or to have no reinsurance protection at all. Mexico has a well-established agricultural insurance market generating over US\$350 million in agricultural insurance premiums, with a leading public sector specialized agricultural insurer and reinsurer, AGROASEMEX, as well as several major private agricultural insurers. In 2011, the northern half of the country experienced a very widespread and severe freeze event (a 1-in-50 year or rarer event), which led to an average market loss ratio of 262 percent, an average loss ratio for private crop insurers of 148 percent, and a 337 percent loss ratio for the self-insured crop funds (Fondos). At that time, AGROASEMEX was the sole reinsurer of the Fondos program, and it incurred a stop-loss reinsurance loss ratio of more than 1,200 percent, with losses in excess of US\$1 billion. AGROASEMEX was hugely under-reinsured with international retrocession reinsurers and had to be recapitalized by the Mexican government to avoid bankruptcy (World Bank 2013a; 2013b).

The PCIC should consider contracting a specialist firm to conduct a detailed risk modeling and actuarial study to quantify its catastrophe loss exposures and, based on the results, design and put in place a suitable risk retention and reinsurance strategy and program. For this, the PCIC may wish to engage the services of a specialized reinsurance broker. In this context it is noted that in 2021 PCIC requested quotes for non-proportional or stop loss reinsurance protection from a leading international reinsurance broker but the corporation subsequently declined to purchase reinsurance cover.

3.9.2. PCIC's dividend policy

In surplus years, the PCIC pays dividends back to the GoP. For the dividend year (DY) 2020, the PCIC declared and paid PHP 317.075 million in dividends to the GoP, representing 50 percent of that year's net income. Also in DY 2020, the PCIC paid an additional PHP 176.383 million in dividend adjustments for DYs 2014–2018 as recommended by the COA. In DYs 2015, 2016, 2017, 2018, and 2019, the PCIC declared and remitted dividends to the government through the BTr totaling PHP 36.556 million, PHP 22.559 million, PHP 170.769 million, PHP 160.901 million, and PHP 453.810 million, respectively (COA 2021).

The practice of paying significant dividends back to the government each year means that the PCIC is unable to build its claims reserves in order to withstand severe loss years and/or to use part of this surplus to purchase formal reinsurance protection. Therefore, a review of the dividend policy, along with the broader risk management strategy, is recommended to ensure that the PCIC, as a government-owned public sector insurer, is utilizing its capital to achieve sustainability and increase its ability to pay claims to its policyholders.

In section 4, the report outlines recommendations for a comprehensive risk management strategy that incorporates four key pillars:

- Underwriting and reinsurance management
- Investment management
- Dividend management
- Capital management

3.10. PCIC'S TREND CONCERNING SPECIAL PROGRAM SUBSISTENCE FARMERS: COMMERCIAL INSURANCE VERSUS SOCIAL PROTECTION

The government's original policy objectives when creating the PCIC back in 1978 centered on de-risking agriculture by protecting farmers' agricultural investments in the event of severe crop loss, thereby encouraging lending institutions to extend credit to the agricultural sector. PCIC's charter therefore required that any farmer contracting seasonal crop loans be insured on a compulsory basis; also, recognizing that the majority of farmers were subsistence farmers who primarily depended on agriculture for their livelihoods, the GoP declared as a state policy that premium subsidies would be offered to make cover more affordable and accessible to these farmers (Republic Act No. 8175 of 1995).

Between 1980 and 2013–2014, the PCIC underwrote a relatively small portfolio of crop, livestock, and fisheries producers under its Regular Programs and received partial premium subsidies for rice and corn farmers only. During this period, the bulk of its portfolio was composed of farmers getting loans from the LBP who were insured on a compulsory basis.

In 2013, the government, in order to promote a much wider interest in and uptake of agricultural insurance, launched the free (fully subsidized) Special Programs for subsistence farmers and fisherfolk cultivating up to 7 ha of land, with free insurance for up to 5 ha of cropping. This was subsequently revised downward in 2015 to free insurance for a maximum of 3 ha. Since then, the government has started to increase its General Appropriations Act premium subsidy budget, which reached PHP 3.5 million in 2019, enabling the PCIC to hugely scale up its crop, livestock, and fisheries insurance programs by offering Special Program policies to RSBSA-registered farmers.

Today, PCIC's portfolio is heavily skewed toward free insurance provision for very small subsistence farmers under the free Special Programs, which act more as a social protection mechanism than a commercial agricultural insurance program, albeit one that targets small-scale farmers. In 2020, PCIC's free Special Programs accounted for 74 percent of all insured policies and 95 percent of all agricultural insurance policies; they also accounted for 96 percent of total agricultural liability and 95 percent of total premium, or in other terms, the bulk of the premium was made up of premium subsidies. Conversely, the PCIC's partially subsidized Regular Programs of agricultural insurance hardly covered more than 5 percent of farmers and generated very little premium income. Indeed, in 2020, PCIC's main operations under its Regular Programs centered on sales of life insurance cover under the CLTI program (see Table 18).

Individual-farmer indemnity-based agricultural insurance may not be the most cost-effective instrument to provide social protection cover to subsistence farmers (as opposed to semicommercial farmers seeking to access credit) (World Bank 2019b, 2020). The World Bank Group team therefore recommends that, as a starting point for reforming the PCIC, the PCIC's Board revisit the corporation's charter and agree on its future policy and priorities regarding which segments of the farming population it wishes to insure, and which segments may be better protected under the existing disaster risk compensation programs and/or new macro-level parametric insurance program.

TABLE 18. PCIC'S PORTFOLIO DISTRIBUTION BETWEEN REGULAR PROGRAM CLIENTS AND FULLY SUBSIDIZED SPECIAL PROGRAM CLIENTS, 2020

Insurance programs	No of insured farmers	Sum insured (php Million)	% of sum insured	Premium Contributors (PHP Million)			Average Premium Rate	Government Premium Subsidy (PHP Million)	% Premium Subsidy level	Share of Total Premium Subsidies
				Farmer+ leading institution	PAC Subsidy	GAA/DA Subsidies				
Special Programs										
RS BSA	1,753,144	45,442	48%		56	3,500	3,556	100%	74%	
Non-RS BSA	490,158	12,015	13%		834	0	834	100%	17%	
DA Rice & Corn Insurance	17,103	1,729	2%		167	0	173	100%	4%	
DA-PLEA	9,958	364	0%		27	0	27	100%	1%	
DA-SURE	1,121	28	0%		1	0	1	100%	0%	
DA-Yolanda Rehabilitation & Recovery (YRRP)									0%	
DA-DAR-LBP APCP	14,735	983	1%		86	0	86	100%	97%	
Sub Total Special Programs	2,286,219	60,560	64%	0	1,172	3,506	4,678	100%	97%	
PCIC Regular Programs										
Rice & Corn	82,055	2,457	3%	138	146	0	284	52%	3%	
High value Crops	6,276	479	1%	15	0	0	15	0%	0%	
Livestock	36,025	1,035	1%	41	0	0	41	0%	0%	
Fisheries	2,060	170	0%	5	0	0	5	0%	0%	
Sub-Total Agriculture	126,416	4,142	4%	198	146	0	344	42%	3%	
NCI+CLTIP	677,616	29,889	32%	64	0	0	64	0%	0%	
Total PCIC Regular Programs	804,032	34,032	36%	262	146	0	409	36%	3%	
Total Agricultural Insurance Programs	2,412,635	64,702	68%	198	1,318	3,506	5,022	96%	100%	
Grand Total	3,090,251	94,592	100%	262	1,318	3,506	5,086	9.5%		

Source: PCIC 2020 annual report (DA 2020).

Note: APCP = Agrarian Production Credit Program; CLTI = credit and life term insurance; DA = Department of Agriculture; DAR = Department of Agrarian Reform; GAA = General Appropriations Act; LBP = Land Bank of the Philippines; NCI = non-crop agricultural asset insurance; PLEA = Production Loan Easy Access; RSBSA = Registry System for Basic Sectors in Agriculture; SURE = Survival and Recovery.

3.11. NEED TO ALIGN THE PCIC WITH OTHER NATIONAL DISASTER RISK FINANCING AND COMPENSATION PROGRAMS IN THE PHILIPPINES

In the Philippines, PCIC's agricultural insurance is only one of the disaster risk financing instruments available to protect farmers and the agriculture sector against natural disasters. Over the past decade, the government has undertaken important institutional and legal reforms to strengthen financial, physical, and social resilience to disasters. The Philippine Disaster Risk Reduction and Management (DRRM) Act of 2010 provides the legal and institutional basis for holistic disaster risk management, including risk reduction, preparedness, and response involving multisectoral coordination and active participation at the local level. In 2015, the DoF adopted the National Disaster Risk Financing and Insurance Strategy setting

out key priorities for the government to strengthen financial resilience. Furthermore, the Department of Social Welfare and Development (DSWD) has recently developed social protection programs to also support disaster resilience and response. Finally, given the president's priority of strengthening resilience to natural hazards, a proposal for the creation of a Department of Disaster Resilience is under discussion in Congress (World Bank 2020).

In the Philippines, the OCD of the National Disaster Risk Reduction and Management Council (NDRRMC) has overall responsibility for coordinating national disaster risk reduction, preparedness, and response, and for managing the disbursements from the Natural Disaster Risk Reduction and Management Fund (NDRRMF). The size of the NDRRMF averaged about 0.17 percent of GDP between 2015 and 2018, and over this period, 11 percent of the fund was allocated to post-disaster rehabilitation of the agriculture sector. Other sources of disaster risk funding include (i) the Quick Response Funds (QRFs) averaging 0.03 percent of GDP between 2015 and 2018, and (ii) the Local Disaster Risk Reduction and Management Funds. LGUs are required to set aside 5 percent of their budgets to cover disaster preparedness and relief and rehabilitation (World Bank 2020).

In the event of a natural disaster event, funds from the NDRRMF and QRFs allocated to agriculture are released to the DA to finance early recovery for affected farmers, livestock producers, and fisherfolk. Assistance is usually provided in kind in the form of seeds and other inputs to enable replanting of crops, as well as replacement animals for livestock producers who have lost their animals.

According to the OCD, between 2016 and 2021, the NDRRMF released funds totaling PHP 59.5 billion, of which the largest beneficiary (recipient) was the Department of Social Welfare and Development (PHP 17.3 billion, or 29 percent of total); the next largest were the Department of Public Works and Highways (PHP 12.4 billion, 21 percent of total) and the DA (PHP 10.9 billion, 18 percent). In addition, the DA received extra funding from the QRFs to finance free seed programs for farmers who had lost their crops. Over the same period, the PCIC settled total agricultural insurance claims to crop farmers, livestock producers, and fisherfolk valued at PHP 18.32 billion.

Disaster relief compensation programs and agricultural insurance programs should be carefully aligned to avoid unintended overlap with each other (resulting in some farmers receiving double indemnities). They should further be designed to complement one another; otherwise, farmers may choose not to purchase commercial agricultural insurance because they prefer to wait for a disaster to occur and then receive free state compensation payments or cash transfers (Lung 2020).

Under the current study, time constraints have prevented any discussions with the DA about how it aligns its NDRRMF-funded early recovery programs for affected farmers with the PCIC's insurance programs or in particular with the fully subsidized Special Programs for subsistence farmers, livestock producers, and fisherfolk. Such a study should, however, be conducted as part of the 2022 and other future planned reforms of the PCIC.

3.12. SUSTAINABILITY OF THE GOVERNMENT'S AGRICULTURAL INSURANCE PREMIUM SUBSIDIES

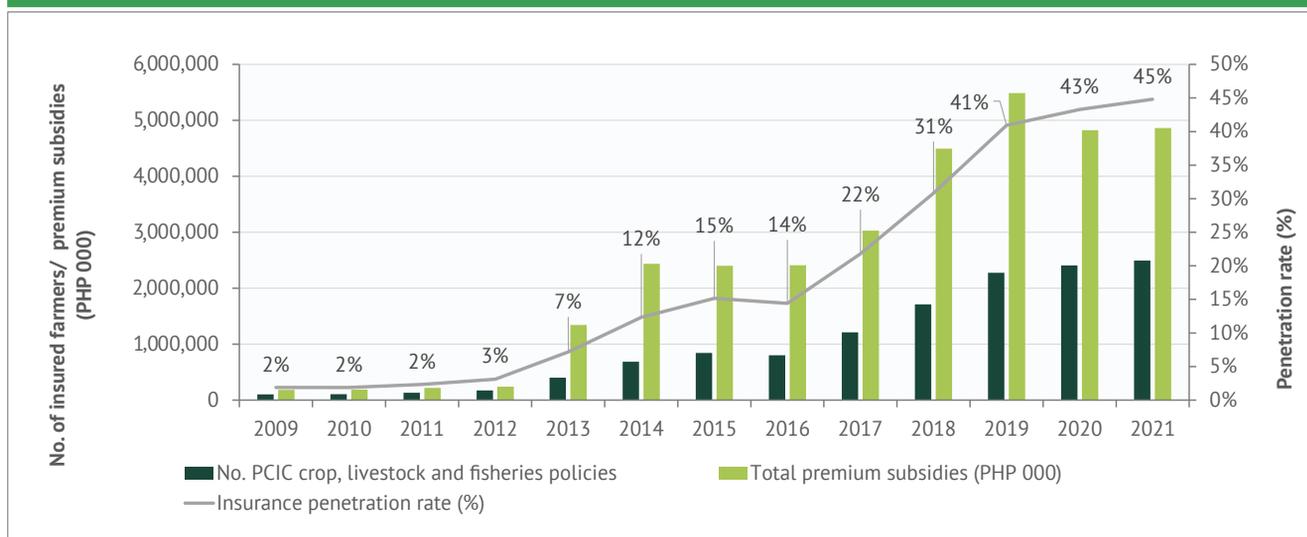
3.12.1. Expansion of 100 percent–subsidized premiums for subsistence farmers under the Special Programs since 2013 and costs to the government

Between 1981 and 2010, the PCIC's underwriting operations were severely constrained by the lack of capital and reserves and a very restricted budget for premium subsidies and coverage of farmers, livestock producers, and fisherfolk. Consequently, coverage was extremely low, at about 100,000 individual policies per year, representing a penetration rate of less than 2 percent of all farmers. During this period, GPS amounted to about 50 percent of total premium and farmers paid the remaining 50 percent.

In the past decade, however, the GoP has hugely expanded its premium subsidy support to the PCIC, and starting in 2013 it introduced a series of new Special Programs of “free” agricultural insurance for small-scale and poor subsistence crop/livestock/fisheries producers that offer 100 percent–subsidized premiums.²⁸ Through these Special Programs, PCIC's uptake and penetration has increased significantly, to nearly 43 percent of all farmers (calculated as per the 2012 Census of Agriculture and Fisheries total number of farm households) in 2020, and an even higher 45 percent in 2021. The huge increase in mainly free agricultural insurance (100 percent–subsidized premium) has been accompanied by a similar increase in the number of insured farmers. Over this period, actual GPS have increased exponentially, from PHP 189 million (US\$4.2 million), equivalent to 49 percent of total agricultural insurance premium in 2010, to PHP 5.487 billion (US\$105.9 million), or 96 percent of total premium in 2019, before falling back slightly to PHP 4.824 billion (US\$97.2 million) in 2020 and PHP 4.862 billion (US\$98.7 million) in 2021 (Figure 23).

28. The following were introduced in 2019: RSBSA; non-RSBSA rice and corn insurance programs; and the Department of Agriculture's DA-PLEA (Production Loan Easy Access), DA-SURE (Survival and Recovery), DA-YRRP (Yolanda Rehabilitation and Recovery Program), and DA-DAR LBP APCP (Agrarian Production Credit Program).

FIGURE 23. ROLE OF PREMIUM SUBSIDIES IN SCALING UP AGRICULTURAL INSURANCE IN THE PHILIPPINES: PENETRATION RATE AS PERCENTAGE OF FARMERS, 2009–2021



Source: World Bank analysis of PCIC annual reports, 2009–2021; PSA 2015 (for insurance penetration rate).

Note: There is a very high correlation between the value of premium subsidy provision and the number of farmers insured by the PCIC (Pearson R^2 value = 0.99).

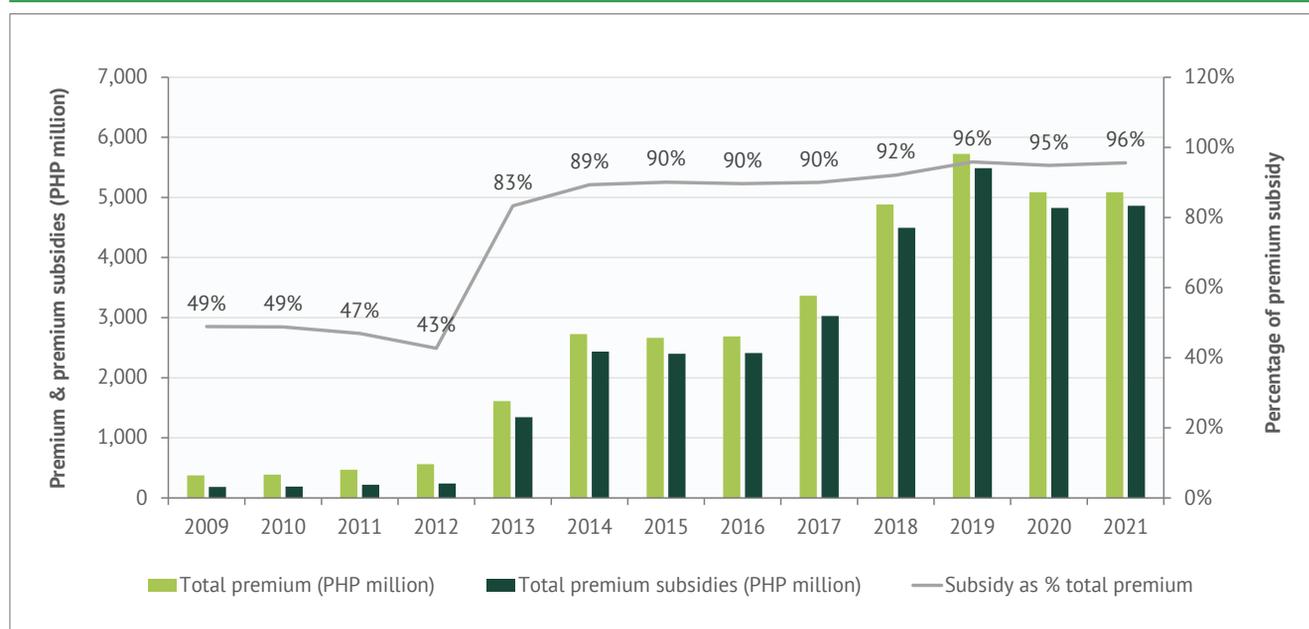
Almost all the growth in agricultural insurance sales since 2013 has been due to the free (100 percent–subsidized) Special Programs for small-scale and subsistence farmers rather than PCIC’s Regular Programs for semicommercial farmers, livestock producers, and fisherfolk. As a result, the government’s (and PCIC’s and DA’s) premium subsidy levels (premium subsidies as percentage of total premium) have risen sharply, from less than 50 percent of PCIC’s total annual premium income between 2009 and 2012, to between 95 and 96 percent of total annual premium in 2019, 2020, and 2021 (Figure 24).

Between 2009 and 2021, the government funded total agricultural insurance premium subsidies for the PCIC of PHP 29.943 billion (US\$604 million), equivalent to 93 percent of total premium income, making this one of the most heavily subsidized agricultural insurance programs in the world. Since 2014, total GPS for the RSBSA program have totaled PHP 20.584 billion (US\$415 million), or 69 percent of total premium subsidies.



Photo credit: Dominic Chavez from the World Bank Flickr.

FIGURE 24. PCIC'S PREMIUM SUBSIDY EVOLUTION, 2009–2021



Source: World Bank analysis of PCIC annual reports, 2009–2021.

3.12.2. Stagnation of PCIC's sales to commercial farmers

Over the past decade, PCIC's partially subsidized Regular Programs for agricultural insurance of semicommercial and commercial farmers have failed to achieve any significant growth. In 2020, Regular Program agricultural insurance policy sales amounted to 126,416 policies, of which 82,055 (65 percent of the total) corresponded to subsidized rice and corn insurance policies (average premium subsidy of 55 percent), while sales of the unsubsidized programs were very low, including HVCs (6,276 policies; 5 percent of the total), livestock (36,025 policies; 28 percent of the total), and fisheries (2,060 policies; 3 percent of the total). These uptake figures tend to suggest that there is a very low demand by farmers, livestock producers, and fisherfolk for PCIC's nonsubsidized agricultural insurance products and programs.

3.12.3. Comparison of agricultural insurance provision and premium subsidy levels with ASEAN+3 countries

Agricultural insurance markets

Agricultural insurance among ASEAN+3 countries—the Association of Southeast Asian Nations plus Japan, China, and Republic of Korea—is relatively new (starting in this century), with the exceptions of Japan, China, Korea, and the Philippines. The agricultural insurance markets in China, Japan, and Korea are large mature markets that attract massive premium subsidies and other forms of government support, and they have achieved high levels of penetration in the crop, livestock, and aquaculture (fisheries) sectors. Today, the markets in these three countries are PPP insurance and reinsurance markets. China formerly operated a public sector monopoly for agricultural insurance under the People's Insurance Company of China (PICC) and achieved limited coverage only. However, starting in 2006, the government privatized the market and actively encouraged private commercial insurers²⁹ at both the regional and national level to develop new products and programs and backed this effort with major premium subsidy support, such that today China has the second largest subsidized agricultural insurance program in the world by premium volume and achieves very high levels of uptake by producers in the crop, livestock, and fisheries sectors (Table 19).

Indonesia, the Philippines, and Thailand have in the past decade achieved considerable success in scaling up their crop insurance programs for small-scale rice farmers as well as for maize farmers (Philippines and Thailand) and HVCs (Philippines), backed by major premium subsidy support from their governments. Livestock and aquaculture insurance is commercially available in Indonesia and the Philippines but has yet to be scaled up. In the Philippines

29. The Chinese agricultural insurance market is dominated by six insurers, including the People's Insurance Company of China, China United Property Insurance Company, Sunlight Agricultural Mutual Insurance Company, Guoyuan Agricultural Insurance Company, Anhua Agricultural Insurance Company, and AVIC Groupama Insurance.

and Indonesia, the provision of agricultural insurance is dominated by public sector insurers (PCIC in the Philippines and Jasindo in Indonesia), and only these companies are eligible for GPS. Thailand has adopted an interesting and unique PPP pool program to underwrite the Thai National Crop Insurance Scheme (TNCIS), which is directly aligned with the national disaster compensation mechanism and provides top-up cover for rice and maize farmers. Currently 11 non-life insurers coinsure the TNCIS (Table 19).

Agricultural insurance is mostly at a pilot stage or not available in the remaining ASEAN countries in 2022. In Vietnam, crop, livestock, and aquaculture insurance has been piloted under a PPP arrangement since 2011, and private sector crop insurance pilots are also being implemented on a very small scale in Cambodia and Myanmar. These pilot programs are still very small and yet to be scaled-up. As of 2021, there was no agricultural insurance provision in the important agricultural economies of the People’s Democratic Republic of Lao and Malaysia, but in both countries governments are keen to introduce crop insurance in the near future (Table 19). Finally, there is no agricultural insurance in Brunei Darussalam or Singapore, where agriculture is a very small sector and agricultural insurance is a very low priority for farmers, policy makers, and insurers.

Most of the major crop insurance programs in ASEAN+3 countries are based on traditional crop indemnity products (MPCI and NPCI). China is the largest market both for MPCI and for index-based crop insurance programs (WII and AYII), while crop index insurance is being piloted on a small scale in several countries: Vietnam (which in 2020 was using remote sensing technology to trigger payouts on an innovative AYII program for rice producers), Cambodia (rice WII), and Thailand (maize WII), among others. The main livestock and aquaculture insurance programs in all countries are all based on traditional indemnity-based mortality and disease covers. However, since 2013, China has offered an innovative livestock index price insurance cover for swine and a wind (typhoon) index insurance cover for aquaculture farms.³⁰

TABLE 19. PROVISION OF AGRICULTURAL INSURANCE IN ASEAN+3 COUNTRIES, 2021



Country	Agricultural Insurance (Yes/No)	Year Introduced ^a	Market status	Crop Insurance	Livestock Insurance	Fisheries/ Aquaculture Insurance	Main Market Public, Private, PPP	Government support to premium subsidies
Brunei	No							
Cambodia	Yes	2015	Pilot	Pilot	X	X	Private	No
Indonesia	Yes	2016	Scaling-up	Commercial	Commercial	Commercial	Public	Yes
Lao PDR	No							
Malaysia	No							
Myanmar	Yes	2018	Pilot	Pilot	X	X	Private	No
Philippines	Yes	1981	Scaling-up	Commercial	Commercial	Commercial		
Singapore	No							
Thailand	Yes	1978(2011)	Scaling-up	Commercial	Pilot	Pilot	PPP	Yes
Vietnam	Yes	1982(2011)	Pilot	Pilot	Pilot	Pilot	PPP	Yes
China	Yes	1982(2006)	Mature	Commercial	Commercial	Commercial	PPP	Yes
Japan	Yes	1927	Mature	Commercial	Commercial	Commercial	PPP	Yes
Korea Rep	Yes	2001	Mature	Commercial	Commercial	Commercial	PPP	Yes

Sources: Mahul and Stutley 2010; FAO 2011; Agriinsurance International 2021; World Bank Disaster Risk Financing and Insurance Program updates to 2021.

Note: PPP = public-private partnership.

a. Years in parentheses refer to a major reform of the market when government premium subsidy support increased.

³⁰ Agriinsurance International data from 2017.

Provision of agricultural insurance premium subsidies in ASEAN+3 countries

Agricultural insurance premium subsidies are provided by governments in seven of the ASEAN+3 countries with agricultural insurance programs, namely Indonesia, the Philippines, Thailand, Vietnam, China, Japan, and Korea. The exceptions are Cambodia and Myanmar (Table 20).

The cost of premium subsidies is placing a major fiscal burden on governments in China, Japan, Korea, the Philippines, Thailand, and to a lesser extent Indonesia and Vietnam. A feature of the region is the incredibly high level of premium subsidies—of up to 100 percent, meaning free insurance—that governments in Indonesia, the Philippines, and Vietnam are willing to offer on micro-level retail insurance programs for disadvantaged subsistence and poor farmers. In Thailand, the government offers a 60 percent subsidy on Tier 1 cover, and since cover was made compulsory in 2016, the Bank for Agriculture and Agricultural Cooperatives offers a 40 percent premium subsidy on Tier 1 cover, making this layer 100 percent subsidized as well. Premium subsidy levels are also extremely high in China and Korea, at 80 percent of premium or greater.

The costs of premium subsidies in 2019–2020 are shown in Table 20 and vary from about US\$12 million in Indonesia to about US\$8.2 billion in China. With uptake of agricultural insurance growing at an exponential rate each year in places like Indonesia, the Philippines, and Thailand, the costs of premium subsidies are correspondingly increasing and are now reaching unsustainable levels in these countries. There appears to be an urgent need to review and rationalize premium subsidy levels in ASEAN+3 countries.



Photo credit: Ezra Acayan from the World Bank Flickr.

TABLE 20. GOVERNMENT PREMIUM SUBSIDY SUPPORT TO AGRICULTURAL INSURANCE IN ASEAN+3 COUNTRIES

Country	Government premium subsidies?	Eligibility	Levels of Government premium subsidies	Cost of premium subsidies to government	Government support for Reinsurance	Government subsidies for Q&A Costs
Cambodia	No				No	No
Indonesia ^a	Yes	Only available through state insurer Jasin do	80% for Rice & Livestock 100% for Aquaculture	IDR171 billion (USD 12 MILLION) (2020)** .2015-20(Years)	Yes	No
Lao PDR	No					
Malaysia	No					
Myanmar	No					
Philippines	Yes	Only available through state insurer PCIC	100% for special programs for subsistence farmers, 50% for PCIC Regular rice and maize insurance program. 2019 premium subsidy level=96%	PHP 5.49 billion (USD 106 million) {2019} From 2009-19(11 years) PHP 22.4 billion USD 46.0(million)	Yes	No
Thailand	Yes	All TNC is pool coinsurers benefits	60% Government premium for Tier 1 Cover. BACC offers additional 40% premium subsidies for lone farmers on tier 1 cover. Tier 2 top up cover= voluntary/zero subsidies	Thai bhat 2 billion (USD 62 million) (2020)	No	No
Vietnam	Yes	Only available to approved insurers (Bao minh, Bao Viet)	Phase 1 (2011-13) 20% to 100% for poor HHs. Phase 2 (2019-21) 20% to 90% for poor HHs.	Phase 1 (2011-13 budget VND3 5-8 billion (USD 70 million)	Yes	No
China ^a	Yes	All approved agricultural insurers	80% (estimated) across all agricultural insurance programs (crop, livestock, aquaculture, forestry)	2019 premium subsidies are estimated at about USD 8,200 million **	Yes	No
Japan ^a	Yes	n.a	50% government premium subsidy level (tbc)	2019 premium subsidies are estimated at about USD 600 million **	Yes	No
Korean Rep	Yes	n.a	82% in total. Central government subsidy level 50%; Regional government premium subsidy level 32%	2019 premium subsidies USD 318 million	Yes	Yes 100%

Sources: Annual reports; internet reports.

Note: BAAC = Bank for Agriculture and Agricultural Cooperatives; HH = household; n.a. = not applicable; O&A = operational and administrative; TNCIS = Thai National Crop Insurance Scheme.
a. Information reflects the World Bank's best estimates

In many ASEAN+3 countries, governments support the reinsurance of agriculture, either directly as in the case of Korea, where the government provides stop-loss reinsurance protection for a layer of 150 – 180 percent loss ratio, or through national (state) reinsurers, as in Vietnam, Indonesia, the Philippines, and China. In one country, Korea, the government subsidizes 100 percent of the operational and administrative costs of agricultural insurance provision (Table 20).

China has created an agricultural reinsurance pool. In 2014, China's Property & Casualty Reinsurance Company Ltd., along with 23 licensed insurance companies, founded the China Agricultural Reinsurance Pool (CARP). ChinaRe P&C was assigned as the pool's managing agency. Agricultural insurers cede approximately 50 percent of their reinsurance cessions to the pool along with cessions to international reinsurers.

3.12.4. Sustainability and future expansion of premium subsidies

Premium subsidies can lead to the scaling up of agricultural insurance but need to be carefully planned to be financially sustainable. The 2022 budget for GPS to RSBSA clients is PHP 4.5 billion and could rise to between PHP 12.0 billion and PHP 15.0 billion per year if the government wishes to extend fully subsidized (free) insurance to all RSBSA subsistence farmers (5.5 million) plus fisherfolk (1.4 million). The government is raising questions about the value for money it is receiving from these rising premium subsidy costs and also about whether the subsidy levels will be sustainable in the future (see section 4.6 for further discussion).

3.13. LACK OF INCENTIVES FOR ENTRY BY PRIVATE SECTOR AGRICULTURAL INSURERS

Agricultural insurance provision in the Philippines has traditionally been monopolized by the PCIC, and private sector involvement has been minimal. The PCIC is the only insurer that is legally eligible (under PD 1467, 1978 and 1995 reforms) to receive GoP's premium subsidies, including RSBSA GPS and Agri-Agra penalties, and to offer partially and fully subsidized insurance to its agricultural client base.

The World Bank (2019b) report identifies major barriers to entry by private sector insurers into the agricultural market in the Philippines, mainly the need to compete with the highly (up to 100 percent) subsidized premiums and tax-free³¹ products offered by the PCIC, which creates an uneven playing field. Also, the inherent riskiness of this business would require adequate backing either by government-supported or reinsurance schemes, currently either nonexistent or limited for private insurers. Other barriers include issues similar to those already mentioned for the PCIC itself, where technical and operational capacity to design and administer crop insurance in a financially sustainable/profitable manner is limited or at its early stages; this includes the high cost (both financial and transactional) of investing in adequate data for product design/pricing. The challenge of finding the right distribution channels/options to reach the scale/volumes necessary would also be an issue to address, particularly if the target is the inclusion and protection of smallholder farmers.

Because private sector insurers cannot compete with the PCIC on price, starting in 2005 they have attempted to develop alternative parametric or index-based crop insurance products and programs for farmers. Early initiatives include MicroEnsure and the Malayan Insurance Company's 2009–2010 typhoon index cover for rice and a separate rainfall deficit (drought) index cover; however, both products had to be withdrawn because of high levels of basis risk (FAO 2011). In 2014, **PGA Sompo Japan Insurance** started to offer typhoon index-based insurance for banana producers, but it is believed that this pilot has been closed down. Also in 2014, **CARD Pioneer Microinsurance Inc. (CPMI)**, with technical support from the International Finance Corporation (IFC), introduced a hybrid crop insurance product for rice and corn farmers that triggered when a typhoon/tropical depression (as declared by PAGASA, the Philippine meteorological agency) passed through a municipality, after which actual losses were adjusted at the field level; this showed considerable promise, with more than 14,000 farmers insured (World Bank 2019b). It is again believed that this pilot is no longer active.

Currently, in 2022, there are only a handful of private sector agricultural insurance initiatives in the Philippines:

- 1. CARD Pioneer Microinsurance Inc. joint venture with the PCIC to develop new HVC crop insurance products and programs.** In February 2022, CPMI announced that it is the country's first private insurance firm to partner with the state-run PCIC to provide insurance protection to smallholder farmers against losses from natural calamities, plant diseases, and pest infestations under the IC's (2021a) Sandbox Regulations to Promote Private Sector Agricultural Insurance (IC Advisory 2021-09). Under the agreement, CPMI will coinsure with PCIC on a 70:30 basis. CPMI notes this is the Philippines' first PPP aimed at bridging the insurance gap and contributing to the country's development of sustainable agricultural insurance (Manila Bulletin 2022). In this context, PCIC has advised that the Asian Development Bank (ADB) under the Inclusive Finance Development Program (subprogram 2) with GoP, will be providing funding support to PCIC and CARD Pioneer to develop new indemnity and/or index insurance products for HVCs, including coconut, coffee, cacao, banana, sugarcane, and pineapple.³²
- 2. CLIMBS (Life and General Insurance Cooperative, Philippines) Enhanced Weather Protect Insurance for Farmers.** This is an initiative that started in July 2021 between CLIMBS, IBISA (a satellite weather index insurance design company based in Luxembourg), Global Parametrics, and the International Centre for Tropical Agriculture (CIAT). The partners are underwriting a simple excess rainfall cover for rice and maize farmers that is priced with a 5–6

31. Insurance products offered by private insurers are charged 12 percent VAT + 12.5 percent documentary stamp tax/stamp duty and municipal tax.

32. For further details see ADB (2022).

percent premium rate. The cover pays out according to a graduated scale of daily rainfall intensity/triggers, e.g., daily rainfall in excess of 50 mm, 80 mm, or 120 mm for maximum payout. In the first-year pilot phase, CLIMBS is targeting about 3,600 insured farmers in various cooperatives.³³

There are also two separate crop insurance initiatives to be offered through the PCIC:

- 1. The IFAD-INSURED initiative to assist the PCIC in developing new improved crop insurance products for selected HVCs.** Starting in late 2021, the International Fund for Agricultural Development (IFAD) Insurance for Rural Resilience and Economic Development (INSURED) team has been providing technical assistance to the PCIC to develop or improve its agricultural insurance products for several HVC value chains, including coffee, cocoa, and coconuts; work is currently at an initial feasibility study stage. The INSURED technical assistance project is being conducted within the context of the Rural Agro-enterprise Partnerships for Inclusive Development and Growth (RAPID Growth), which is financed by the IFAD, the GoP, and other cofinanciers. In addition to developing new HVC products, INSURED is helping the PCIC to review and strengthen (i) its actuarial and rating methods for the selected HVCs, and (ii) its claims adjusting and claims settlement systems and procedures with the goal of reducing the time needed for claims settlement.
- 2. Pula Advisory's initiative to develop AYII with the PCIC.** Pula is a leading AYII specialist based in Nairobi, Kenya. In 2021, Pula conducted an AYII dry run for the wet season to demonstrate to the PCIC its technology for designing, rating, and implementing AYII cover in the Philippines (Pula 2021) (see section 4.3 for further details).

33. Information is from PCIC, October 2021. For further information on the CLIMBS product, see ICMIF (2022).

4. ROADMAP AND RECOMMENDATIONS FOR STRENGTHENING THE PCIC AND FOR REFORMING AGRICULTURAL INSURANCE IN THE PHILIPPINES ALONG SOUND MARKET-BASED CONSIDERATIONS



This section is divided into two parts:

1. **Short-term recommendations to be started immediately in 2022 to strengthen PCIC's organization, management, and operations, including** bringing the PCIC under the IC's legal and regulatory umbrella; changing the basis of valuation and indemnity of PCIC's existing crop insurance products and programs to offer better cover and value to farmers; strengthening its actuarial and rating methods; strengthening its loss assessment and claims settlement systems and procedures; and strengthening PCIC's financial risk management framework (underwriting and reinsurance, investment strategy, and capital and reserves).
2. **Medium-term recommendations to introduce market-based reforms aimed at creating a more sustainable PPP model for agricultural insurance and developing new index-based products and programs.** This section considers a series of reforms, including changes to the legislation governing the provision of agricultural insurance in order to crowd in the private sector; the removal of PCIC's monopoly over premium subsidies; the introduction of a suitable PPP institutional model that fits the Philippines' circumstances; rationalizing of the premium subsidy regime; and finally, the development of new index-based agricultural insurance products and programs that are more suited to the risk transfer needs of Philippine farmers than the existing range of products offered by the PCIC.

The section draws on the recommendations set out in the World Bank's (2019b) report to the BSP; the World Bank's (2020) proposals for parametric insurance; the recommendations made by the IC (2021b) in its review of PCIC's operations; and, most importantly, the findings of this diagnostic review study.

PART A: SHORT-TERM RECOMMENDATIONS TO BE IMPLEMENTED IMMEDIATELY IN 2022 TO STRENGTHEN PCIC'S ORGANIZATION, MANAGEMENT, AND OPERATIONS

4.1. CREATION OF A STEERING COMMITTEE AND A TECHNICAL WORKING GROUP TO OVERSEE THE IMPLEMENTATION OF SHORT- AND MEDIUM-TERM REFORMS

In the case of the Philippines, the World Bank recommends that the GoP and interested stakeholders consider forming the following entities to oversee the short-term strengthening of the PCIC and, in the medium term, to plan and design a national PPP program for agricultural insurance that includes both the PCIC and leading private sector insurance companies:

1. **A high-level Steering Committee (SC)**, composed of lead government policy makers and line ministries/agencies, including the DoF, the DA, PAGASA, and the OCD; the IC; the PCIC; the Philippine Insurance and Reinsurance Association (PIRA) (representing the interest of private commercial insurers); the commercial banking sector; and farmer organizations. The SC would be set up in order to identify the policy objectives of the PPP program, to define the amount of funding to be allocated to the program, and to provide general guidance on policy-level issues.
2. **A Technical Working Group (TWG) responsible for providing assistance to strengthen the PCIC in the short term and implementing feasibility studies on the most appropriate legal, institutional, and operational framework for the national agricultural insurance PPP program.** The TWG would comprise legal and financial experts from the government, technical agricultural insurance experts from the PCIC and private sector insurance companies, and possibly international development assistance partners. As a starting point, the TWG should prepare a costed three-year business plan, work plan, and timetable, as well as a costed budget to cover the short-term technical assistance and other forms of support to the PCIC. The purpose would be to strengthen the company's

operations, add value for farmers, and prepare the necessary medium-term costed feasibility studies for the implementation of legal and institutional reforms, changes to the premium subsidy regime, and the design, testing, and implementation of new index-based agricultural insurance products and programs. The TWG would report to the SC on a regular basis.

It is recommended that key members of the SC and TWG conduct study tours to review some of the major PPP agricultural insurance models in selected countries. These might include systems from the United States' Federal Crop Insurance Program (FCIP) (social protection state-level index insurance program for vulnerable crop and livestock producers and fisherfolk), Spain's Agoseguro pool program, Turkey's Tarsim agricultural insurance program, India's PMFBY national crop insurance program, Thailand's PPP agricultural insurance programs, and possibly the programs in Korea and China.

4.2. STRENGTHENING PCIC'S ORGANIZATION, MANAGEMENT, AND SUPERVISION

4.2.1. Measures already taken by the government in 2021

Starting in 2021, the GoP has already taken a series of measures to strengthen PCIC's organization, management, supervision, and performance. These measures are briefly reviewed below.

In September of 2021, the PCIC was transferred from the DA to the DoF and its Board of Directors was reorganized (Executive Order No. 148 of September 14, 2021). The purpose of transferring responsibility to the DoF was to ensure that PCIC's operations are rationalized and centrally monitored, the government's assets and resources are used effectively, and its exposure to all forms of liabilities, including subsidies, is warranted and incurred through prudent measures (Caraballo 2021). The new Board is chaired by the secretary of finance and vice-chaired by the secretary of agriculture (see Table 21 for details on the PCIC's new Board of Directors).

TABLE 21. REORGANIZATION OF PCIC'S BOARD OF DIRECTORS UNDER EXECUTIVE ORDER NO. 148, SEPTEMBER 14, 2021



Board of Directors	Prior Executive Order 148(14.09.2021)	Under Executive Order 148(14.09.2021)
Chairperson	DA Secretary	DOF Secretary
Vice-Chairperson	President,PCIC	DA Secretary
Members	President Land Bank of the Philipines(LBP)	President,PCIC
	Representative from the private insurance industry	President Land Bank of the Philippines(LBP)
	3 representatives from subsistence farmer sectors(one each from Luzon,Visayas,Mindano)	President and GeneralManager,GSIS
		Representative from the private insurance industry
		Representative from subsistence farmer's sector

Source: Executive Order 148, September 14, 2021, <https://www.officialgazette.gov.ph/downloads/2021/07jul/20210914-EO-148-RRD.pdf>.

Note: DA = Department of Agriculture; DoF = Department of Finance; GSIS = Government Service Insurance System.

In 2021, the IC conducted an in-depth review of the financial status of the PCIC and presented a series of far-reaching recommendations to strengthen the corporation. The key findings and recommendations of this study are summarized in Box 4. Under the present World Bank study, the World Bank Group team has both been guided by and aimed to build on the IC's findings and recommendations, particularly regarding the need to strengthen PCIC's actuarial and rating methods, as well as its financial management strategy (reserves, investments, capital base, dividend policy, and need for reinsurance protection).

BOX 4. KEY FINDINGS FROM THE IC'S 2021 REVIEW OF PCIC'S FINANCIAL STATUS



- PCIC's high net retention ratios will put the company in a difficult financial position in case of the occurrence of catastrophic loss events.
- PCIC's portfolio has not been reinsured since 2011.
- The PCIC has a relatively low investment income because of the very high concentration of its assets held as cash in bank and time deposits.
- There is a need to develop an agriculture insurance system based on lessons from neighboring countries that have adopted PPPs.
- The PCIC uses an account naming system in its financial statements that is not specific to an organization engaged in insurance, which makes its insurance operations difficult to comprehend and hinders the adoption of IC's regulations for "the naming convention, presentation, and calculation regarding the preparation of its financial statements."
- The IC noted that the PCIC issued several Board resolutions from 2018 to 2020 providing subsidies to small farmers and fisherfolk whose names are not included in the RSBSA.
- PCIC's Manuals of Operations have not been updated to reflect the revisions to PCIC's policy forms and guidelines since 2011.
- The IC noted that the PCIC engages in lines of insurance other than agriculture insurance, such as credit life, term life, fire insurance, and personal accident.
- The IC said that the PCIC needs to revisit the risk premium rate (RPR) assumptions that are used for pricing its products, as these may be deemed "inadequate, unreasonable, and inappropriate." It found that the PCIC does not conduct a regular review of the premium rates of its products vis-à-vis its claim experience.
- The IC recommended that the PCIC should engage the services of an IC-accredited actuary in the development and pricing of its products.
- The IC recommended that the PCIC develop a product governance framework that should include, among others, product monitoring and review guidelines containing the parameters/criteria for the re-pricing of products.
- The IC noted that the PCIC does not set up claims reserves for incurred but not reported claims (IBNRs) and recommends the adoption of the IC's framework for reserving.
- Following the recommendations of the World Bank Group reports (World Bank 2019b, 2020), the IC also recommends rethinking PCIC's portfolio of products to offer those that are more suitable to the risk transfer needs of small farmers and also to consider the introduction of index-based insurance.
- The IC observed that the charter of the PCIC was last revised in 1995.
- An analysis performed by the Bureau of the Treasury (BTr) showed that PCIC's operations are "costly."
- The BTr mentioned that PCIC's claims adjusters are not duly licensed by the IC, but instead have backgrounds in agriculture and were hired by the firm and trained in house to assess damages on its various lines of insurance.

Source: News & Views 2021b.

In December 2021, the secretary of finance instructed the GSIS and the LBP to assist the PCIC in strengthening its financial situation. The GSIS and the LBP should work with the PCIC to determine ways to efficiently manage its risks and enhance its investment portfolio to ensure that taxpayers' money used to subsidize the state-run firm's operations is being well spent. The LBP is regulated by Bangko Sentral ng Pilipinas (the central bank of the Philippines) and its Board of Directors includes both the secretary of finance and the secretary of agriculture. There is a concern that PCIC's insurance operational overheads are excessively high, since it has been spending 35 cents for every peso that goes out of the company; this compares with GSIS's overhead of around 3 to 5 cents for every peso it gives out, and with the Social Security System's overhead, which is about 6 cents for every peso going out of the pension fund. The secretary of

finance also asked the GSIS to advise the PCIC on ways to invest its capital and reserves in high-yielding investments rather than holding the bulk of its assets in short-term deposits in the LBP and the BTr. Finally, it was noted that some of PCIC's crop programs were underpriced (the corporation has been paying out claims in excess of the premiums it has collected) and that the company needs to revisit the RPR assumptions used in pricing its products and programs (New & Views 2021b).

4.2.2. Role of the Insurance Commission in supervising/regulating the PCIC

As a public sector insurer under the DA, the PCIC has not been supervised or regulated by the IC for the past 40 years and has not had to adhere to the strict rules and regulations that govern the operations of the commercial life and non-life insurance companies in the Philippines. Under its 2021 review of PCIC's financial operations, the IC noted that PCIC's accounting system and financial statements do not comply with commercial insurance standards, and it recommended the PCIC to adopt IC regulations in relation to the naming convention, presentation, and calculation in preparing its financial statements. The IC also highlighted deficiencies in the RPR methods used by the PCIC for pricing risks and noted the fact that the PCIC did not set up claims reserves for incurred but not reported claims (IBNRs); it also concluded that its methods for computing the unearned premium reserves (UPR) for some products were questionable. The IC therefore recommended that the PCIC should consider adopting the IC's regulatory frameworks for life and non-life insurance and engage the services of an IC-accredited actuary to perform a valuation of its actuarial reserves liabilities.

Additional recommendations

- **The World Bank is fully in agreement with the IC that there would be many advantages in placing the PCIC under the regulatory and supervisory framework of the IC,** which governs all life and non-life insurance companies in the Philippines.
- **The PCIC should adopt all IC regulations regarding accounting and annual reporting, insolvency regulations, solvency requirements, reserves requirements, investment regulations and retentions, and consumer protection requirements.** Regulations in the Philippines arising from the provisions of Republic Act No. 10607 are intended to align as far as possible all financial standards in the insurance market to the International Financial Reporting Standards (IFRS) (AXCO 2022).
- **It is recognized that legislation may need to be enacted in order to transfer the supervisory control** of the PCIC from the Securities and Exchange Commission (SEC) to the IC and also to transfer the responsibility for auditing the corporation's annual accounts from the COA to the IC.



Photo credit: Philippine Rural Development Project-Department of Agriculture

4.3. RECOMMENDATIONS TO STRENGTHEN PCIC'S EXISTING CROP INSURANCE PRODUCTS AND PROGRAMS

Due to the significant drawbacks of the current range of indemnity-based crop insurance products that are being offered by the PCIC, in the short term there is a need to review, simplify, and improve the cover provided by the existing products/programs; but in the medium term (next one to three years), some of these covers should be replaced by index-based crop insurance products that are more suitable for insuring small-scale farmers. Section 3 of this report identified the drawbacks of the existing rice, corn, and HVC policies; they are summarized below.

- Crop insurance products are complex in their design because they attempt to apply percentage damage-based concepts not only to event-related perils that occur in one moment of time and lend themselves to spot loss damage assessment immediately after the event (e.g., hail, flood, wind damage), but also to progressive perils such as drought and diseases, which normally can be assessed only in terms of yield loss at time of harvest.
- The existing rice, corn, and especially HVC products provide very low levels of financial protection to farmers due to the low sums insured provided and to the damage-indemnity formula applied. For rice and corn, this study has shown that the average sum insured of about PHP 20,000/ha covers only about 60 percent of the costs of production invested in growing the crops and only about one-third of the expected value of output.
- Indemnity-based loss assessment systems and procedures are complex, and the PCIC does not have the resources or staff to assess losses on a farmer-by-farmer basis.
- The application procedures to participate in PCIC's agricultural insurance programs are extremely complicated and time-consuming for small-scale farmers, involving a lengthy PCIC Proforma Individual (or Group) Application form, a Farm Plan and Budget, and a very detailed statement on the costs of production that will be invested in growing the crop. This paper-based system then puts a huge burden on the PCIC's regional marketing and underwriting teams, who have to process more than 3 million policies per year.

Recommendations

1. **The PCIC should contract an international crop insurance specialist** and a livestock insurance specialist to conduct a thorough review and assessment of the existing indemnity-based products and programs with the purpose of rationalizing, simplifying, and improving the coverage (protection) provided by these covers. Ideally, such specialists will have worked on large-scale crop and livestock insurance programs in regions such as (but not limited to) Asia, Europe, or North America and should have a detailed knowledge of smallholder insurance systems.³⁴
2. **The range of insured perils should be carefully reviewed for each, crop, livestock, and fisheries program**, and where it is judged that the damage or losses caused by the peril cannot be properly quantified and measured using PCIC's damage-based methods, then the peril should no longer be insured or the basis of assessment should be modified accordingly.
3. **In view of the extraordinarily high losses experienced by PCIC's rice and corn crop insurance programs due to P&D (as reported in section 2.7.2), it would be appropriate to review the cover currently provided and to seek ways to rationalize it.** It may be necessary to restrict the cover provided against P&D damage by adding a specific clause to the policy stating that "coverage is only provided for P&D that are considered by the DA or another competent authority to be unavoidable and/or uncontrollable using the correct prevention and control measures recommended by that authority,"³⁵ or to introduce separate deductibles for P&D. In this context, it is noted that the secretary of finance has requested a review to determine whether it is a common practice to provide P&D cover on other similar crop insurance programs in the Southeast Asia region.

34. Subsequent to the completion of this World Bank technical study, PCIC has advised that it is due to receive funding under the Asian Development Bank-financed Inclusive Finance Development Program Philippines (subprogram 2), "to help the corporation to carry out reforms on product development with focus on developing the Index/Parametric Insurance approach and the use of digital technology in claims adjustment. PCIC is waiting for the start of such funding and study" (Communication from PCIC to World Bank, October 21, 2022). ADB's support to PCIC will be closely aligned both with the IC 2021 Sandbox Regulations to crowd in private sector crop insurers and the CARD-Pioneer-PCIC PPP initiative (signed in February 2022) to develop and underwrite crop insurance covers for several high-value crops, including coconut, coffee, cacao, banana, sugarcane, and pineapple (ADB 2022).

35. This clause is normally included on all MPCl policies, specifically to limit the claims arising from P&D and to avoid moral hazard by farmers. See for example the policy wording of the US Risk Management Agency's MPCl.

4. **The sums insured for each agricultural insurance program should be reviewed carefully in light of the findings of this report, and increases should be offered at least to PCIC's Regular Program farmers, especially those who are borrowers and need to be protected for the full amount of their crop credit in the event of loss.** For the majority of subsistence farmers insured under the free Special Programs, there is less justification for increasing the fixed sums insured of PHP 20,000/ha for rice and corn, because very few are borrowers.³⁶
 5. **The PCIC and the international specialists should review very carefully the damage-indemnity matrices that the corporation has been applying since 1992,** with the goal of simplifying them, especially for HVC programs, to offer farmers better value for money.
 6. **The PCIC and the international specialists should review the application system and procedures for participating in PCIC's agricultural insurance programs,** with the purpose of simplifying them and, where possible, transitioning from a paper-based system to electronic application forms, especially for group applications, which are prepared and submitted by financial institutions, farmer organizations, local DA or DAR project authorities, etc.
7. **Going forward PCIC must also move away from individual farmer application, enrolment and policy issuance to group-based delivery and underwriting systems and procedures in order to reduce its operating overhead costs.** It is extremely expensive for PCIC to insure subsistence farmers with less than 1 ha of food crops on an individual basis. Here PCIC can link into existing farmer-based associations and cooperatives and to also consider group-based approaches to linking insurance with group credit and group input supply.
 8. **In the medium term, it is recommended that rice and corn farmers under the PCIC's Special Programs be insured using more suitable index-based crop insurance products.** However, index insurance may not be appropriate for many HVCs, and therefore special focus must be given to either strengthening the existing indemnity products or introducing hybrid indemnity products for these kinds of crops.

4.4. RECOMMENDATIONS TO STRENGTHEN PCIC'S ACTUARIAL AND RATING METHODS

For the Special Program clients, the PCIC applies a single national premium rate, but for its Regular Program clients, rates may be adjusted on a regional basis according to the actual risk exposure for each insured peril and the actual claims history. The PCIC has now operated for more than 40 years and therefore has a vast database of actual claims history, including damage rate data (pure loss cost rate) to grade its agricultural and nonagricultural insurance products on a historical burning cost basis.

The PCIC's standard rating procedure is based on the pure loss cost rate loaded by a factor of 1.2 (20 percent) for administration expenses, and a further factor of 1.1 (10 percent) as a surplus/profit margin, to derive the original gross premium rate—termed “indicative premium rate” by the PCIC. In 2021, as part of its review of PCIC's operations, the IC advised that the corporation's rating methodology was incorrect and that rather than loading, it should in fact be grossing-up its pure loss cost rates: a gross-up of 30 percent is equivalent to a higher load of 1.43 times applied to the pure loss cost rate, which implies that PCIC's original gross premium rates are underpriced.

In 2021, the IC advised the PCIC that, based on its pricing methodology of “pure loss cost rate × 1.3,” the fixed rice and corn original gross premium rates of 10 percent were underpriced and should be increased accordingly. Under the current report, the World Bank has conducted an updated actuarial analysis of the adequacy of PCIC's indicative premium rates, based on the actual program results from 2009 to 2021. Over the past four to five years, the claims costs on the rice and corn program have increased significantly, and this means that such programs are underpriced by at least 15 percent or more.

For HVCs, the PCIC often uses PSA's aggregated (regional or provincial) time series production and yield data to calculate a physical loss cost, and then applies the same loading factor—pure loss cost rate × 1.3 = the indicative premium rate. In section 3.6, the World Bank Group team reviewed the rating system for HVC crops and identified a series of amendments that would be required to improve the rating methodology for HVC crops.

36. The Land Bank of the Philippines had this comment on the World Bank Group's recommendation: “The cover per ceiling per commodity should be regularly reviewed and enhanced by PCIC to consider increase in cost of material inputs and labor. The ceiling may be lower than the actual Farm Plan and Budget of the farmer, which is one of the bases in the establishment of production cost. The insurance ceiling should at least conform with the production cost or loan amount to be availed. Ceiling range may be recommended per region or area since technical considerations like site suitability, cost of material inputs, and labor, among others, differ per geographic area” (Communication from Land Bank of the Philippines to World Bank, October 21, 2022).

Recommendations

- 1. In 2021, the IC recommended that the PCIC should hire an actuarial specialist to help its Actuarial Department strengthen its rating systems and procedures.** The PCIC advised that it has hired such a specialist, but further details were not forwarded to the World Bank Group team at the time.³⁷ In addition, since December 2021, IFAD-INSURED is assisting the PCIC in designing and rating HVC covers for selected crops, including coffee, cocoa, and coconuts, and the consultant hired is an actuarial and rating specialist.
- 2. The PCIC must introduce formal procedures to quantify its catastrophe risk exposures and to build a catastrophe load into its pricing on all agricultural insurance programs.** The PCIC does not conduct any risk modeling or risk assessment to establish tail-end low-frequency but potentially high-severity losses on any of its crop, livestock, and fisheries programs, which is alarming given that the country is extremely exposed to catastrophic typhoon, excess rain, flood, and drought events. The actuarial consultants should therefore provide capacity building and training to PCIC's staff in standard procedures to fit distributions to its historical loss data and to then use Monte Carlo simulation procedures to estimate its probable maximum loss (PML) exposures and load its premium rates accordingly.
- 3. The PCIC should reintroduce a system of regional risk rating for all its agricultural insurance programs to reflect the different exposure to risk in different regions and provinces of the country.** Actuarially fair risk-based pricing has a signaling effect (to farmers and banks alike) regarding the price of risk. Crops which are best adapted to a region will have the lowest insurance premiums and vice versa. These price of risk signals can influence farmers to grow more sustainable crops throughout the country, adapting their practices to climate change. In addition to a regionally based risk rating, the PCIC should discriminate rates by crop variety (e.g., for white and yellow corn, which have different yields and investment levels), by crop modality (e.g., irrigated rice and non-irrigated rice), and by crop season (currently, rates are the same for the different crop seasons, though the risk faced by crops is certainly not the same—e.g., it is higher in typhoon season). Currently, under the Special Programs, which carry a single fixed rate throughout the Philippines, farmers growing (for example) coconuts in the most southerly regions of the country are being forced to pay high rates for typhoon cover when their risk exposure is almost nil; they are thus subsidizing growers in eastern and more northerly regions and provinces that may experience multiple typhoon hits every year (considering that the Philippines is one of the most typhoon-prone countries in the world and experiences more than 20 direct typhoons annually). A further drawback in charging a single average premium rate for crop insurance protection is that this can lead to severe anti-selection on voluntary programs: farmers in low-risk areas consider the cover to be unfairly expensive given their low exposure and decline to purchase cover; conversely, those in high-risk regions recognize that the cover is cheap and are more willing to purchase it. Finally, apart from overcharging farmers with rates that are too high in low-risk regions, the current system represents an extra cost for the government, considering that most of PCIC's farmers are eligible for fully subsidized (free) agricultural insurance.

4.5. RECOMMENDATIONS TO STRENGTHEN PCIC'S LOSS ADJUSTMENT AND CLAIMS SETTLEMENT SYSTEMS AND PROCEDURES

The success of any indemnity-based crop insurance program is highly dependent on its ability to accurately and transparently adjust individual farmer crop losses in field and to settle claims payments in a timely fashion. Section 3.8 of this report highlighted several high-profile subsidized public sector agricultural insurance programs in Latin America that have failed in the past due to poor governance and poor-quality loss assessment and claims settlement.

PCIC's loss notification and in-field loss assessment procedures were last revised in 1992, when the company switched from a system of crop loss of yield adjustment at the time of harvest to a system of assessing losses and the estimated percentage yield damage at the time of the event, and then applying a complicated system of damage-indemnity matrices according to the stage of crop growth at the time of loss, plus other adjustment factors and loss limits. These procedures appear to have undergone little or no revision or updating since then, and the process remains a totally paper-based system that is very time-consuming for farmers and loss adjusters alike.

37. PCIC has subsequently provided further details: "With the hiring of an IC-accredited consultant, PCIC already has recommendations and initial output of the consultant indicating recommendations for product repricing, reserved premiums and liabilities in line with IC-standards" (Communication from PCIC to World Bank, October 21, 2022). The World Bank Group notes that PCIC has been very proactive in recruiting an actuary to conduct a review for strengthening of its rating/pricing methodology.

Section 3.8 showed that, over the past three years (2019–2021), the corporation has paid an average of nearly 627,000 agricultural insurance claims each year and as many as 730,869 agricultural insurance claims in 2021. The total of 730,869 adjusted and paid agricultural insurance claims represents a very high percentage, or nearly 1 in 3 (29.3 percent), of all 2,493,217 agricultural insurance policies issued by the PCIC in 2021. In the case of rice and maize, the percentages of policies with claims were staggeringly high, at 43.7 percent and 41.3 percent, respectively (1 farmer with a claim for every 2.5 farmers).

This represents a huge and unmanageable workload for PCIC's regional crop claims adjusters, as noted by the COA in its audit of PCIC's operations in 2019 and 2020, where it detected that settlement of claims exceeding PHP 0.5 billion in value owed to nearly 109,000 farmers and fisherfolk was delayed beyond the prescribed maximum 60-day period by 1 to 797 days, thus defeating the purpose of providing speedy assistance to farmers to enable them to restore their farms and to promptly settle their outstanding loans to the FIs (COA 2021).

Recommendations

1. **The PCIC should hire a senior international crop loss adjuster** from an international program, such as the US Risk Management Agency's FCIP (which specializes in MPCI covers and loss of yield adjustment), Agroseguro (Spain's program specializing in named peril policies and damage-based loss adjustment for HVCs), or the International Association of Agricultural Production Insurers (AIAG), which specializes in named peril–hail loss adjusting. Alternatively, it could hire a specialist from an agricultural reinsurer such as MunichRe or SwissRe to advise on the redesign of the basis of indemnity and loss adjustment for its corn, rice, and HVC programs.
2. **The PCIC should immediately perform a review of its Claims and Adjusting Department staffing levels** and, in those regions with very few designated claims adjusters, strengthen its job order staff accordingly and ensure that they receive appropriate training in the different loss assessment procedures for corn, rice, and HVCs. Based on international standards, a single loss adjuster is able to properly adjust a maximum of three to five claims per day assuming he/she has the needed mobility, and that the affected farms are located in the same area. This would mean that the maximum number of claims that a single adjuster can assess in a year is between 500 and 750. In 2021, the implied workload for each PCIC claims adjuster amounted to an average of around 5,000 claims (section 3.8).
3. **If it is not possible to adjust crop claims on an individual-farmer basis, the PCIC will need to consider an area-based approach for larger typhoon and flood events that affect several thousand rice and maize farmers at a time.** In this case, the company should engage a remote sensing specialist to assess the potential of using remote sensing to estimate the area that has been damaged, and to delineate homogeneous risk areas (HRAs) with similar planting dates and stage of crop growth, as well as similar percentages of damage levels. The aim would be to estimate the average percentage yield loss in each HRA. At the same time, the PCIC would need to simplify the existing loss assessment procedure associated with individual farms, where the adjuster is required to confirm that the actual planted area is the same as the declared area, and would need to abandon the adjustment factor for stand quality.
4. **The PCIC should revise and simplify its loss notification procedures** and where possible switch from a time-consuming paper-based system, where the farmer has to complete the documents and then submit them by hand or post them to the local RO, to an online (mobile phone or web-based) or telephone reporting system, where the details of the loss report are much simplified. This would speed up the process of reporting the loss for the farmer and reduce the time that the claims processing staff need to process the loss notification reports and to appoint an adjuster team to visit the farm and adjust the claim.
5. **The PCIC must automate its in-field loss adjustment process by investing in smartphone or computer tablet technology and move away from paper forms.** Simple loss assessment apps have been designed to assist claims adjusters to record all the necessary in-field information and then transmit the field report in real time to the RO's processing team.³⁸
6. **The automated claims adjustment and settlement procedures, along with the indemnity matrices, must be reviewed by the PCIC with a view to making the indemnity payouts fairer to farmers, especially those under the HVC program.**

38. To promote the use of **loss adjustment apps**, Swiss Re, in conjunction with several other insurance companies, is successfully working with GreenTriangle, a start-up company. Satellite data and real-time hazard maps guide the loss adjuster to representative parts of the fields through **area clustering maps** and **offline mode**. Capturing **geotagged images** during the field survey creates transparency and allows for a second opinion at the Head Office. Digital processes and loss reports, as well as **online dashboards**, enable companies to optimize their business and the allocation of loss adjusters. See Certain (2021).

- 7. The PCIC must transition rapidly to a digital claims payment system.** For the past 40 years, the PCIC's Claims and Adjusting Department has issued individual checks that the farmer must then cash at a bank or other financial institution. At the time of writing, the PCIC reported that, in conjunction with the LBP,³⁹ it is rolling out a debit card-based payment system in 2022, which will be extended over time to all RSBSA farmers. This will not only reduce the costs associated with issuing individual checks but greatly speed up the claims settlement process.

One issue that remains outstanding is that the FIs, which are required by law to issue a PCIC insurance policy to any farmer who borrows from them, do not have the first rights to any claim paid out by the PCIC and must directly pursue the farmers in an attempt to recover each loan individually in the event of severe crop losses.

4.6. STRENGTHENING PCIC'S FINANCIAL RISK MANAGEMENT FRAMEWORK

In its 2021 review of PCIC's finances, the IC called for a major strengthening of PCIC's risk management practices, including a need to introduce formal reinsurance and reforms to its reserving and investment practices. This section builds on the IC's recommendations.

4.6.1. Financial risk management

It is an international best practice for an insurer to have a comprehensive risk management framework, incorporating all major elements of its business, in order to understand and mitigate risk. This is one of the pillars of the Solvency II regulation followed by insurers in Europe and the United Kingdom; it provides an example of key principles that could be used to inform the business of other insurers globally, such as the PCIC. The principles should be applied to ensure that PCIC's business is sustainable, that it makes efficient use of its resources, and that it can pay claims to policyholders without requiring additional funding.

A risk management framework can be structured around four pillars to understand and mitigate risk and to maximize return with the smallest acceptable risk: underwriting and reinsurance management; investment management; capital reserve management; and dividend and profit management (Figure 25). The first step in setting a risk management framework is to determine PCIC's risk appetite, which will define its risk tolerance, objectives, and the tools that can be used to minimize risks to the corporation. The four pillars of risk management are interdependent; they should be designed together and reviewed at least annually as the business evolves to make sure that the various strategies remain appropriate:

- 1. Underwriting and reinsurance management:** This pillar focuses on the types of business that are written by the insurer. It is vital that the PCIC set adequate premium rates to cover the expected claims costs (including the potential for any catastrophic events) and the policy- and claims-related expenses, as well as a load to compensate for the risk of writing the business and holding capital against claims. PCIC's current premium rates for rice and corn in its Special Programs are flat across all regions. This simple rating methodology does not capture different risk characteristics. A suitable reinsurance policy should be combined with this such that the PCIC's retained claims are within its risk appetite and its ability to absorb losses and pay claims. The retained claims position determined by PCIC's underwriting and reinsurance strategies is also important to the government, as any liabilities that cannot be absorbed by the PCIC would have to be covered by the government.
- 2. Investment management:** An investment strategy will, as its fundamental objective, aim to maximize returns on investment, given a determined risk tolerance and any other constraints and objectives (for example, regulatory requirements or ethical investing objectives). Currently, the PCIC holds most of its investable assets in cash and term deposits, which produce very low returns—below those of its international peers. The PCIC could reassess its strategy and increase investments in a range of return-seeking asset classes. Any additional returns would enhance PCIC's financial capacity to write more business, build reserves to increase its sustainability, and redistribute its premium discounts.
- 3. Capital reserve management:** Allocating sufficient capital reserves is vital for an insurer, as this protects the policyholders from adverse scenarios where claims costs exceed the ability of the insurer to pay. International best practice uses a risk-based approach for capital setting, but this is not the practice of the PCIC. The level of

39. In this context, LBP recommends that "PCIC can establish an automated system on the filing of claims and insurance coverage applications. This facilitates the process, [makes it] easier to monitor compliance to checklist of requirements, and expedites management reporting" (Communication from Land Bank of the Philippines to the World Bank, October 21, 2022).

capital reserves held by the PCIC is not based on the level of risk taken by the company. It is unlikely, therefore, that the level of capital held is set at a cost-effective level or one that provides sufficient protection to policyholders and other stakeholders. The World Bank Group team recommends that the PCIC develop the necessary capacity to regularly carry out an assessment of reserves against the risks of the business to ensure that capital is set appropriately in this regard. This level of capital is highly relevant for the other risk management pillars, and a low level of capital may place certain restrictions on the optimal decisions that need to be made around reinsurance, premiums, investment, and dividends.

- 4. Dividend (and profit) management:** A clear strategy should be put in place to set out PCIC’s objectives and processes regarding the use of any surplus/profit from investment and underwriting. This should be developed alongside the broader business strategy and the other risk management strategies. The adopted approach will balance the objective of extracting revenue from PCIC’s operations against the need to build reserves to meet future claims and the potential to reduce future premiums for policyholders. Currently, the PCIC diverts 50 percent of its annual net profits away from the business and forwards them to the government. This arrangement should be reviewed to determine whether this approach is consistent with the strategic objectives of the PCIC and the GoP, as well as the overall public support strategy for agricultural insurance.

FIGURE 25. RISK MANAGEMENT FRAMEWORK



Source: World Bank.

The PCIC should build a risk management framework comprising an underwriting and reinsurance strategy; an investment strategy; a dividend policy; and a capital management policy.

It should be developed considering the interdependencies between each element, with informed analysis and assistance from experts such as investment advisors, risk managers, and actuaries.

The Board has established a Risk Management and Audit Committee (RMAC) responsible for developing and monitoring the corporation’s risk management policies. The RMAC should develop, adopt, and implement the suggested risk management framework considering the four pillars, in consultation with experts. As these functions are newly or further developed, the PCIC should revise and review its strategies and policies to ensure that they remain appropriate within the larger risk management framework as the business evolves. Annex K contains the details around the remit of the RMAC.

Policy recommendations

- The PCIC must **define its risk appetite and objectives** and develop a formal financial risk management framework.
- It should engage the services of **risk management experts/actuaries** to carry out a deep analysis of PCIC's risk to inform risk management and decision-making around each of the four pillars. In-house expertise should be developed to ensure this analysis can be maintained and repeated as part of regular business in the future.
- Informed by the results of such analysis, the PCIC should **review its current risk management policies** and make and implement decisions around each pillar (i.e., revise its investment strategy, premium rating approach, and reinsurance strategy; and evaluate its dividend policy).

4.6.2. Investment management

The PCIC should develop an investment strategy in line with its risk appetite that maximizes returns while considering the riskiness of the portfolio held. PCIC's current asset investment portfolio has a large proportion held in low-return assets such as cash and term deposits. The PCIC could improve its underwriting results by leveraging its underwriting capacity to achieve higher investment returns.

Non-life insurers in the Organisation for Economic Co-operation and Development (OECD) hold on average around 14.7 percent of total assets in cash and deposits (OECD 2021): this compares with 70 percent held in cash and deposits by the PCIC in 2020. Of the 55 reporting OECD jurisdictions, 46 held more than 50 percent of their assets in bonds: this compares to 30 percent held in bonds by the PCIC in 2020. Based on PCIC's investment in bonds, time deposits, and cash, the expected investment income generated would be low compared to other non-life insurers.

Further details of the review of PCIC's investments and a comparison to the general insurance market are provided in Annex H.

Policy recommendations

- Work with the GSIS and the LBP (in line with the directive given by the secretary of finance) to look at **potential asset allocation strategies** that may be more suitably aligned with PCIC's investment goals.
- Build a **clear statement of investment principles** and investment strategy for the short term that
 - » Clearly sets out the objectives and constraints of the PCIC regarding investment
 - » Holds less in cash and deposits, in line with market best practices
 - » Defines how returns from investment will be used
 - » Defines a clear governance process
 - » Is reviewed annually
- Engage **actuarial and investment advisors** to perform analysis around the types of assets that may be suitable, taking into account the company's liabilities and risk appetite, and considering the trade-off between risk and return from investment.

4.6.3. Underwriting and reinsurance management

Underwriting and reinsurance management should be considered concurrently, as these two functions are interrelated. Underwriting and reinsurance together determine the net cash inflow and outflow position of the PCIC, which should be linked to the corporation's risk appetite. The PCIC provides insurance against climatic and natural and biological disasters for crops, livestock, and fisheries. These disasters can be unpredictable and catastrophic in nature, cause very large losses to agriculture, and be hard to predict based on historical events. There can also be an element of compounded losses, where multiple catastrophic events may occur in any one year or crop season. Among insurers who underwrite indemnity business that covers natural catastrophes, it is common practice to purchase reinsurance covering low-frequency but high-severity events; the level of reinsurance cover purchased should help bring net claims to the insurer within its risk appetite. PCIC's capital and reserve fund to cover such events has been subsidized by the taxpayers; there may be more cost-effective ways of funding these losses, such as via reinsurance, and other strategies should be explored.

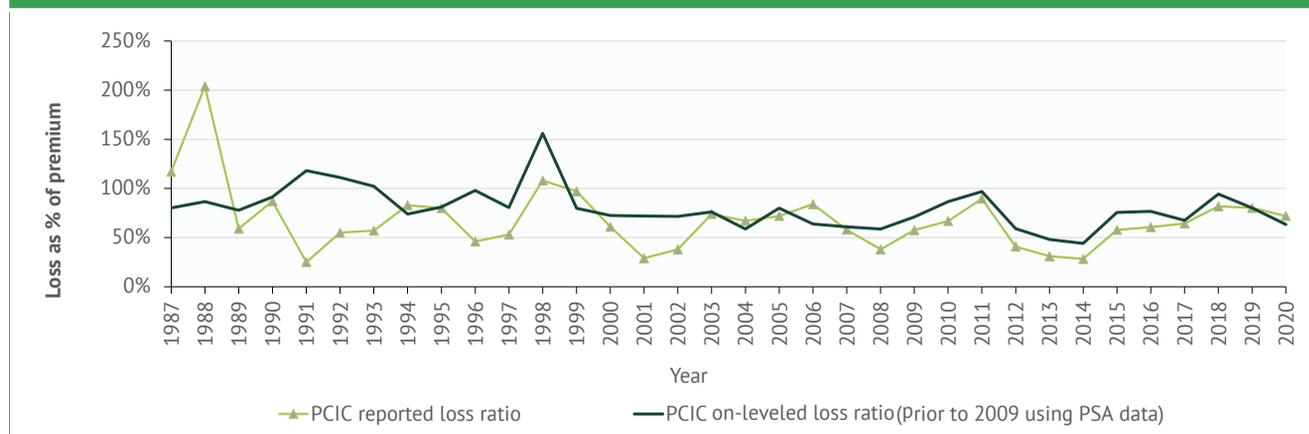
By accessing the reinsurance market, the PCIC could benefit from a lower cost of risk due to reinsurers' capacity to diversify the risk and their degree of specialization. Reinsurers have the ability to diversify risk across different lines of business and geographies, which allows them to have lower capital needs than a single insurer. The degree of specialization and size of the reinsurers' portfolio allows them to reach economies of scale that result in lower costs than those incurred in house by a local reinsurer. Both factors could make it more cost-efficient for the PCIC to transfer the claims risk instead of retaining it on its balance sheet. Another benefit to the PCIC from accessing the reinsurance market is that reinsurers can provide significant knowledge and expertise on product development and operations. Because they are exposed to different territories and products, reinsurers can share relevant knowledge and experiences as PCIC's business evolves.

PCIC's underwriting for its Special Programs on rice and corn has a flat 10 percent premium rate regardless of region or risk factor. These Special Programs for rice and corn account for 92 percent of total premium income. PCIC's underwriting methodology is too simplistic and does not capture the nature of the risk. There has also been no revision of this rate based on experience and other factors affecting the rating (e.g., climate changes that may impact the frequency of yield losses).

PCIC's crop insurance portfolio (corn, rice, and HVCs) had a loss ratio of 65 percent in the 2009–2020 period; once these loss ratios are on-leveled,⁴⁰ the overall loss ratio for these years increases to 72 percent. An "as if" claims analysis of PCIC's crop (rice, corn, and HVC) portfolio was conducted to on-level claims experience to current terms. This assumes that the current 2020 portfolio (insured areas, sums insured, premium rates, and premium) has been consistent over the past years. When claims and premiums can be expressed in current terms, this takes out any trends and allows a comparison between losses from different years. The analysis shows that, since 2009, there has been an upward trend in the loss ratio for PCIC's crop portfolio; therefore, allowing for this trend, the on-leveled loss ratio increases to 72 percent from the reported loss ratio for this period. The methodology for the analysis was limited by the information available, and is detailed in Annex I (please read the section on limitations; the figures shown are indicative and should not be used for decision-making). The analysis should be refined when more granular data are available.

Using data from the PSA for years prior to 2009 increases the overall loss ratio (for the 1987–2020 period) to 80 percent. The PSA provides historical information on crop production and yields back to 1987. In 1998 and in the early 1990s, there were catastrophic events that caused large yield losses; including these back years in the analysis introduces an additional level of volatility derived from such catastrophe losses, as well as additional volatility from having more years of data. Over the past 30 years, the most severe catastrophe year has been 1998, when a very severe ENSO-El Niño led to extreme drought and flood losses. Using on-leveled PSA data to proxy PCIC's loss ratio in 1998 shows that the loss ratio for that year would have been 156.03 percent in 2020 terms. This event can be thought of as an implicit catastrophe load because allowing for this event assumes a loss of this size occurring once every 30 years. While the years using PSA data are a proxy for PCIC loss ratios, the PSA data are an indication of the possible losses that could be experienced by the PCIC. With PCIC's 30 percent load to cover administration and operating costs and surplus reserves, the analysis indicates that the premium rates charged by the PCIC would not adequately cover claims and costs associated with its crop portfolio. Figure 26 shows PCIC's reported and on-leveled loss ratios.

FIGURE 26. PCIC'S RICE, CORN, AND HVC LOSS RATIOS: ORIGINAL AND ON-LEVELED



Source: World Bank analysis of PCIC premium and claims data 1987 to 2020, and adjusted using PSA crop production and yield data.
Note: PSA = Philippine Statistics Authority.

40. On-leveling adjusts historical experience, allowing for any changes to the portfolio over time, to estimate what experience would have been had historical events occurred today.

The PCIC could incur very significant losses from catastrophe events, as demonstrated when considering the conditions in 1998 as an example; in that scenario, PCIC's resources could be exhausted, and significant funds would be required to bail it out. When on-levveled, the loss ratio from the experience in 1998 is 156 percent. Assuming PCIC's 20 percent loading on claims cost, this would result in a combined ratio of 187 percent. When applied to the 2020 premium, the total cost would be PHP 4 billion if the same scenario occurred with the current portfolio, an amount that is well in excess of PCIC's minimum reserve capital of PHP 2 billion⁴¹ and its reserve fund of PHP 500 million.⁴² Where the PCIC does not have excess reserves to fund these losses, or reinsurance to cover this kind of event, it may not be able to pay the excess claims.

This simple example illustrates that, in adverse years, the PCIC would benefit from catastrophe reinsurance cover to cede out the larger losses. An assessment of a suitable reinsurance strategy should be carried out to inform the overall risk management framework.

The reinsurance strategy should be considered in tandem with the products offered and the underwriting strategy. For example, changes to the reinsurance strategy should be considered when the PCIC changes the types of insurance it offers or changes the amount of coverage provided.

Policy recommendations

1. Engage an actuary to review PCIC's **premium adequacy** for all lines of business. From this review, rating schedules should be constructed for each relevant segment (i.e., instead of using a flat rating structure).
2. **Build (and implement) a rating policy** that includes an annual review of rate adequacy, such that rates can be adjusted based on experience. This will require
 - » Sign-off by the Board
 - » Hiring of an internal actuary to carry out this process
3. **Review the adequacy of loadings** for expenses and profit/surplus.
4. Engage an actuary to review possible **reinsurance structures** against catastrophic exposures. This review should be annual, and is particularly important when there are any changes to coverage that may modify the exposure to catastrophe claims.

4.6.4. Capital management

The PCIC currently holds PHP 2 billion as minimum reserve capital to support insurance operations. This was set up as part of the 1995 Revised Charter (Republic Act 8175), which increased the capital held from PHP 750 million to the current amount. Additionally, there is a state reserve fund for catastrophic losses of PHP 500 million. There has been discussion over the last few years of increasing the reserve capital level to PHP 10 billion, and at the time of this review there were indications that this may happen over the coming year. Another PHP 500 million fund can be drawn down to support the business, but the role of this fund has not been tested to date. The capital held by the PCIC could be stretched even further if its product range and/or volume of business is expanded.

International best practice sets capital using a risk-based approach, i.e., the level of capital held changes depending on the risk of the insurance operations. The PCIC does not have a risk-based approach to capital setting, and for this reason it is even more important that the other pillars of risk management (investment, underwriting and reinsurance, dividend policy) are set in an adequate and robust manner and reviewed annually.

While it may not be appropriate at this time for the PCIC to move to a risk-based capital approach, the capital amount set should be reviewed annually alongside the other pillars of the risk management framework to assess if this level of capital remains appropriate. As the PCIC evolves and grows as an insurer, it is reasonable that the capital held should change accordingly. While administratively this is cumbersome, and the amount set for capital cannot be changed year on year, the appropriateness of such amount should be reviewed as frequently as possible, and if required, other pillars could be used to mitigate any additional risks that fall outside of the defined risk appetite. For example, more reinsurance could be purchased. As part of this review, an actuarial analysis regarding the appropriate level of capital to be held by the PCIC has not been conducted. Reviewing its claims experience, as detailed in the underwriting

41. The minimum reserve capital is assumed to have been reported in the balance sheet.

42. The reserve fund amount is assumed to not have been reported in the balance sheet.

and reinsurance section (4.6.3) and in Annex I, suggests that the PCIC's reserves may not be sufficient, especially considering the lack of reinsurance. These factors can be reviewed together to assess the appropriate balance of reinsurance versus increase to reserves.

Policy recommendations

1. Commission/carry out a **comprehensive actuarial analysis of PCIC's business** to inform the appropriate level of minimum reserve capital for the company.
2. Put in place a **formal, regular process to refresh the analysis** and inform the PCIC Board alongside the review of the other pillars of risk management.
3. Perform an **in-depth actuarial review of the level of capital and reserves** that the PCIC should hold to meet the risks of its business.

4.6.5. Dividend (profit) management

The PCIC has paid 50 percent of its annual net profit back to the government since 2014, equivalent to PHP 1.4 billion over seven years, including the back payment of additional dividends in 2020. The value to the GoP of these dividends should be weighed against the benefit of the alternative uses that the PCIC could put these funds to: e.g., building up additional reserves, purchasing reinsurance for catastrophic events, or improving the quality of its products and services. Utilizing profits for these purposes would strengthen the PCIC's ability to pay claims in adverse years. In the long term, once the PCIC has an optimal capital and risk management position, operating surpluses/profits could be used to justify reductions in premiums, increase the value of the product offering, and reduce the public premium subsidy budget.

Policy recommendations

Build a dividend policy that

- Details how the corporation's profits will be used to further the sustainability of the business
- Is agreed upon by the Board as part of the overall risk management framework

PART B: MEDIUM-TERM RECOMMENDATIONS FOR INTRODUCING MARKET-BASED REFORMS AND NEW INDEX-BASED PRODUCTS AND PROGRAMS

4.7. TOWARD A NATIONAL POLICY FOR AGRICULTURAL INSURANCE

4.7.1. Is there a need to reform PCIC's mandate and charter?

Agricultural insurance legislation in the Philippines dates back to 1978 with the creation of the PCIC as a national agricultural insurer with total (monopoly) control over GPS. The PCIC's original mandate was to protect small farmers against financial losses in the event of catastrophic climate events and to leverage access to agricultural credit by protecting the lending institutions against default. Thus the government's original goal for agricultural insurance could be summed up as supporting access to credit to raise small-scale farmers' productivity and incomes (Table 22). In order to make agricultural insurance more affordable and accessible to small farmers, the government provided partial premium subsidies to the PCIC for two strategic food crops: rice and corn.

Over the past decade, however, it appears that the PCIC's main mandate has changed: it has become a free (fully subsidized) social protection program for very poor subsistence farmers, livestock producers, and fisherfolk. The goals of the PCIC therefore fall into the category of protecting poor farmers against natural disasters. While these objectives are to be lauded, the PCIC traditional indemnity-based agricultural insurance products and programs are expensive to implement with small-scale and subsistence farmers, and the rice and corn programs carry high premium rates. Furthermore, there may be more appropriate and cheaper disaster risk financing instruments for subsistence farmers, such as the **Natural Disaster Risk Reduction and Management Fund**, which is designed to provide immediate compensation in cash or in kind to enable affected farmers to get back into production.

TABLE 22. GOVERNMENT POLICY OPTIONS FOR AGRICULTURAL INSURANCE



Policy objective	How agricultural insurance helps achieve policy objective
Raise productivity and incomes	Agricultural insurance can reduce small and semicommercial farmers' aversion to investing in new technology; it can help improve access to formal agricultural credit, thereby enabling farmers to purchase improved seeds and fertilizer technology or new higher-yielding breeds of livestock, in turn raising productivity and incomes (and national income).
Stimulate capital investment in agriculture	Agricultural insurance can protect lending by commercial and state banks against default in the event of crop failure/death of animals, thereby stimulating capital investment in agriculture.
Protect poor farmers	Agricultural insurance can be designed as a social protection instrument to protect poor and vulnerable farmers against catastrophe losses and to sustain their consumption and incomes.
Protect the government's budget	Agricultural insurance can be used to support or reduce government's contingency budget for ad hoc disaster relief to affected farmers/rural communities.
Stabilize rural farming populations	In some countries (e.g., US, Spain), subsidized agricultural insurance has been used to stabilize the rural and farming populations and to reduce outward migration.

Source: World Bank.

In the Philippines, the government's policy over the past 40 years of channeling all its financial support for agricultural insurance through the PCIC has acted as a major disincentive to private sector entry into the field, because private sector insurers cannot compete against the highly subsidized PCIC agricultural insurance programs. There have been a handful of mainly crop weather index insurance initiatives by leading insurers such as the Malayan Insurance Company Inc., Pioneer Insurance, and the Surety Corporation, often with the support of development banks and agencies (ADB, World Bank, IFAD), but these programs have not been successfully scaled-up to date.

Over the past 20 years, governments in other countries in the region such as China and India have completely overhauled and reformed their former public sector-only agricultural insurance programs to actively crowd in the private sector by giving private insurers access to GPS and promoting PPPs. In Korea and Thailand, governments have heavily promoted private sector-led national agricultural insurance programs, as described in section 3.12 of this report. The Philippines has not seen any major reforms over this period.

Starting in 2021, the GoP has been seeking to reform the PCIC and to promote private sector entry into agricultural insurance, as evidenced by the IC Advisory 2021-09: Guidelines on the Adoption of a Regulatory Sandbox Framework for Piloting Agriculture Insurance (IC 2021a); see below for further discussion.

4.7.2. Recent legislation to reform the PCIC and to crowd in private sector insurers

2018 Bill to convert the PCIC into a reinsurer

In 2018, the Philippine House Committee on Economic Affairs revised the PCIC's mandate in a move that aims to expand its crop insurance coverage and encourage the use of index-based insurance and reinsurance. The revised mandate permits the PCIC to provide index-based direct insurance and reinsurance policies to encourage private insurers and commercial banks to offer index-based insurance and reinsurance. Previously, the PCIC was not permitted to participate in reinsurance, a restriction that hindered reinsurance companies from properly entering the region's crop reinsurance market. In addition, the bill includes a mandate for the PCIC to insure and reinsure government properties and facilities and offer weather index-based insurance, specifically for excessive or insufficient rainfall (Reinsurance News 2018). The GoP argues that enabling the PCIC to engage in reinsurance will encourage support from major international reinsurers (Gallin 2017). It is understood that, to date, this 2018 bill has not been approved by Parliament.

House of Representatives Bill No. 10276 (undated)

Recently, a House of Representatives committee prepared a draft House Bill No. 10276 proposing further changes to PCIC's charter (short title "Revised Charter of the Philippine Crop Insurance Corporation").⁴³ This draft act contains a series of far-reaching proposals that strengthen PCIC's monopoly over the provision of agricultural insurance in the Philippines and reinforce its mandate as a social protection scheme rather than a commercial market-based agricultural insurance program. The key amendments are briefly reviewed below.

- **The government's policy on agricultural insurance is broadened** to include ensuring food security, intensifying agricultural production, promoting agricultural credit, and broadening the role of mandatory crop insurance. Here, the World Bank Group believes that there should be a much clearer distinction between the policy for agricultural insurance for semicommercial and commercial farmers and the products/programs for RSBSA fully subsidized subsistence farmers.
- **Crop insurance is compulsory for farmers growing rice (palay) and other crops deemed by the DA to be essential for food security.** This is in addition to the existing PD 1733 (1980), which makes crop insurance compulsory for farmers borrowing credit and includes financial penalties for FIs that do not comply with the decree. The World Bank Group notes, however, that it may be very difficult (and legally unenforceable) to make crop insurance mandatory for self-financed rice farmers unless cover is free (100 percent–subsidized) for all rice farmers in the Philippines. The financial implications of extending free cover by the government to all rice growers would need to be considered very carefully.
- **Cover is extended to agroforestry crops and forest plantations.** The World Bank Group notes that legislation that enables all classes of agriculture (crops, forestry, livestock, poultry, and fisheries) to be insured should be encouraged.
- **Insurance is expanded for aquaculture producers and fish farmers of seaweed, oysters, and mussels, and cover is extended to include plant and fish P&D.** Here, the World Bank Group believes that the PCIC must first commission a detailed risk assessment study to evaluate the feasibility of adding P&D cover to its aquaculture/fisheries insurance program. Much of the region suffers from endemic diseases of shellfish, mollusks, and crustaceans, and epidemic disease outbreaks have caused huge losses to the insurance industry in the past.⁴⁴
- **Weather index insurance is introduced.** The World Bank Group believes that both WII and AYII have a role to play in the Philippines and that any amended act should authorize any form of indemnity-based or index product, including remote sensing indices, as long as they are approved by the IC.
- **The PCIC is authorized to insure agricultural properties and facilities owned or used by government agencies involved in agriculture/fishery/forestry projects.** The World Bank Group notes its concern that PCIC's traditional strengths lie in agricultural insurance and not in property insurance. The Philippines is located on the Ring of Fire, and property is very exposed to volcanic eruption, earthquakes, typhoon, and flood damage. Both the GSIS and non-life insurance companies owned by the private sector are specialists in property and casualty insurance.
- **The PCIC can provide agricultural guarantee loans.** The World Bank Group queries whether this is a strength of the PCIC or if agricultural guarantees should be managed by banks and other financial institutions.
- **PCIC's share capital is to be raised from PHP 2 billion to PHP 10 billion.** The World Bank Group recommends that any increase in PCIC's share capital to enable the corporation to expand its insurance operations must be backed by a sound reinsurance program to protect the corporation against unforeseen catastrophic loss events.
- **The PCIC is authorized to enter into agricultural reinsurance operations.** The bill makes compulsory minimum 10 percent reinsurance cessions by local agricultural insurers to the PCIC. The World Bank Group believes it is not financially prudent for the PCIC to reinsure other insurers and to thereby increase its exposure when its own portfolio is totally un-reinsured at the moment and is protected only by the PHP 500 million reserve fund for catastrophic losses. Rather, it recommends that the PCIC should cede its risk to Nat Re and international reinsurers (see section 4.8.4 for further discussion of PCIC's potential role as an agricultural reinsurer).

43. Full title: House Bill No. 10276, "An act strengthening the Philippine Crop Insurance Corporation, repealing for the purpose Presidential Decree No. 1467, as amended, entitled "Creating the PCIC, prescribing its powers and activities, providing for its capitalization and for the required Government Premium Subsidy, and for other purposes."

44. In Vietnam, under Phase I of the National Agricultural Insurance Pilot Program (NAIPP) 2011–2013, insurance cover was provided against P&D of finfish and shellfish. Huge disease losses were incurred in insured shrimp, with claims of VND 670 billion and a loss ratio of 307 percent (FAO 2016). Subsequently, insurers and their reinsurers have excluded disease cover on the aquaculture program.

IC Advisory 2021-09 to authorize private insurers to pilot agricultural insurance with the PCIC

The government is committed to promoting greater private sector involvement in agricultural insurance, and in September of 2021, the IC authorized private insurers to collaborate with the PCIC to design and implement new agricultural insurance products and programs. The IC (2021a) issued a series of regulatory guidelines (Advisory 2021-09) for private insurers seeking to pilot agricultural insurance with the PCIC, salient features of which are quoted in Box 5 below. This IC initiative represents a major step in the right direction to promote private sector agricultural insurance in the Philippines after 40 years of public sector monopoly.

In February of 2022, CARD Pioneer Microinsurance Inc. formally announced that it was partnering with the PCIC to provide insurance protection to smallholder HVC farmers. CPMI has previous experience in piloting traditional and weather index crop insurance products and programs with microfinance organizations in the Philippines. CPMI notes that it is the country's first private insurance firm to partner with the PCIC to provide insurance protection to smallholder farmers against losses from natural calamities, plant diseases, and pest infestations. Under the agreement, CPMI plans to coinsure with the PCIC on a 70:30 basis. This initiative will be supported by the Asian Development Bank under its Financial Inclusion Framework Strengthening Technical Assistance project, and it represents the Philippines' first PPP aimed at bridging the insurance gap and contributing to the sustainable development of agricultural insurance in the country (Manila Bulletin 2022).

BOX 5. GUIDELINES ON THE ADOPTION OF A REGULATORY SANDBOX FRAMEWORK FOR PILOTING AGRICULTURE INSURANCE (IC ADVISORY 2021-09)



Section 1. Definition of Agriculture Insurance. For the purposes of this Circular Letter, the term "Agriculture Insurance" shall refer to the insurance of the produce or the assets used in the cultivation of crops (i.e., grains, cereals, and other crops, as well as fruits and vegetables), livestock (i.e., dairy, cattle, hog, and beef), rearing, animal husbandry, poultry farming, dairy farming, and fisheries, including all value chain activities like production, transportation, storage, processing, packaging, preservation, and marketing.

Section 2. Collaborations for Agriculture Insurance. Non-life insurance companies shall be allowed to provide agriculture insurance, independently or in collaboration with the PCIC or any of the following: national and international public and private sector insurers, as may be permitted by law and in accordance with existing laws and regulations, reinsurers, technology providers, and multilateral agencies.

Section 3. Submission of Proposals. Any non-life insurance company intending to apply for participation in a Regulatory Sandbox for Piloting Agriculture Insurance shall submit a formal proposal (including the product, wordings, rating methods, loss assessment, and claims procedures, etc.) to the IC for approval.

Section 6. Sales and Distribution. The agriculture insurance products under the proposed pilots can be distributed through licensed insurance or microinsurance agents or brokers as well as other distribution channels like agriculture input providers, Microfinance Non-Government Organizations (MF-NGOs) and banks engaged in agriculture finance, even if they are not licensed insurance agents or brokers, subject to the relevant provisions of Circular Letter No. 2016-64 dated 19 December 2016 on the "Adoption and Implementation of Microinsurance Distribution Channels Regulatory Framework" with respect to microinsurance products, and such other relevant rules and regulations as may be subsequently issued by the IC.

Section 7. Reinsurance. All participating non-life insurance companies shall reinsure a minimum of 10 percent of the risks written under the pilot, and as per its reinsurance program, to the National Reinsurance Corporation of the Philippines (Nat Re).

Section 8. Loss Assessment and Payment. The loss assessment for indemnity-based products offered under the pilot shall be done by individuals suitably qualified and trained for assessing agriculture losses. Adjusters used by the PCIC shall be deemed qualified.

All losses reported under the policies issued under the pilot shall be disposed, and payable claims shall be paid to the policyholders within a period of thirty (30) days from the reporting of the loss to the insurer or the intermediary for regular products.

Section 10. Agriculture Insurance Literacy. The participating non-life insurance company shall impart comprehensive and gender-sensitive insurance and digital literacy tailor-fitted to the needs of potential male and female clients. During the pilot, the non-life insurance company shall submit periodic reports in this regard to the IC, in support of the financial literacy initiatives of the Consumer Protection Education Committee under the Financial Sector Forum (FSF).

Section 11. Mandatory Reporting. The successful applicants shall mandatorily submit semi-annually a written report on the progress of the pilot to this Commission.

Section 13. Conclusion of Pilot. For purposes of this pilot, the duration of the pilot program shall be limited to 5 years renewable at the option of the IC.

Source: IC 2021a.

4.7.3. Further reform of legislation to enable a national PPP for agricultural insurance

The World Bank believes that there is both an important need and an opportunity to build on the IC's Advisory 2021-09 authorizing private insurers to pilot agricultural insurance with the PCIC; the advisory would largely repeal PD 1467 of 1978 and subsequent amendments, replacing it with a new act that explicitly promotes private sector entry into the field of agricultural insurance. In 2019, the Philippines was ranked as the 46th largest insurance market in the world with total premium of PHP 326 billion (US\$6.301 billion). The non-life insurance market is dominated by motor and property business, which in 2018 had market shares of 32.9 percent and 32.1 percent, respectively. Miscellaneous, including agriculture, represents only 1.3 percent of non-life insurance premium, and although there are 57 licensed non-life companies, only a handful—including the Malayan Insurance Company Inc. and Pioneer Insurance—have piloted agricultural insurance.

The main reason why private sector insurers cannot compete on a level playing field is that PD 1467 and all subsequent amendments have authorized only the PCIC to offer subsidized insurance. Today, in nearly all other countries around the world, governments have enacted legislation to permit both public and private sector insurers to access premium subsidies and offer them to farmers (Mahul and Stutley 2010).

International experience tends to show that the most successful agricultural insurance programs are based on some kind of PPP and that such PPPs are backed up by carefully researched and drafted national agricultural insurance acts (policies). Many countries with major national agricultural insurance PPPs, including the United States, Canada, Spain, and Turkey, have drawn up and enacted special agricultural insurance legislation to govern the operations of the PPP stakeholders and to approve government financial support in the form of premium subsidies. In the context of the Philippines, new legislation would be required to authorize private insurance companies to access premium subsidies under the same regime as the PCIC.

Recommendations starting in 2022:

1. **The TWG, working closely with the IC and PIRA, should conduct a review of PCIC's existing charter and decide on the necessary reforms to encourage private sector entry.** Options for reforming the PCIC and the market could include
 - Open-market competition between the PCIC and private sector insurers (similar to the approach taken in India under the PMFBY).
 - Collaboration between the PCIC and private sector insurers along the lines of the IC Advisory 2021-09, which encourages coinsurance agreements between the two parties, or extension of this to some form of national agricultural insurance pool program (such as the ones that already exist, for example, in Spain, Turkey, or Thailand).
 - Replacement of the PCIC as a direct agricultural insurer and promotion of private sector direct insurers. Here, further options could include closing down the PCIC or transforming the corporation into a reinsurer (as Mexico did in 2000 when it transformed AGROASEMEX, the national agricultural insurer, into a national agricultural reinsurer).
2. **The TWG could study the enactment of agricultural insurance legislation similar to that underpinning some of the larger and more successful PPP models,** for example, those in the United States, India, Spain, and Turkey.
3. **The TWG could consider contracting the services of a specialist in corporate law with experience in drafting national agricultural insurance legislation** to assist in drafting a new agricultural insurance act for the Philippines.
4. **When drafting new legislation to promote PPP agricultural insurance in the Philippines, the TWG should clearly define the roles played by the government and the private sector (see Table 23 below).**
5. **The new act should also clearly define the public sector's financial support role and budget process, including the premium subsidy regime and financial support to other areas (see Table 23 below).**

TABLE 23. KEY ROLES FOR PRIVATE AND PUBLIC ACTORS IN DEVELOPING AND IMPLEMENTING A NATIONAL PPP AGRICULTURAL INSURANCE PROGRAM



Private(& State) Insurance Companies	Public Sector	joint Activities
Risk Modelling/data analysis	Policy for agricultural insurance	Annual and long-term planning of agricultural insurance business plan and budget Awareness creation and farmer education
Product design,actuarial and rating	Specifying target commodities and farmers	Awareness creation and farmer education
Risk acceptance and underwriting	Legal and regulatory framework and consumer protection	Support to product distribution through public sector aggregators
Claims reporting,adjusting and settlement	Descisions on types offiscal support to agricultural insurance and allocating anual budget	Support to field loss assessment activities
Decisions over risk retention and reinsurance strategies	Registration of farmers	Monitoring of Scheme performance and impact Evaluation
Additional data collection	Disbursement of premium subsidies(and auditing of subsidies)	
Marketing and distribution of the insurance products through risk aggregators and value chain actors	Data collection crops/Livestock/weather to support risk assessment and rating and financial data(costs of production and prices for valuation purposes)	
Monitoring of product performance(basis risk)	Acting as reinsurer of last report	

Source: World Bank.

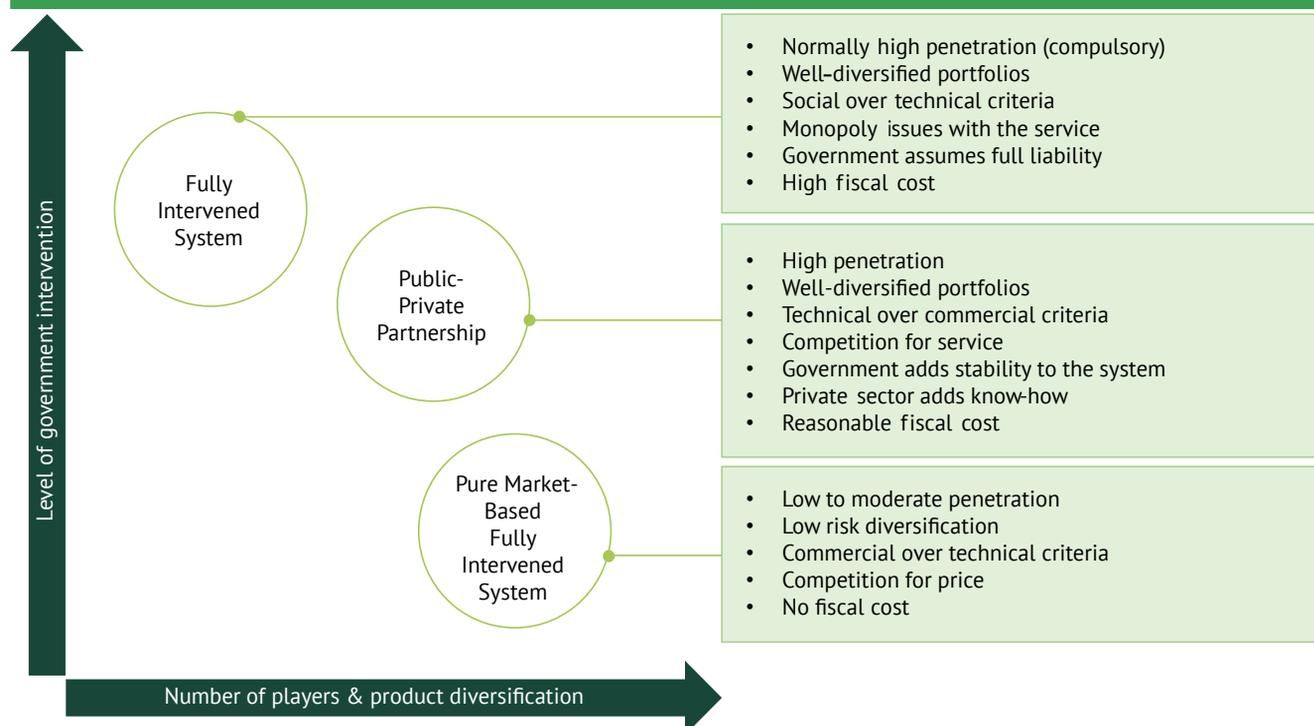
4.8. PUBLIC-PRIVATE PARTNERSHIPS FOR AGRICULTURAL INSURANCE AND INSTITUTIONAL REFORM OF THE PCIC

The GoP has stated its objective of crowding private insurance companies into the agricultural insurance market, and in this case it is recommended that the government consider forming a PPP. The PPP should aim to build on the very solid foundations developed by the PCIC over many years and to open up the market to entry by private commercial companies. Some institutional options are further discussed below in this section.

In the latter part of the 20th century, governments in many developing countries, including China, India, Mexico, Brazil, and the Philippines, introduced public sector agricultural insurance companies with the mandate to provide subsidized crop and livestock insurance to smallholder farmers. Most of these programs subsequently failed due to poor governance and negative underwriting results and have been replaced by PPP programs like the ones currently operating in China, India, Mexico, and Brazil. The PCIC is one of the very few public sector agricultural insurance programs that has survived until today and that has achieved scale and a degree of financial stability in recent years.

Experience shows that models based on PPPs can often generate synergies that allow each partner in the system to contribute to a more effective and efficient intervention (Figure 27). PPPs are very appropriate in economies where smallholder farming is predominant and where governments can support private sector insurers in developing programs to cost-effectively reach large numbers of small-scale farmers. Under PPP arrangements, the most common form of government support is through premium subsidies, followed by support for reinsurance and insurance legislation and, in some cases (e.g., United States and Korea), contributions toward the O&A costs of the insurers.⁴⁵ The set of possible arrangements for an agricultural insurance PPP is broad, and there is no single predefined, prescribed approach; each country should assess the solutions that best suit its specific needs. There are also many agricultural insurance markets with fully privatized, pure market-based models in which there is no form of government support or intervention. This kind of market exists mainly in high-income countries, such as the United States (crop hail insurance), Argentina, Australia, New Zealand, South Africa, Germany, the Netherlands, and Sweden.

FIGURE 27. ROLES OF THE PUBLIC AND PRIVATE SECTORS IN DIFFERENT TYPES OF AGRICULTURAL INSURANCE



Source: World Bank 2010.

45 For a detailed review of government support to agricultural insurance, see Mahul and Stutley (2010).

The World Bank (2019b) has provided a series of institutional options for the GoP to consider as it seeks to strengthen the provision of agricultural insurance in the Philippines:

1. The creation of a risk management agency (RMA)
2. The formation of an agricultural pool insurance company to underwrite crop and livestock insurance in the Philippines
3. The creation of a national agricultural reinsurance company in the Philippines, possibly by turning the PCIC into an agricultural reinsurer that provides capacity support to private sector insurers

These options are reviewed below with reference to World Bank (2019b).

In addition to the formation of an agricultural insurance pool company, the current study also considers the option for a looser form of PPP involving open-market competition by public (PCIC) and private insurance companies, where the GoP would provide both sectors with equal access to premium subsidies and other forms of financial support.

4.8.1. Option of creating a risk management agency

The new TWG should commission a study on the costs and benefits of creating an RMA for the Philippines. Where an RMA is deemed useful, this agency could coordinate public policy and provide technical support to the public and private sector companies that elect to sign up for the PPP. The RMA could be an extremely important entity to coordinate the GoP's policy, to provide technical support to the PPP insurers, and to uphold common standards of underwriting and rating and loss adjusting, among others. The RMA could also play a major role in the design of new crop and livestock index insurance products and programs to be implemented by the PCIC and private sector insurers. Furthermore, the RMA could assume responsibility for administering the GPS, which would be open to all participating insurance companies. World Bank (2019b) provides full details on the potential roles and functions of an RMA for the Philippines drawing on the US RMA-FCIP model.

Recommendations starting in 2022:

1. **The new TWG should commission a study on the costs and benefits of creating an RMA for the Philippines.** One of the most comprehensive models that the TWG may wish to study is the US Risk Management Agency, which administers the FCIP on behalf of the federal government; see World Bank (2019b) for further details.
2. **If the PPP stakeholders select an open-market model whereby approved insurers compete against each other (as in India and to a lesser extent in China), then it may be very important to form an RMA to assist the new market players in all areas of product design and rating of traditional indemnity-based and new index-based agricultural products.** India has struggled over the past 40 years because it lacked a central RMA or technical support unit to provide technical assistance and support services to the state governments and private insurers.
3. **If, however, a market pool is created with the PCIC and interested insurers, then the need for a separate RMA is less evident.** The PCIC can share its technical know-how and expertise with the private sector insurers that join the pool.

4.8.2. Open-market competition by existing public and private insurers in the Philippines

The simplest form of PPP for agricultural insurance is one where interested public and private sector insurance companies that are authorized by the insurance regulator to offer agricultural insurance products and services compete for agricultural insurance business on an individual basis, and the government provides a range of support mechanisms to the companies. These may include legal and regulatory, technical, logistical, and financial support (the last typically consists of subsidies on premiums, on operating and loss assessment costs, and/or on reinsurance). This is the most popular model among the large PPP agricultural insurance programs in the United States, Mexico, Brazil, Chile, Italy, Portugal, China, and India.

For many years, India operated a public sector-only, highly subsidized national crop insurance scheme targeted at small and marginal farmers, but more recently it has undergone a series of market-based reforms to crowd in private sector insurers. India's experience with institutional reforms to promote private sector entry into agricultural insurance provides a useful example to stakeholders seeking to introduce similar reforms in the Philippines in 2022. In 2019/20 the PMFBY insured more than 60 million small and marginal farmers, most of them loanee farmers, over the two main

cropping seasons: it is the third largest PPP agricultural insurance program in the world in terms of premium volume (2019/20 premium of US\$4.1 billion; 86 percent of premium was financed on a 50:50 basis by central and state governments) (MoAFW 2021), More details are provided in Box 6.

BOX 6. INDIA'S PMFBY: AN EXAMPLE OF OPEN-MARKET COMPETITION BY PUBLIC AND PRIVATE SECTOR AGRICULTURAL INSURANCE COMPANIES



The Pradhan Mantri Fasal Bima Yojana (PMFBY) and Restructured Weather-Based Crop Insurance Scheme (RWBCIS) programs were launched in the 2016 Kharif summer season to create a competitive PPP agricultural insurance market that would leverage access to credit by India's small and marginal farmers and protect farmers and rural financial institutions alike against climatic induced crop failure and indebtedness.

Under PMFBY, a uniform maximum premium of only 2 percent of the sum insured is paid by farmers for all Kharif crops; the share is 1.5 percent for all Rabi crops. For annual commercial and horticultural crops, the maximum premium to be paid by farmers is only 5 percent. The premium rates to be paid by farmers are very low, and the balance of actuarial premium is being borne and shared equally by the state and central governments.

The scheme is being implemented by all five public sector non-life or general insurance companies (including the Agricultural Insurance Corporation of India, AIC) and 13 private sector empaneled (approved) non-life or general insurance companies. The companies are selected by the concerned state governments through a transparent bidding process. The state government also selects the crops to be notified under the scheme. The PMFBY has completed four years of its implementation and the fifth year is in progress (2015/16 -2020/21).

The PMFBY is operational in 22 out of the 30 Indian states. Like the previous schemes, it employs an area yield index insurance (AYII) approach for the calculation of losses due to insured risks. Losses are assessed on the basis of a yield-based index. The PMFBY tries to overcome some of the problems faced by previous schemes by (i) capping the premium rate paid by farmers; (ii) employing mobile phone technology for faster estimation of yields; (iii) integrating enrollment information under one portal; and (iv) integrating weather and yield data to better assess losses faced by farmers.

The PMFBY operational guidelines provide criteria for empanelment of insurance companies. Companies that are mainly engaged in agriculture/rural insurance business and that have adequate experience, infrastructure, financial strength, and operational capabilities are empaneled by the Department of Agriculture, Cooperation and Farmers Welfare (DAC&FW) for implementation of PMFBY and RWBCIS. Once an insurance company has been empaneled by DAC&FW, it is considered pre-qualified to bid for the selection of implementing agency to undertake implementation of the crop insurance scheme/program.

Selection of the company as implementing agency in the state is made by the concerned state government through a competitive bidding process, where the insurer that offers the cheapest overall premium bid wins the tender. Insurance companies are appointed to underwrite the PMFBY on a three-year basis.

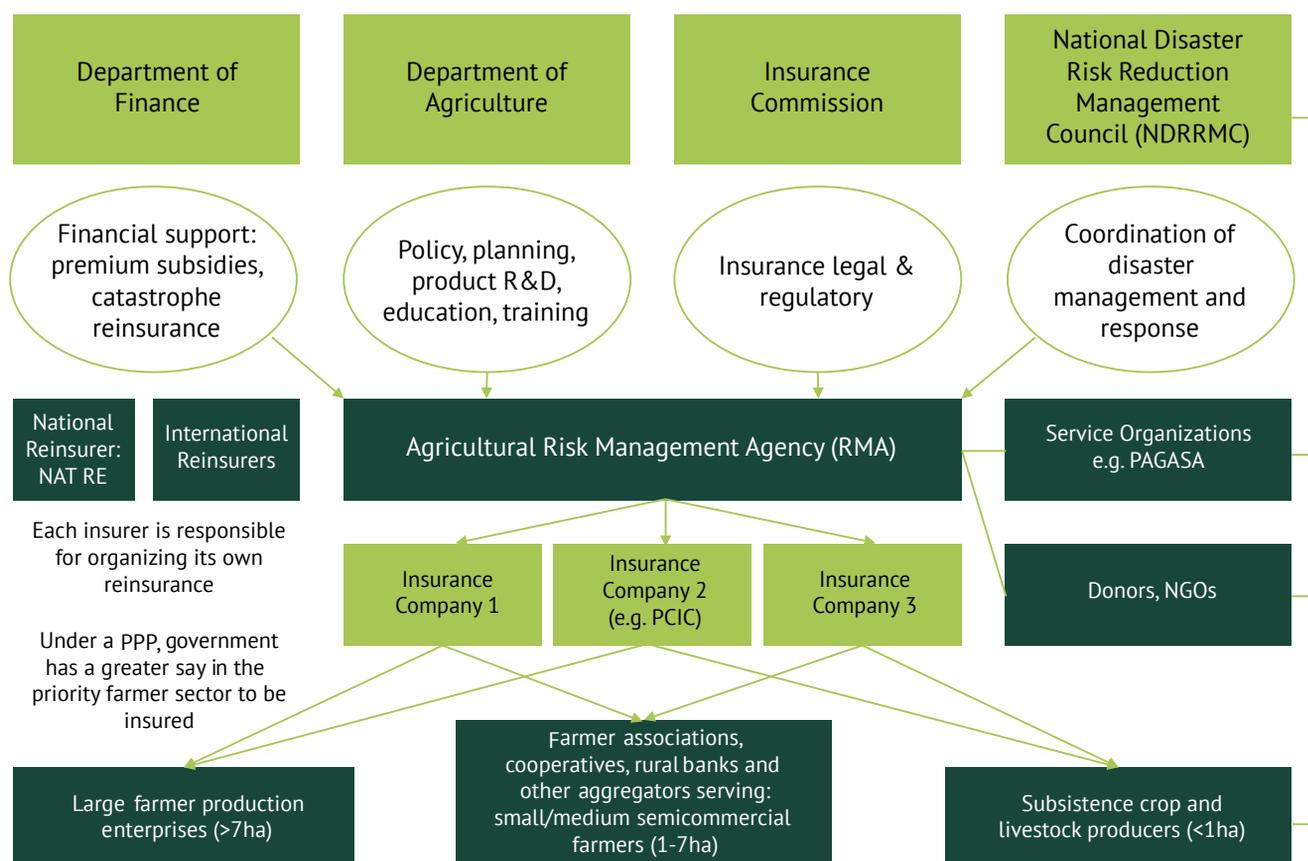
Source: MoAFW 2021.

Option 1 (Figure 28) provides a framework for an open-market PPP in the Philippines in which individual insurers, including the PCIC and approved private insurance companies, compete for business under a national policy for agricultural insurance. Under this option, the PCIC and the private insurers would all be eligible for the GPS. Key public sector players would include the DoF, the DA, and the IC. The World Bank Group team recommends coordination of agricultural insurance provision with the NDRRMC and its disaster risk financing and response programs, especially where subsistence farmers are involved. Each company would be responsible for negotiating and placing its own reinsurance program with Nat Re (the national reinsurer) and/or with international reinsurers.

If the Philippines were to choose the free-market competition institutional framework, the RMA would perform a crucial role in ensuring that all insurers maintain common standards of underwriting and claims adjusting and settlement (see Figure 28). Furthermore, if appropriate, the RMA could require all insurers to adopt standard crop and livestock insurance policies and rating guidelines, as is done under the United States' FCIP⁴⁶ or under Portugal's SIPAC system.

46 See World Bank (2019b) for a detailed analysis of the role of the US Risk Management Agency in the FCIP.

FIGURE 28. OPTION 1: INSTITUTIONAL FRAMEWORK FOR A PHILIPPINE AGRICULTURAL INSURANCE PPP BASED ON THE EXISTING PRIVATE MARKET STRUCTURE



Source: World Bank.

4.8.3. Formation of a national agricultural insurance pool program

The World Bank's (2019b) report on strengthening agricultural insurance in the Philippines provides a detailed review of the option to form a coinsurance pool in the Philippines to underwrite agricultural crop, livestock, and fisheries risks.

The best-known examples of agricultural insurance pool programs are the Agroseguro program in Spain and the Tarsim pool in Turkey. Also in Asia, the Thai National Crop Insurance Scheme is underwritten by the Thai General Insurance Association on behalf of a pool of non-life insurers. The pools in Spain and Turkey were created by law and have clearly defined rules and regulations concerning the roles and commitments of the private insurance companies and the government entities supporting the respective pools. Key features of the Tarsim pool in Turkey are provided in Box 7. (See Annex M for further information on countries with national agricultural insurance pool programs).



Photo credit: Ezra Acayan/World Bank

BOX 7. TURKEY'S TARSIM AGRICULTURAL INSURANCE POOL



Agricultural insurance started in Turkey in 1957 and developed as a private sector initiative through hail and frost insurance for field and horticulture crops; livestock and greenhouse insurance were gradually added later. Risk selection and underwriting were based on limited data and inadequate actuarial expertise, and difficulties in loss adjustment and high loss ratios occurred in some years due to systemic frost events. Despite efforts of the insurers to promote agricultural risk transfer, insurance penetration reached only 0.6 percent of total agricultural land in 2002.

In 2005, the Turkish Agricultural Insurance Act was implemented and, based on the initiative of insurers, included the establishment of Tarsim, a government-supported insurance pool for agricultural risks. Tarsim operates as a monopolistic private sector coinsurance pool and is managed by a board that includes representatives from the Ministry of Food, Agriculture and Livestock, the Treasury Department, the Insurance Association of Turkey, and the Union of the Agricultural Chambers. A total of 24 insurers participate in Tarsim and underwrite agricultural risks with terms and conditions set by Tarsim's technical committee. Private insurers distribute the insurance products under their franchise using their existing agent networks and receive a commission from Tarsim. The insurers can cede 100 percent of the underwritten risks and premiums to Tarsim, or can voluntarily participate in Tarsim as risk takers through retrocessions. Tarsim buys proportional reinsurance from international markets, and the retained risks are protected by government reinsurance. The government provides premium subsidies, public cofinancing of catastrophe losses, and centralized loss adjustment.

Since the establishment of Tarsim in 2005, insurance penetration has increased to 14 percent of the total agricultural land; premium volume is US\$450 million, and 1.4 million insurance policies have been issued as of 2017. Between 2007 and 2016, the average loss ratio reached 68 percent, with a minimum of 45 percent and a maximum of 88 percent, indicating a well-balanced portfolio.

Tarsim covers a wide range of agricultural risks: (i) crops (75 percent of premium volume), which include field crops, fruits, vegetables, and flowers covered for natural perils, including hail, storm, flood, earthquake, landslide, and frost (fruit only) but excluding drought; (ii) livestock (20.9 percent of premium volume), including cattle, sheep, goats, and poultry insured against mortality due to diseases (excluding epidemic diseases and theft); (iii) greenhouses (3.7 percent of premium volume), covered for most natural perils, equipment failure, and structural damage; and (iv) aquaculture (0.4 percent of premium volume), including tuna, sea bass, sea bream, and trout, with insurance for mortality due to natural perils and diseases (excluding epidemic diseases) as well as damage to equipment (cages and nets).

Source: World Bank 2019b.

In the Philippines, there is previous experience with a livestock insurance pool program. The GSIS is part of the Philippine Livestock Management Services Corporation (PLMSC), a pool that includes 14 private insurers. The GSIS provides livestock insurance for livestock owned by government institutions. The PCIC was a member of this pool from its formation in 1988 until 2005, when it disengaged from the PLMSC to underwrite its own livestock portfolio, thereby gaining greater flexibility and control over livestock underwriting, claims adjustment, and settlement.

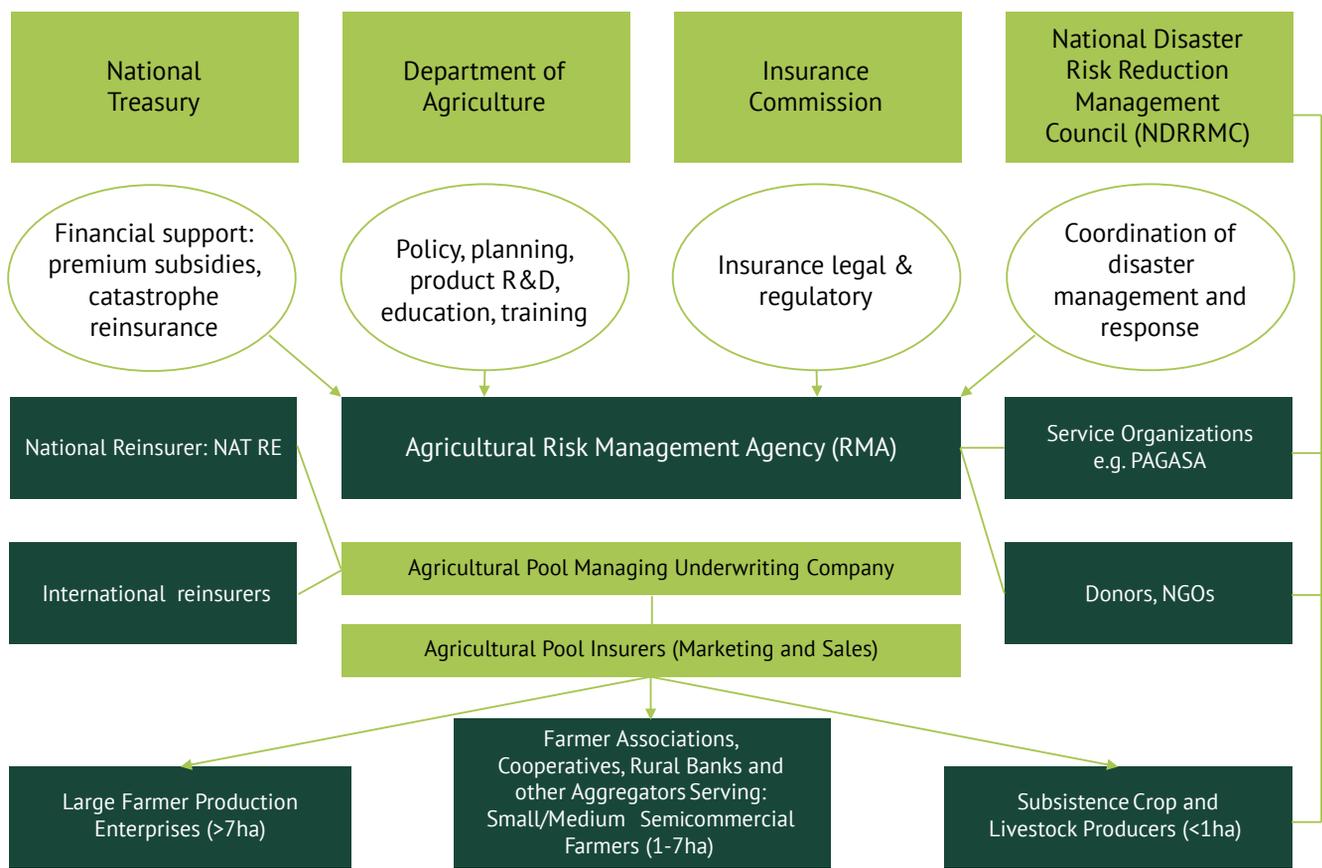
There are many potential advantages to forming a pool:

1. The potential to crowd in insurance companies that would otherwise not be willing to incur the start-up costs of creating their own independent crop or livestock insurance department
2. The ability to retain a much higher share of risk in the pool
3. The economies of scale resulting from the creation of a single centralized agricultural managing underwriter unit to underwrite the program on behalf of the pool members
4. The cost savings generated when purchasing reinsurance protection due to the effects of risk pooling
5. The government's ability to channel PPP support programs to a single pool entity instead of to several usually independent private insurance companies

The main drawbacks of a pool program include the reduced competition between individual companies and the loss of identity for individual companies that have invested heavily in their own agricultural insurance programs (see Annex N for further information on the benefits and drawbacks of pools).

An outline structure for an agricultural coinsurance pool for the Philippines is illustrated as Option 2 in Figure 29. The assumption is that the PCIC and interested private sector insurers would become shareholders in the pool and actively collaborate in underwriting a national crop, livestock, fisheries, and forestry insurance pool program. The pool would design and implement agricultural insurance products and programs tailored to the risk transfer needs of each segment of the farming population: subsistence farmers (<1 ha), semicommercial farmers (1–7 ha), and commercial farmers (> 7 ha). Nat Re has been providing reinsurance support for the PCIC and could continue to do so for the pool. International reinsurers would also be encouraged to provide their technical support and reinsurance capacity to the pool. Option 2 maintains an RMA, but the need for this agency is less critical under a pool, which issues standard policies and premium rates and where standards could be more easily maintained by the pool managers.

FIGURE 29. OPTION 2: INSTITUTIONAL FRAMEWORK FOR A PHILIPPINE AGRICULTURAL INSURANCE PPP BASED ON A COINSURANCE POOL



Source: World Bank.

Recommendations

1. If the SC and TWG wish to adopt Option 1, an open-market competition framework whereby the PCIC and private sector insurers compete for business and are eligible for premium subsidies, they should conduct a study visit to India to review the PMFBY model. An alternative option might be to visit the United States to review the FCIP framework.
2. If the GoP wishes to consider Option 2, incorporating and capitalizing a pool company, it is recommended that the key stakeholders make visits to review Spain's Agroseguro and/or Turkey's Tarsim pool programs. They may also wish to visit Thailand to familiarize themselves with the TNCIS program.

4.8.4. Creation of a national agricultural reinsurance company in the Philippines

In 2019, the DoF raised the option of converting the PCIC into a reinsurer rather than a primary provider of agricultural insurance. The rationale behind this proposal is that such a measure would even out the competition in the crop insurance market and enable private insurance companies to access premium subsidies.⁴⁷ It is also argued that reforming the PCIC to become a national agricultural reinsurer would facilitate additional reinsurance support from major international agricultural reinsurers. This restructuring of the PCIC would complement an existing bill in the Philippine legislature, which enables the PCIC to offer index-based insurance and reinsurance policies (Olano 2019). In 2022, the DoF has revived the plan to convert the PCIC into a reinsurer to improve its financial health and operations and to provide more insurance for farmers and their crops (Agcaoili 2022).

Today, there are major agricultural insurance markets that are supported by national reinsurers or by the government acting as a reinsurer, including in Spain (Consorcio Nacional de Seguros), China (ChinaRe), India (General Insurance Corporation Re India), Korea (Korea Re), Brazil (IRB, Reinsurance Institute in Brazil), and France (CCR, Caisse Centrale de Réassurance). The major public sector agricultural insurance programs in the United States and Canada are also reinsured by the federal government and/or the state or provincial governments (see Annex O for further details on countries with public sector agricultural reinsurance programs).

The Philippines already has a national reinsurance company that provides limited reinsurance support to the PCIC on its NCI fire policies. The National Reinsurance Corporation of the Philippines, which was established in 1978 as a partly government-owned national reinsurer to provide domestic reinsurance support and capacity building, is today a fully privatized reinsurance company. Nat Re provides reinsurance for domestic life and non-life private insurance companies. Its main non-life reinsurance lines include motor, property, casualty, marine, and surety. Nat Re has been providing limited reinsurance support to the PCIC. The presence of Nat Re in the market may reduce the need to convert the PCIC into a specialized agricultural reinsurer.

Recommendations

There is a need to carefully study the business case and rationale for establishing a new specialized agricultural reinsurer in the Philippines, whether through the creation of a new company or through the transformation of the PCIC into such an entity.⁴⁸ The World Bank recommends caution in converting the PCIC into a specialized agricultural reinsurance company for the following reasons:

1. **The Philippines already has a national reinsurer, Nat Re, which has been providing limited reinsurance support to the PCIC.**
2. **Reinsurance capacity per se does not appear to be the overriding constraint to the expansion of agricultural insurance in the country.**
3. **Any future PPP for agricultural insurance should aim to build on the PCIC's well-established and large regional network of underwriting, marketing, and claims adjusting staff** (with 40 years of experience in direct underwriting) instead of replacing it with new private sector insurers who will take time to develop their agricultural insurance capabilities and to recruit and train their own regional networks of agricultural underwriters and loss adjusters.
4. **The PPP options recommended by the World Bank envisage both the PCIC and private sector insurers either competing on a level playing field (Option 1) or collaborating closely as part of a pool program (Option 2).**
5. **As part of a PPP initiative, one of the main tasks would be to promote greater involvement of Nat Re and specialized international agricultural reinsurers.** If the PCIC was to provide agricultural reinsurance capacity to private insurers in the Philippines only, it would never be able to achieve the same spread of risk, both geographically and by class of reinsured business, as global international reinsurers; hence it would not be able to offer reinsurance to local insurers at more competitive terms than Nat Re and/or international reinsurers.

47. In Mexico, the government converted the national agricultural insurer, AGROASEMEX, into a specialized national agricultural reinsurer in 2000. The central objective was to open up the agricultural insurance market to competition from private sector insurers and for AGROASEMEX to support such market expansion. This reform has met with limited success, and today only a handful of private insurers offer commercial agricultural insurance in Mexico.

48. This could be one of the early studies for the proposed TWG to work on and to present to the SC.

6. **While the PCIC has accumulated a great deal of experience in acting as a direct insurer of agriculture over the past 40 years, the company is weak in actuarial and rating and in modeling of catastrophe risk exposures.** There are major differences between underwriting a direct book of agricultural insurance business and reinsuring this business either on a proportional or nonproportional basis, and undertaking the latter would require major retraining and capacity building in reinsurance underwriting at the headquarters level. Similar specialized training would be required if the PCIC were to venture into other non-life classes of reinsurance business such as property and casualty, motor, marine, etc.
7. **A better way of providing support to the agricultural insurance industry in the Philippines** would be through an RMA or an agricultural insurance pool and not through a specialized agricultural reinsurer (World Bank 2019b).

4.9. STRENGTHENING LINKAGES BETWEEN AGRICULTURAL INSURANCE, NATIONAL DISASTER RISK MANAGEMENT, AND DISASTER RISK FINANCING IN THE PHILIPPINES

Under any future PPP initiative for agricultural insurance in the Philippines, it is recommended that the insurance stakeholders coordinate their programs with the NDRRMC.⁴⁹ This would avoid duplication of damage payouts following major natural and climatic disasters that affect the rural farming population, but also ensure that each segment of the rural farming population is protected against such disasters either by a suitable agricultural insurance policy or by NDRRMC's response programs (linkages between insurance stakeholders and the NDRRMC in each of the two options are shown in Figure 28 and Figure 29).

There is a growing body of international experience in which governments purchase macro-level ex ante catastrophe climatic and natural peril index insurance as a complement to, or even as a substitute for, their ex post natural disaster relief programs. The most common use of index insurance to date has been as a contingent or disaster risk financing instrument to provide governments with an immediate source of financial liquidity in a post-disaster situation (to purchase emergency relief and food aid assistance). The earliest example of a macro-level drought index insurance program was implemented in 2006 in Ethiopia, where the government purchased a drought index cover based on the rainfall deficit measured over a basket of ground-based weather stations. This was followed in 2008 by Malawi, where a macro-level rainfall deficit cover protected against shortfall in production and yields of maize, the national staple food crop; this cover included an innovative maize-price derivative cover to protect the Government of Malawi against the increased price of maize imports purchased during an extreme regional drought.

For the subsistence farming population with less than 1 ha of land, who represent around 57 percent of all farmers, it is recommended that the GoP consider using macro-level index insurance programs to complement or substitute NDRRMC's conventional ex post disaster relief programs. In Mexico, over the past decade the government has substituted ex post disaster relief funding for subsistence crops, livestock, and aquaculture with macro-level social protection through parametric (index) insurance covers under the CADENA (Component for the Attention of Natural Disasters) program. This program was implemented between 2003 and 2020 for subsistence farmers in all states in the country under a funding agreement where the federal government financed approximately 85 percent of the commercial premium costs and state-level governments covered another 15 percent of the premium (see Box 8 for more information on the CADENA program).

⁴⁹ The NDRRMC is the highest-level organized and authorized body for disaster risk reduction and management in the Philippines, composed of various government, nongovernment, civil sector, and private sector organizations. The NDRRMC is vested with the overall policy making, coordination, integration, supervision, and monitoring and evaluation functions focusing on disaster risk reduction and management.



Photo credit: Pixabay from Pexels.

BOX 8. MEXICO'S CADENA PROGRAM: AN EXAMPLE OF COORDINATING AGRICULTURE INSURANCE WITHIN A SUITE OF DISASTER RISK FINANCE INSTRUMENTS



CADENA was launched in 2003 under the Ministry of Agriculture, Livestock, and Fisheries (SAGARPA) and operated until 2020, when the federal government ceased to fund the program because of fiscal and budgetary constraints.

CADENA was a social safety net product for small subsistence farmers for whom commercial crop insurance is not necessarily an appropriate or cost-effective product. Mexico was among the first countries to implement national index-based insurance that forms part of the overall natural catastrophe response program and social protection initiatives. CADENA has provided coverage for federal and state budgets for catastrophe loss events, reduced public assistance for disasters, and provided a safety net for smallholders.

CADENA agricultural insurance premiums were fully funded by the federal government and state (or provincial) governments (contributing 85 percent and 15 percent respectively), and the insurance partially replaced ad hoc post-disaster relief programs with formal index-based (parametric) crop and livestock insurance solutions at a state level. CADENA consisted of two main components: (i) Catastrophe Agricultural Insurance (SAC) for crop, livestock, and aquaculture producers and fisherfolk in certain states; and (ii) continued direct support compensation payments (Apoyo Directo) to farmers for climatic disasters in states where SAC is not provided. CADENA targeted vulnerable smallholders, defined as producers with up to 20 ha of annual crop area, up to 10 ha of fruit crop area, or up to 60 animal units.^a CADENA was underwritten by the public insurer AGROASEMEX and four private insurers who entered into seasonal competitive tendering with individual state governments.

SAGARPA defined the subsidies and target farmer segments, trained state governments, monitored the program, and arranged catastrophe insurance terms through AGROASEMEX. The state and federal governments determined the participation in CADENA, specifying risk areas and insurance products, identifying farmers through pre-registration or post-disaster inspection, and declaring natural calamities while passing on benefits to the insured producers. AGROASEMEX operated as an insurer for centralized policies, and also as the main research and development agency. Private insurers—including ProAgro, General de Seguros, and Mapfre-Tepeyac—jointly underwrote about 50 percent of the risks under the CADENA program and transferred the majority of these risks to international reinsurers. For livestock, the National Confederation of Livestock Organizations provided coverage through its own insurance fund to livestock associations.

In terms of insurance products, CADENA offered (i) weather index insurance for crop areas; (ii) yield index covers for crop areas; (iii) satellite-based pasture insurance for increased livestock mortality related to drought; and (iv) indemnity-based insurance for livestock.

In 2013, CADENA covered 12 million ha of crop area and 10 million livestock units, equivalent to 75 percent of the total target population. This is a significant increase from the 9 percent coverage when CADENA was launched in 2003 (ILO 2015). Training programs for government officials, awareness-raising campaigns for producers on the benefits of insurance, and increased government premium subsidies were important components that led to the rapid growth of CADENA.

Sources: World Bank 2013a, 2013b, 2019b.

a. One animal unit is defined as one cow or horse; five sheep or swine; five beehives; six goats; or 100 birds.

4.10. SEGMENTING THE FARMING POPULATION AND DEVELOPING NEW INSURANCE PRODUCTS AND PROGRAMS TO MEET FARMERS' NEEDS

4.10.1. One size does not fit all: The need to design products and programs to fit each segment's risk transfer needs

There is a clear need to provide “layered insurance,” i.e., to design and implement agricultural crop, livestock, and fisheries products and programs that meet the risk transfer needs of each segment of the 5.6 million farmers in the Philippines. The World Bank (2019b) report notes that, from an insurance product point of view and following international best practice, there are three main categories of farmers in the Philippines that could be insured using the products presented in Figure 30:

- 1. Commercial farmers (> 7 ha; 1.8 percent of total farm holdings):** This segment of larger commercial farmers could be offered individual indemnity-based multi-peril crop insurance using farm-based crop yields, as the premium generated by each risk is adequate to cover costs for risk inspections, monitoring, loss adjustment, and administration. MPCl products can be complemented by index-based insurance (e.g., for additional protection for catastrophe risks) and named peril products for exposure that is highly site specific (e.g., landslide) or that requires cover for additional perils such as replanting or post-harvest losses. MPCl products for commercial farmers are similar to the current crop insurance products offered by the PCIC to rice and corn producers, but differ in consistently using the crop yield history for individual farms or farming groups.
- 2. Semicommercial farmers (1–7 ha; 41.3 percent of total farm holdings):** The current indemnity-based crop insurance products offered by the PCIC are very expensive to administer and operate for this group of farmers. There is therefore a need to develop new index-based crop insurance products; AYII is probably the best-suited product, as crop production is exposed to perils like typhoons, droughts, floods, and P&D that are difficult to reflect in weather indices.⁵⁰ In addition, without adequate numbers of and coverage by weather stations, weather index insurance is associated with increased basis risk. The biggest obstacle to the introduction of AYII in the Philippines is the requirement for an objective, standardized, and low-cost system that collects crop area, production, and average yield data at the local level on a seasonal basis—and that has been in operation for at least 10 years in order to provide historical yields to construct the yield index in each municipality. Before AYII can be recommended in the Philippines, a detailed review of area yield data records and area yield estimation procedures should be conducted.
- 3. Subsistence and small farmers (< 1 ha; 56.9 percent of all farm holdings):** International experience increasingly shows that offering subsistence farmers commercial indemnity-based crop insurance products does not meet their needs, nor can it be cost-effectively implemented by crop insurers. For this very large segment—about 3.2 million subsistence farmers in the Philippines—the World Bank recommends market-oriented social welfare programs as part of ex post natural disaster compensation programs that can be insured through index solutions at the macro level (e.g., at the province level) to protect government budgets.⁵¹ For this, the current indemnity-based insurance programs for smallholders (e.g., RSBSA) would need to be transformed into a social welfare program that is protected through index insurance programs at the macro level (e.g., province or region). The PCIC could be the exclusive insurer for catastrophe risks in the social welfare program, or alternatively, if a pool is formed, could be placed into such a pool (World Bank 2019b).⁵²

50. In 2014, GIZ (German Agency for International Cooperation) assisted the PCIC to pilot AYII for rice farmers in selected locations of Leyte Island, but this program encountered considerable difficulties in obtaining historical yield data and in introducing area yield sampling based on objective crop cutting experiments at the time of harvest.

51. This approach is similar to that of CADENA in Mexico. World Bank (2019b) presents a detailed review of the CADENA macro-level crop and livestock index insurance programs purchased by the federal and state governments on behalf of subsistence farmers.

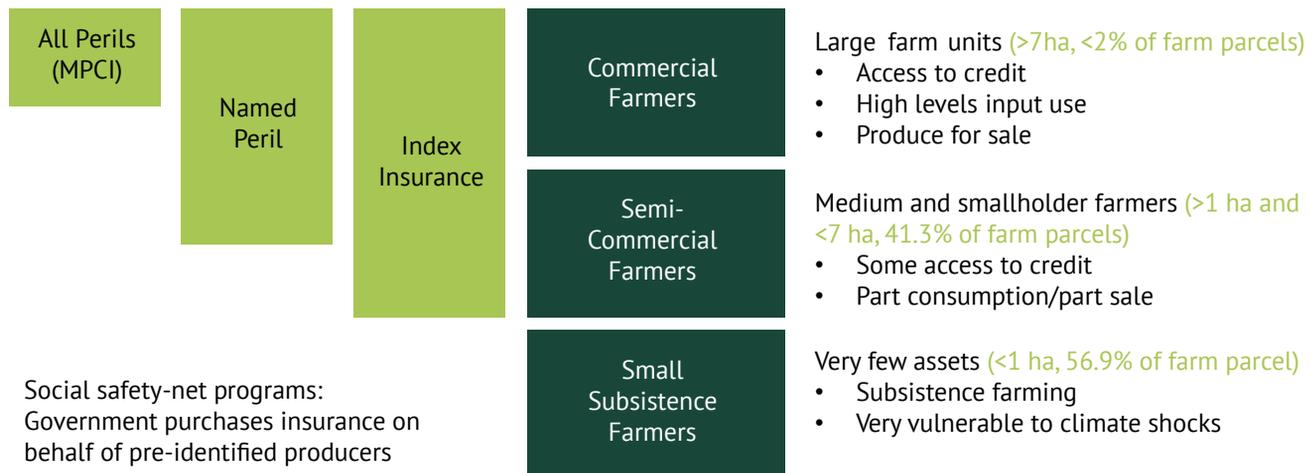
52. PCIC disagrees with these recommendations. "PCIC's view on the macro social disaster protection program as contained in the proposed bill for new PCIC Charter explicitly explained that such proposed program is already undertaken by the LGUs as their obligation to pre- and post-disaster response. Making this as part of PCIC's package of insurance may just be a duplication of the existing LGU as well as national pre-disaster and post-disaster response through the DSWD [Department of Social Welfare and Development]. PCIC should focus on crop/livestock loss response through indemnity" (Communication from PCIC to World Bank, October 21, 2022).



Photo credit: John Renzo Aledia from the World Bank Flickr.

A major task for the RMA would be to assist the PPP agricultural insurers to design and rate these new index-based crop (and livestock) insurance products and programs for semicommercial farmers and subsistence farmers.

FIGURE 30. OVERVIEW OF POSSIBLE LAYERED AGRICULTURAL INSURANCE IN THE PHILIPPINES PER FARMING SEGMENT



Source: World Bank 2019b.

Note: MPCI = multi-peril crop insurance.

4.10.2. Macro-level provincial weather index insurance for subsistence farmers

At the request of the GoP, in December of 2019 a World Bank technical mission explored options for the design and implementation of a macro-level parametric (index) crop insurance program, which would be targeted at RSBSA subsistence farmers with less than 1 ha (or less than 3 ha). The central objective of this macro-level cover would be to replace PCIC's traditional indemnity-based rice, corn, and HVC policies, which are marketed as micro-level individual covers, with a much simplified and cheaper to administer index-based solution. Building on international experience, e.g., Mexico's CADENA program, such a scheme would provide livelihood protection through aggregated index insurance policies (e.g., at the municipality level) purchased and cofinanced by the GoP and LGUs on behalf of subsistence farmers who, as the beneficiaries, would receive free insurance protection. Parametric insurance can be used to leverage capital from international reinsurers to provide much more rapid support to affected farmers than is available from conventional ex post disaster relief programs (World Bank 2020).

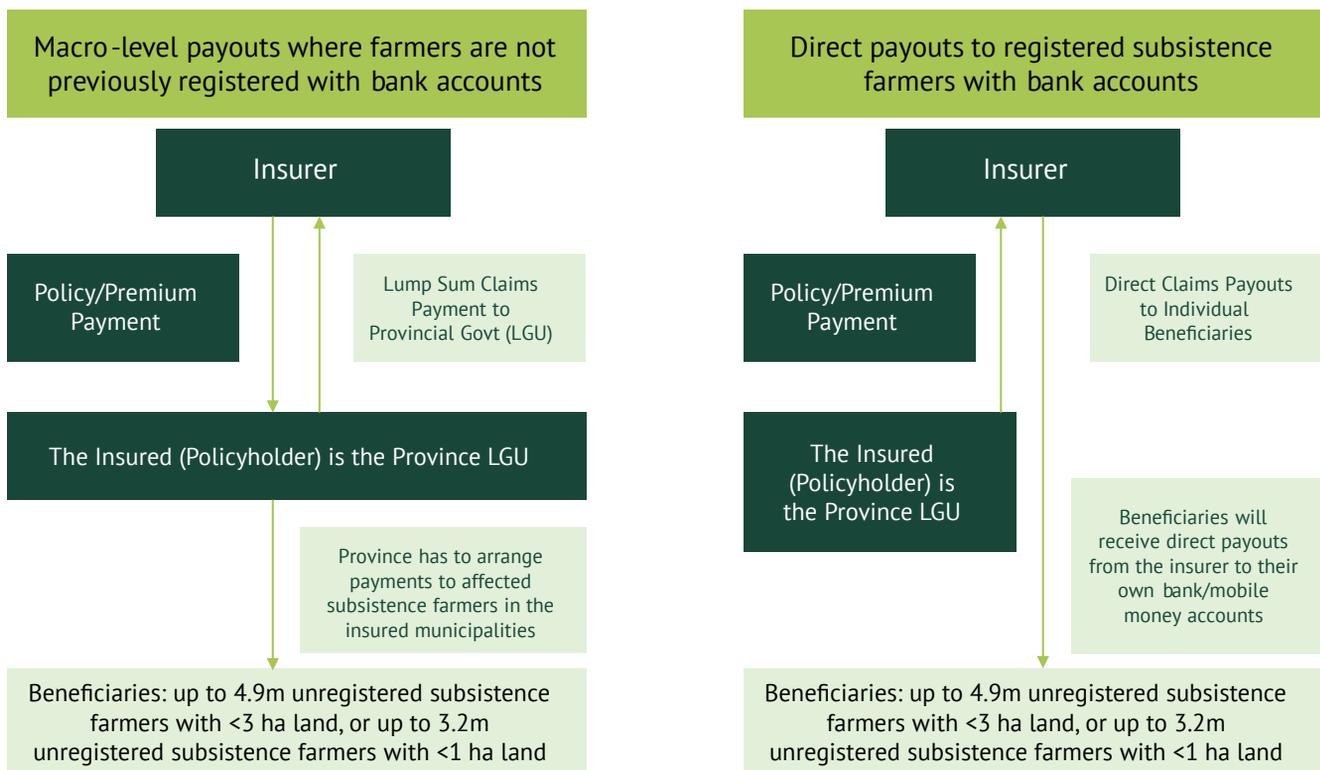
In 2019, two main macro-level crop index insurance product types were considered that potentially could be designed to protect subsistence farmers in the Philippines:

1. **Satellite-based parametric insurance for named perils such as typhoons** (using typhoon tracking data and windspeeds to model expected damage), **precipitation-induced flooding** associated with typhoons or otherwise, and **deficit rainfall (as a proxy for drought)**. In the short term, it should be feasible to develop catastrophe climatic risk insurance for these named perils using remote sensing data for the Philippines.
2. **Area yield index insurance**, which would provide subsistence farmers with comprehensive loss of area yield protection against natural, climatic, and biological perils. In the short term, however, AYII was not considered a good option for the Philippines as a whole because of the lack of consistent area yield estimation at the municipality level for major crops such as rice and corn. If crop yield estimation is strengthened, then AYII could be a viable option to consider (World Bank 2020).

Depending on the definition of target beneficiaries, the proposed insurance product/program could reach anywhere between 3.12 million farmers (< 1 ha of land) and 4.9 million farmers (< 3 ha of land). Affected households would receive immediate cash assistance from the product in case of a triggering event. Since the payout depends on an index across a pre-identified unit, if triggered the policy pays out equally (per hectare) to all farmers in the same area. This significantly reduces operating costs and processing time. Investing in electronic transfers directly to individual farmers using mobile phones could further reduce the time and costs of distributing payouts to subsistence farmers. The structure of such a macro-level program is illustrated in Figure 31 for two payout options: lump sum payouts made to the LGU for onward distribution to registered RSBSA beneficiaries; or payouts made directly to the individual beneficiary for farmers with a bank account and/or mobile money account (World Bank 2020).

Under any macro-level insurance program, the LGUs would play a critical role both as the policyholder and delivery mechanism for the enrolled subsistence farmer beneficiaries (Figure 31). It is anticipated that the LGUs would work closely with the DA and PCIC to identify the target beneficiaries (e.g, subsistence farmers with <1 ha of staple food crops) from PCIC's existing RSBSA registry; to register these selected beneficiaries; and to provide them with awareness creation and education on how crop insurance cover is provided, how claims are triggered, and how the payout mechanisms transfer payments to each beneficiary or groups of beneficiaries. The DA's crop extension workers could perform a useful role in farmer insurance awareness and education.

FIGURE 31. MACRO-LEVEL TYPHOON AND FLOOD INDEX INSURANCE: STRUCTURAL OPTIONS FOR PAYOUTS TO BENEFICIARIES



Source: World Bank 2020.

Note: LGU = Local Government Unit.

The start-up costs of designing, rating, and evaluating such a program for typhoon and precipitation-induced flooding are estimated at between US\$0.75 million and US\$1.5 million (PHP 38.3 million and PHP 76.5 million) over five years. This would comprise risk modeling, product design, capacity building within the GoP and insurers, and evaluation of the program.

The World Bank Group team noted that annual premium and operating costs would depend heavily on the number of beneficiaries, the expected penetration rates over time, the agreed compensation levels per hectare (sum insured), the return period for the triggers, and therefore the premium rates. An indicative cost over five years could be in the order of US\$75 million (PHP 3.83 billion) (premium and operating costs) to protect subsistence farmers with less than 1 ha of land (a total of 3.12 million beneficiaries and 1.05 million ha of cultivated rice and maize). This assumes a compensation level of 50 percent of the cash costs per hectare, payout triggers for each aggregate insurance policy set at 1 in 7.5 years (or a 13.4 percent probability of payout in any given year), and a five-year buildup plan starting with a 5 percent uptake rate in Year 1, rising to 75 percent of eligible farmers by Year 5 (World Bank 2020).

As a simple comparison, this indicative five-year macro-level social protection index insurance budget is roughly equivalent to the current GPS annual budget of PHP 3.5 billion per year to insure about 1.8 million RSBSA-registered farmers using traditional micro-level indemnity-based crop insurance products. The implication is that major cost savings could be possible if the PCIC were to switch to a macro-level index insurance cover.

Recommendations

Depending on the GoP's decision in 2022 on whether to proceed to Phase 2 of the current World Bank technical assistance proposals for designing and implementing large-scale index-based insurance solutions, the World Bank would prepare a revised and fully costed technical assistance proposal and work plan for 2022–2023.

4.10.3. Area yield index insurance for semicommercial rice and corn farmers

In the Philippines, AYII could potentially be introduced as a micro-level product for individual semicommercial farmers who borrow from banks and/or as a macro-level social protection cover.

Features of AYII

AYII is a loss-of-crop yield policy that aims to overcome many of the drawbacks of traditional individual farmer MPCl schemes and that is suited to the needs of small-scale farmers. The key feature of this product is that it does not indemnify crop yield losses at the individual-farmer or field level. Rather, an area yield index product makes indemnity payments to farmers according to a yield loss or shortfall measured against an average area yield (the index) in a defined geographical area (e.g., a district, subdistrict, parish, or village), which is commonly referred to as the unit area of insurance (UAI).

The key advantages of the area yield approach are that moral hazard and anti-selection are minimized and the costs of administering such a policy are significantly reduced, making this product much more suitable to be offered to small-scale farmers. Under an AYII policy, yield losses are settled against the area average yield index as opposed to an individual-farmer basis. This means that individual farmers cannot influence the yield outcome, for example, by purchasing cover only for fields in low-lying areas that are subject to flooding and waterlogging (anti-selection) or by applying suboptimal levels of husbandry, P&D management, and weed control (moral hazard) with the expectation of then claiming the yield loss on their crop insurance policy. The costs of operating AYII are much lower than for a MPCl policy, especially because individual-farmer pre-inspections and in-field crop loss assessment are not required. Thus there is the potential to market this product at lower premium costs to small- and medium-size farmers.

The main disadvantage of an AYII policy is the basis risk, namely the risk that the actual yield outcome achieved by individual farmers on their own fields will differ from the average area yield. For example, an individual farmer may incur severe crop production and yield losses due to localized perils, e.g., hail or flooding by a nearby river, but because these localized losses do not have an impact on the county or departmental average yield, the grower does not receive any indemnity. Other problems include the need for an accurate procedure to measure the average area yields in the defined UAI (Table 24).

AYII can be implemented successfully only if farmers in the defined UAI are planting their field crops of rice and corn in roughly the same planting window and using similar crop technology, if the harvesting dates are also similar, and finally if farmers obtain similar average crop yields across the UAI. A wide variation between farmers' practices in planting dates and crop technology and thus in the expected yields and harvest dates tends to invalidate the area yield approach. In the Philippines, it is noted that the planting windows (start and finish dates) for rice in the two main planting/transplanting seasons can be as wide as 60 to 90 days or more in each region. Gutierrez et al. (2019) note that rice seasonal planting windows exceed 100 days in most regions; however, other sources⁵³ suggest that planting windows tend to be much narrower at the individual-barangay level. The length of the planting window is a potential issue that needs to be carefully studied before AYII can be recommended.

To operate an AYII cover, it is necessary to have (i) accurate historical yield data at the local-area level (UAI) as a basis to construct a yield index, and (ii) an objective and accurate method of establishing the actual average yield in the insured growing season to determine if a payout is due or not. In most countries where AYII is being commercially implemented (including India and now Pakistan, as well as Ghana, Kenya, and Uganda in Africa), the governments' agricultural extension services are involved in the implementation of seasonal crop yield surveys based on a random selection of farmers and fields that are then subjected to randomly located subplots (e.g., 5 m × 5 m size); the crop is then harvested from that area, threshed, and weighed once fully dried to estimate the average yield for that plot. In India, these steps are referred to as crop cutting experiments (CCEs). Typically, between 15 to 20 CCEs will be performed in the defined UAI and the yields averaged to determine the actual average yield for that UAI. Where the average actual yield is below the insured yield coverage level, all insured farmers receive a payout based on the amount of yield shortfall in the UAI.

53. Verbal communication from Pula Advisory to World Bank, March 2022.

In the context of the Philippines, there is no tradition of using CCEs to estimate area yields among the major agencies involved in conducting farmer surveys and generating official agricultural statistics on planted and harvested area, production, and yields. The two main official providers of agricultural crop production statistics are the Bureau of Agricultural Statistics (BAS) and the PSA. The PSA conducts nationwide quarterly farmer surveys for rice and corn and other important crops to generate farmers' reported estimates of the provincial and regional crop area, production, and average yield per hectare with a 95 percent level of confidence. This information is then published on its website, which contains data for the past 40 years. Given insurers preferences for actual in-field measurement of crop yields using CCEs, ways of combining the PSA's survey data with small samples of CCEs could usefully be explored going forward.

TABLE 24. PRECONDITIONS FOR OPERATION, ADVANTAGES, AND DISADVANTAGES OF AYII



Preconditions	Advantages	Disadvantages
<ul style="list-style-type: none"> • Homogeneous cropping systems in the defined geographical area (e.g., region, district, county) that form the unit area of insurance (UAI) • Accurate historical regional yield data • Timely, accurate, and impartial procedures for estimating “actual” average yield in the UAI • In some cases, special insurance regulation 	<ul style="list-style-type: none"> • Individual-grower time series yields are not needed • Data are available: regional yield statistics are recorded in most countries • Delivery cost to growers is lower • Product is suited to systemic risk (e.g., drought) • Adverse selection and moral hazard are minimized • No in-field loss assessment is required • Cost of loss assessment is reduced • It is yield-based, so picks up all weather risks and other causes of shortfalls 	<ul style="list-style-type: none"> • Basis risk is an issue (though risk is lower than for weather index insurance) • The product is not suitable for localized perils (e.g., hail) • Accurate measurement of “actual” average yields in the UAIs may be difficult • Farmers’ acceptance may be difficult

Source: World Bank Group.

Experience with AYII in the Philippines

There is some limited experience with piloting AYII in the Philippines:

1. **In 2010, the German Agency for International Cooperation (GIZ) worked closely with the PCIC in conducting a feasibility study for parametric weather index insurance for rice and corn farmers in Leyte Island.** The study concluded that an AYII cover would be more suitable for small-scale farmers because crop losses were due to multiple causes and not only too little or too much rainfall. In addition, the density of ground-based weather stations was insufficient to support WII (Stutley 2010).
2. **In 2013, the PCIC, with the assistance of GIZ, rolled out a pilot AYII program for rice in Leyte Island.** The program was disrupted by Typhoon Yolande, however, which devastated much of the island. The major difficulties experienced during this pilot relate to (i) the lack of historical time series rice crop yield data at the local (barangay) level to be used as the basis to establish the average expected yield and insured yield, and to rate the cover; and (ii) problems in introducing and sustaining systematic CCEs at harvest time to establish the actual area average yields. The pilot was discontinued at the end of 2013.
3. **In 2021, the Pula Advisory (Kenya) conducted an AYII feasibility study for the PCIC for wet season rice in seven provinces.** Pula has major experience in the design and implementation of AYII in Africa and Asia, and it provides training and field services to conduct area yield estimation using CCEs. Pula divided the country into agro-ecological zones for rice growing based on 40 years of CHIRPS (Climate Hazards center InfraRed Precipitation with Station data) satellite rainfall data at a resolution of 5 km × 5 km combined with available rice yield data, and used machine learning to set the agro-ecological zones. The company carried out a dry run in the 2021 wet season and conducted CCEs at harvest time in November of 2021 to establish the actual average yield in each agro-ecological zone, and thus to find out if there was any shortfall on the assumed 70 percent insured yield level. Pula provided training on the CCE methodology to the locally recruited field inspectors and conducted the CCEs in a very short time frame, thereby demonstrating that CCEs can be conducted in the Philippines if training and close supervision are provided (Pula Advisory 2021). While the PCIC was impressed by the results, the corporation does not have any budget to contract international specialists like Pula to design and implement new innovative crop insurance products and programs, and therefore there has been no follow-up to the dry run.

Future directions for AYII for semicommercial rice and corn farmers

There is currently a great deal of research in India and Vietnam to assess the application of remote sensing to the estimation of crop area yields for AYII and to reduce the dependency on time-consuming and costly CCE methods of yield estimation. Vietnam used RIICE (Remote Sensing-based Information and Insurance for Crops in Emerging Economies) to design a satellite-based AYII cover for rice and launched it in the 2020 summer season, and although farmer acceptance of this cover has been disappointingly low to date, the accuracy of the technology in estimating actual area average yields has proven to be very high. Between 2018 and 2020, RIICE-measured rice-planted area was verified against the government statistics office official data, with a deviation ranging from 2.2 percent to 9.5 percent: RIICE-estimated rice yields showed an accuracy level of greater than 89 percent and up to 99 percent across seven provinces (Truong et al. 2021). (See Box 9 for further details of RIICE's satellite-based AYII in Vietnam).

Crop insurance planners in the PCIC and the private sector should actively engage in such research to see if these technological solutions could be applied to insuring small-scale rice farmers in the Philippines.

BOX 9. USE OF SATELLITE TECHNOLOGY IN VIETNAM TO OPERATE AYII FOR RICE FARMERS SINCE 2020



Under the launch of the National Agricultural Insurance Pilot Program (NAIPP) 2 (2019–2021), Vietnam became only the second country in the world, after India, to apply technological innovation to its rice AYII product by switching to a satellite-based remote sensing AYII cover. Sentinel satellite technology using a leaf area index is used to define homogeneous rice growing areas (UAIs), to generate the average rice yield and thus an insured yield, and then, at the time of harvest, to provide estimates of actual rice area yields with a level of accuracy of 90 percent or greater.

Since 2013, the Swiss and German governments have sponsored the RIICE (Remote Sensing-based Information and Insurance for Crops in emerging Economies) project in several major rice producing countries in Southeast Asia, including Cambodia, India, Indonesia, Thailand, and Vietnam.^a RIICE uses satellite imagery (that is free of charge) to support government agencies to measure planted rice area, monitor crop progress during the growing season, and estimate crop production and yields up to the time of harvest to a high degree of precision. In Vietnam, RIICE has been implemented since 2013 by the Ministry of Agriculture and Rural Development (MARD) in conjunction with a consortium whose members include the International Rice Research Institute (IRRI) from the Philippines, the German Agency for International Cooperation (GIZ), SARMAP (a Swiss remote sensing specialist company), the Swiss Agency for Development and Cooperation (SDC), and SwissRe. RIICE enables the Government of Vietnam to monitor and respond to rice crop losses caused by drought, flood, salinity, etc.

RIICE satellite technology can be used to support AYII by providing timely and accurate estimates of the average yields of rice in defined areas (e.g., communes) at the time of harvest and, where yield shortfall has occurred, to trigger payouts accordingly. RIICE technology was first used for crop insurance purposes by the state government of Tamil Nadu in India to support the Pradhan Mantri Fasal Bima Yojana crop AYII program, which had previously relied on sample CCEs on representative farmers' yields in each UAI. The state had experienced major logistical problems in implementing the CCE program, with delays of up to six months or more in approving the area crop yield results and determining whether claims payouts were due or not. Starting in the 2017 Rabi season, RIICE technology was used to estimate crop yields at harvest time and to trigger timely and objective yield shortfall payouts to farmers insured under the PMFBY AYII program (GIZ 2017).

a. RIICE is a PPP program sponsored by the Swiss Agency for Development and Cooperation (SDC) and the German Federal Ministry for Economic Cooperation and Development (BMZ).

Recommendations

1. **The newly formed TWG should commission a technical study into rice planting dates and technology levels at the barangay level** to determine the degree of homogeneity in rice cultivation practices by farmers within the barangay. This in turn will advise whether AYII is a suitable product or not.
2. **The TWG should engage with RIICE remote sensing technology providers to investigate the existing applications of this technology to estimate rice yields as part of an AYII pilot program in the Philippines.**
3. **The TWG should reach out to the BAS and the PSA to discuss options for introducing independent CCEs** on a limited scale under any future pilot AYII program in order to check the satellite-estimated yields for accuracy. In the long term, if the Philippines is going to introduce AYII, government agencies such as BAS and PSA, which are responsible for official estimates of all seasonal crop production and yields, must be involved in any CCEs conducted for insurance purposes in order for the yield results to be officially recognized.
4. **The PCIC should consider options for contracting an international AYII and CCE specialist** to assist the corporation in rolling out a new pilot AYII program between 2022 and 2023. Such a specialist should also coordinate closely with BAS and PSA to ensure they are in full agreement with the CCE methodology that is being considered for the Philippines.
5. **Subject to the government's decisions, if the World Bank is requested to move to Phase 2,** it will develop proposals for a two-year program to design and implement AYII in the Philippines.

4.10.4 Expanding the range of commercial crop, livestock, and aquaculture products and programs

In addition to introducing new index-based insurance products and programs, there is also a need to strengthen PCIC's existing indemnity-based insurance products for commercial crops, forestry, livestock, and fisheries. There are limited opportunities for developing index-based insurance solutions for the HVC, livestock, and fisheries sectors in the Philippines, and there will always be a need for a mix of index- and indemnity-based products and programs. The IFAD-INSURED technical assistance program represents such an initiative to assist the PCIC in strengthening its HVC covers for perennial tree crops such as coffee, cacao, and coconuts.

4.11. REALIGNING THE GOVERNMENT'S SUPPORT TO AGRICULTURAL INSURANCE TO REDUCE THE FISCAL COSTS OF PREMIUM SUBSIDIES

4.11.1. Sustainability of premium subsidies

Currently, the GoP is providing major financial support to the PCIC in the form of GPS, which for the past three years have been set at PHP 3.5 billion per year, rising to PHP 4.5 billion (US\$87.3 million) in 2022 (see Figure 32). Although the DoF has signaled its intention to continue financing premium subsidies, one cabinet official has noted that this trend (of increasing premium subsidies for the PCIC) is not sustainable and that the PCIC's activities must be self-sustaining, if not entirely subsidy-free. For these reasons, the PCIC needs a new business strategy as well as the most capable service management (Caraballo 2021).

According to the DoF, in the past two decades, GPS extended to the PCIC reached PHP 28.8 billion (US\$560 million at current 2022 exchange rates), of which PHP 23.3 billion (81 percent of total) came from the national budget; the other PHP 5.3 billion (19 percent) originated from the Agri-Agra loan penalties collected from banks.

FIGURE 32. EVOLUTION OF THE NATIONAL GPS, 2014–2022 (PHP MILLION)



Source: PCIC data.

Note: GPS = government premium subsidy.

In 2021, the PCIC insured 2.5 million farmers and fisherfolk under its free Special Programs for RSBSA clients, representing 37 percent of the total listed farmers eligible for free insurance: the cost of premium subsidies for these RSBSA beneficiaries was PHP 4.862 billion. If in the future the government plans to extend free insurance to all 6.85 million RSBSA farmers and fisherfolk, the premium subsidy budget could rise to at least PHP 13 billion or even higher (Table 25). It is not known, however, whether the GoP intends to continue financing premium subsidies to achieve 100 percent coverage of all RSBSA clients.

TABLE 25. ESTIMATED COSTS OF PREMIUM SUBSIDIES IF ALL RSBSA FARMERS AND FISHERFOLK ARE INSURED IN THE FUTURE BY THE PCIC UNDER ITS FREE SPECIAL PROGRAMS



	No. of insured farmers and fisherfolk	Premium subsidies (PHP million)
RSBSA 2021 (actual)	1,897,504	3,500
Agri-Agra 2021 (actual)	605,240	1,362
Total Special Programs 2021 (actual)	2,502,744	4,862
Penetration rate (%)	37%	
Total PCIC RSBSA farmers and fisherfolk (projected premium subsidy budget)	6,845,747	13,299

Source: PCIC, March 2022.

Note: RSBSA = Registry System for Basic Sectors in Agriculture.

4.11.2. Drawbacks of free insurance (100 percent–subsidized premiums)

International experience shows that, once a government has introduced agricultural insurance premium subsidies, it is extremely difficult to either reduce the premium subsidy levels or to phase out premium subsidy provision over time (Mahul and Stutley 2010). Farmers form the backbone of the rural economies in many emerging economies and they have a strong political voice, especially when governments propose the reduction of subsidies on input costs, output prices, and/or insurance premiums.

There are major drawbacks to offering farmers 100 percent–subsidized premiums on commercial agricultural insurance schemes: beyond the difficulty of ever reducing or withdrawing such of subsidies, the provision of free insurance is likely to induce moral hazard behavior by farmers who no longer bear any risk themselves and have little incentive to manage and control such risks on their own (e.g., P&D control, etc.).

Over the past decade, the PCIC program has become an almost completely free (100 percent–subsidized) social protection program for most farmers. As shown in Table 26, in 2021 farmers insured under PCIC’s Regular Programs paid premiums of PHP 262.39 million, or just 5.2 percent of the total premium value (PHP 5.086 billion), while the remaining 94.9 percent of premium (PHP 4.824 billion) was funded by the government, mainly in the form of free insurance. This is not necessarily the best way to fund a social protection program, let alone an agricultural insurance program.

TABLE 26. PCIC’S PREMIUM SUBSIDY LEVELS (PERCENT OF PREMIUM) BY PROGRAM, 2021



Insurance Product Lines	PCIC Regular Program	Special Programs						Sub-Total special Programs	Total all Programs
		RSBSA	Non-RSBSA	DA Rice & Corn	DA- PLEA	DA- SURE	DA-DAR-LBP-APCP		
Rice	55%	100%	100%	100%	100%	100%	100%		
Corn	55%	100%	100%	100%	100%	100%	100%		
High Value Crops	0%	100%	100%		100%	100%	100%		
Livestock	0%	100%	100%		100%	100%	100%		
Fisheries	0%	100%	100%		100%	100%	100%		
Na	0%	100%	100%		100%	100%	100%		
CLTIP	0%				100%	100%	100%		
No Insured 2020	804,032	1,753,144	490,158	17,103	9,958	1,121	14,735	2,286,219	3,090,251
Premium Paid by farmers(Mio)	262.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	262.39
Premium Subsidies(Mio)	146.32	3,556.35	833.96	172.91	27.19	0.97	86.35	4,677.73	4,824.05
Total Premium(Mio)	408.71	3,556.35	833.96	172.91	27.19	0.97	86.35	4,677.73	5,086.44

Source: Analysis of PCIC 2021 data.

Note: APCP = Agrarian Production Credit Program; CLTI = credit and life term insurance; DA = Department of Agriculture; DAR = Department of Agrarian Reform; LBP = Land Bank of the Philippines; NCI = non-crop agricultural asset insurance; PLEA = Production Loan Easy Access; RSBSA = Registry System for Basic Sectors in Agriculture; SURE = Survival and Recovery.

4.11.3. Recommendations for reforming the agricultural insurance premium subsidy regime

As a starting point for reforming and strengthening the PCIC and the provision of agricultural insurance in the Philippines, government should review which segment(s) of the farming population it wishes to target with subsidized agricultural insurance. It should also review the levels of premium subsidy that can prudently be offered to these different types of farmers.

Furthermore, government should clarify its future strategy for Special Program RSBSA farmers who receive free insurance cover from PCIC. As noted above the current premium subsidy budget of about PHP 5 billion is only adequate to insure about one third (37 percent) of RSBSA clients, and if government plans to extend free protection to all 6.85 million RSBSA farmers the annual costs of premium subsidies would rise to PHP 13 billion or more. Under this review it was not possible to conduct a detailed review of the procedures for targeting and selection of the one-third of

RSBSA farmers who are the beneficiaries of the free crop and livestock and fisheries insurance programs: however, section 3 showed that priority is given first to the poorest farmers or those with less than 1.5 ha, then those with 1.5–2.0 ha, then farmers with 2.0–3.0 ha until the premium subsidy budget is exhausted.

In order to maximize value for money from the premium subsidy budget, a smart premium subsidy regime should be developed and implemented transparently based on a deeper study of the RSBSA and the needs of smallholder farmers.

Recommendations for reforming premium subsidy provision for different segments of the Philippine farming population:

Reform the Special Programs for RSBSA farmers as follows:

- Avoid offering 100 percent–subsidized premiums on micro-level insurance (which is a disincentive for farmers to manage their production risks and creates moral hazard).⁵⁴
- The SC/TWG should study alternative meso- and/or macro-level index-based insurance solutions for the poorest 3.2 million subsistence farmers with less than 1 ha (57 percent of total). Such insurance could operate as a social protection cover funded by central and regional governments.
- For RSBSA semicommercial farmers with 1–3 ha (1.78 million farms; 32 percent of total), seek to reform and reduce premium subsidy levels to a maximum of 65 percent and down to 50 percent over the next three years.
- Stop insuring under the free Special Programs any farmers who have 3–7 ha and switch them to the PCIC's Regular Programs.

Adopt smart premium subsidy principles for other farmers:

- Introduce differential premium subsidy levels for small/medium semicommercial farmers (3–7 ha; e.g., 50 percent subsidy) and larger commercial farmers (> 7 ha; e.g., 25 percent subsidy).
- Cap the maximum amount of premium subsidy that an individual farmer can qualify for to avoid situations where large farmers with several hundred hectares end up capturing a disproportionate amount of the premium subsidy benefit.
- Use differential premium subsidies to promote possible government policies aimed at specific crops, regions, or types of farmers.

Consider alternatives to premium subsidies such as insurance tax concessions:

- Insurance taxes are very high, adding on average 25–27 percent to the costs of insurance premiums in the Philippines (see Box 10).
- The PCIC is exempted from levying insurance taxes on the fully subsidized Special Programs. The corporation is a Non-Value Added Tax entity under Philippine tax laws per the Bureau of Internal Revenue's (BIR's) RR No. 9-2004. The PCIC is subject to percentage and other taxes (presented as "taxes and licenses" in the Statement of Financial Performance). Percentage and other taxes paid consist principally of a gross receipts tax (GRT) and a documentary stamp tax. The PCIC was also designated by the BIR as a withholding tax agent under BIR RR Nos. 17-2003 and 12-94, as amended.
- If all agricultural insurance premiums were exempted from paying insurance taxes, this would greatly reduce the costs of premium and act as a great incentive for semicommercial/ commercial farmers to purchase agricultural insurance from private sector insurers. In many countries, governments exempt farmers from paying insurance premium taxes on agricultural insurance.

54. PCIC notes, however, that under the proposed bill that may be filed for its new charter, the 100 percent premium subsidy was still recommended by the DA for the benefit of smallholder farmers. Semicommercial and commercial farmers may have a different premium [subsidy] structure, notably commercial farmers, who can pay the full premium themselves (Communication from PCIC to World Bank, October 21, 2022).

BOX 10. INSURANCE PREMIUM POLICY TAXES AND CHARGES



In the Philippines, all non-life insurance is subject to the following taxes:

- Stamp duty: 12.5 percent
- VAT: 12.5 percent
- Fire service tax (all property): 2 percent
- Municipal tax: 0.00–0.75 percent
- Supervisory level: variable

All taxes except the stamp duty, which has a flat rate of PHP 15 (US\$0.30), are calculated on gross premium; all taxes and duties are charged by insurers to policyholders. Insurers then pass on the relevant collected taxes to the appropriate revenue authority.

Source: AXCO 2022.

4.11.4. Additional ways for the government to support agricultural insurance in the Philippines

International experience shows that there are many additional ways (apart from funding premium subsidies) by which the GoP could promote the further strengthening and continued expansion of agricultural insurance in the Philippines. If a PPP program is to be introduced in the Philippines in the future, key tasks for the SC and the TWG will be to plan and budget the costs of the GoP's support to the PPP. The government could support agricultural insurance in a number of ways:

- **Enact a suitable legal and regulatory framework** to promote agricultural insurance and the necessary amendments to the current legislation to permit the potential creation of an RMA and possibly an agricultural insurance pool company.
- **Strengthen the existing data and information collection systems** and allow the insurance sector to access them. If AYII is to be expanded in the Philippines, there will be a need for the GoP to invest in strengthening crop yield estimation procedures at the local-area level (e.g., municipality).
- **Promote capacity building, education, and training** of underwriters, farmers, and other stakeholders in agricultural insurance. In the Philippines, the lack of knowledge and understanding of agricultural insurance is a constraint to the uptake of insurance and will require investing in education and training.
- **Support agricultural insurance product design and development.** The task of designing and rating new crop and livestock insurance programs is often technically exacting, time-consuming, and costly. The GoP could support product design and development by creating the RMA, which will research and develop new AYII and WII products that meet the needs of all segments of the farming population, including subsistence farmers with less than 1 ha of land (who represent 57 percent of all farmers in the Philippines).
- **Finance smart premium subsidies** to promote widespread adoption of agricultural insurance. The World Bank recommends that the GoP open up the premium subsidies to both the PCIC and private sector insurers. Premium subsidies are the most common form of government support to agricultural insurance, practiced in over two-thirds of countries with PPPs; however, premium subsidies should be planned very carefully if they are not to become a major fiscal burden to governments.
- **Subsidize agricultural insurance administration and operating costs** (as in the United States and Korea, for example).
- **Participate in risk financing and reinsurance.** Governments often participate as reinsurers of last resort for agricultural insurance programs (examples include Canada, the United States, Spain, Portugal, Brazil, China, and India). Nat Re could participate in the reinsurance program of an agricultural insurance pool company in the Philippines.

5. THE WAY FORWARD (ROADMAP AND TIMETABLE)



5.1. SUMMARY OF KEY FINDINGS AND RECOMMENDATIONS FOR REFORMS TO THE PCIC AND THE AGRICULTURAL INSURANCE MARKET IN THE PHILIPPINES

This report has presented an in-depth analysis of the achievements, results, and performance of the PCIC, the Philippine national flagship agricultural insurer for the past 40 years, followed by a similarly detailed assessment of the technical, operational, and financial issues and challenges faced by the corporation. Based on this assessment and on the World Bank's international experience with agricultural insurance theory and practice in more than 40 countries over the past 20 years, the report presents a series of short- to medium-term recommendations to strengthen and reform the PCIC starting in 2022; more ambitiously, it also identifies medium- to longer-term reforms to the provision of agricultural insurance in the Philippines based on sound market-based principles and aimed at crowding in private sector underwriting expertise and major insurance and reinsurance capacity under a suitable PPP model that should be designed for the Philippines.

The proposed reforms are summarized here and grouped into four areas:



1. Reforms to government policy and support (including subsidies)

- Challenges: Agricultural insurance reaches only one-third of farmers; the national premium subsidy budget is growing but not well focused.
- Recommendation: Enact clear policy reforms to focus the development and provision of agricultural insurance products, with public sector support (including subsidies) targeted to where it is most needed.



2. Reforms to PCIC's operations and capital management

- Challenges: The PCIC premium rating, capital management, reporting, etc. are not in line with international best practice; PCIC's capital is not used efficiently.
- Recommendation: Bring the PCIC under IC oversight; build key functions, analysis, and processes to support efficient decision-making, use of financial resources, and risk management.



3. Reforms to products

- Challenges: The existing products are currently not suitable for the majority of farmers in the Philippines; paid claims do not adequately reflect the losses suffered by farmers.
- Recommendation: Develop new products for noncommercial-scale farmers; refine the existing product basis of indemnity and loss assessment.



4. Reforms to the market structure

- Challenges: Commercial market insurance provision and competition is limited due to significant barriers to entry.
- Recommendation: Crowd in the private sector by giving it access to premium subsidies and considering alternative market structures.

The proposed roadmap focuses on (i) immediate actions to set the objectives and direction of the reforms and to enhance oversight for implementation by the PCIC; (ii) short-term actions to enhance PCIC's operations and carry out initial work to inform medium-term reforms; and (iii) medium-term actions to introduce new products, reform the market structures, and ensure the alignment of premium subsidies with policy objectives.

5.1.1. Immediate actions recommended in 2022

1. **Consult with public and private stakeholders** on the strategic direction of the reforms, based on the proposed roadmap as well as on previous reviews from the IC, the World Bank Group (including the IFC), and others.
2. **Establish a Steering Committee** (in coordination with the PCIC Board) with a high level of responsibility, comprising public and private stakeholders, to set a market-wide agricultural insurance policy, propose legal and institutional reforms, and define the role of the government's support.
3. **Establish a Technical Working Group** (which could build on preexisting technical committees under the PCIC Board) comprising public and private stakeholders to conduct and implement studies and activities to reform and strengthen agricultural insurance.

- 4. Prepare an agricultural insurance reform strategy and/or associated bill to provide direction and a mandate to carry out the reforms.** This should clearly lay out the key policy objectives, as well as the approach to be taken by key actors to develop the provision of agricultural insurance in accordance with those objectives.

These immediate actions can be implemented in 2022.

5.1.2. Immediate and short-term market reforms and actions to be taken by the PCIC beginning in 2022

To improve the operations and cost-efficiency of the PCIC, undertake the following:

- 1. Bring the PCIC under regular IC oversight and reporting** through a government issuance.
- 2. Revise the basis of coverage as well as the indemnity and loss adjustment methodology for existing products.** Such revision should be informed by a deep crop-by-crop analysis and international best practice.
- 3. Develop and refine a clear rating methodology, reinsurance strategy, investment strategy, and dividend strategy.** All should be informed by a thorough actuarial analysis of the PCIC's risk, risk management, and pricing.

To inform the grounding and direction for significant medium-term reforms, undertake the following:

- 1. Conduct feasibility studies for new products,** including a macro-level social disaster protection program for the most vulnerable and an AYII scheme for semicommercial farmers.
- 2. Develop and review options for premium subsidy reform** informed by a broad stakeholder consultation as well as affordability and behavioral studies.
- 3. Conduct an international knowledge exchange,** including a study tour of different insurance schemes around the world (e.g., Turkey, India, Thailand, and Spain).

The implementation of these actions can begin in 2022.

5.1.3. Medium-term PCIC and market reforms and actions (2022 to 2024)

- 1. Reform the legal framework for the provision of agricultural insurance and develop a market structure to crowd in private sector insurers.**
 - Market structure options include open-market competition and the creation of a pool to increase access to capital and expertise and grow the market.
- 2. Design and implement products to better fit the needs of Philippine farmers.**
 - Products may include parametric macro social disaster protection for the most vulnerable and AYII schemes for semicommercial farmers.
- 3. Reform premium subsidy and public financial support to agricultural insurance, as follows:**
 - Open access to premium subsidies to private sector insurers.
 - Refine eligibility for premium support based on farm size, priority crops, and regions.
 - Rationalize insurance premium taxes to incentivize the provision of insurance by the private sector.
 - Remove 100 percent-subsidized premiums to incentivize proactive risk management.

These actions can be implemented throughout 2022–2024.

5.2. TIMETABLE OF REFORM ACTIVITIES

TABLE 27. TIMETABLE OF REFORM ACTIVITIES



Step	Reform	2022			2023				2024			
		Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1. Immediate actions												
1	Consult with public and private stakeholders											
2	Reform the agricultural insurance policy (establish an agricultural insurance Steering Committee and a Technical Working Group)											
3	Prepare an agricultural insurance reform strategy and/or associated bill to provide direction and a mandate to carry out the reforms											
2. Short-term reforms												
1	Bring the PCIC under regular IC oversight and reporting											
2	Revise the basis of coverage as well as the indemnity and loss adjustment methodology for existing products											
3	Develop and refine a clear rating methodology, reinsurance strategy, investment strategy, and dividend strategy											
3. Medium-term reforms												
1	Reform the legal framework for agricultural insurance (crowd in the private sector)											
2	Design/implement new agricultural insurance products and programs											
3	Reform the government's premium subsidy regime (sustainability/affordability)											

Source: World Bank.

Note: IC = Insurance Commission; PCIC = Philippine Crop Insurance Corporation. During finalization of this report, the government has brought the PCIC under IC oversight and taken other measures to advance the recommended reforms.

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A. LIST OF INDIVIDUALS AND ORGANIZATIONS CONSULTED DURING THIS STUDY

Date	Organization	Representatives	Designation
26-Jan-22	Department of Agriculture(DA)	MR.Adrian o Fermin DR.Kario Adriano	Under-Secretary
01-Mar-22	Department of Finance,Bureau of Treasury(DOF-BTr)	Ms.Lea de Leon	Under-Secretary
03-Mar-22	Department of Agriculture(DA)	Sebastian	Under-Secretary
04-Mar-22	Phillippines Crop Insurance Corporation(PCIC)	Mr Luther Romeo c.Sating	Vice President
	Phillippines Crop Insurance Corporation(PCIC)	Mr Manuel J.Cortina	Officer in charge Business Development & Marketing Dept.
	Phillippines Crop Insurance Corporation(PCIC)	Mr.Renator R.Viado	Department Manager 111.Acuarial Research and Product Valuation Department
	Phillippines Crop Insurance Corporation(PCIC)	Jacqueline N.Razon	Finance Manager
	Phillippines Crop Insurance Corporation(PCIC)	Segundo H.Guerrero,Jr;Melba P.Manalo;Eva Ulle D.Laud;Rosalina S.Grabulan;Arvin Jasper R.Aden	PCIC Team Members from various Regions and Departments
07-Mar-22	Phillippines insurance and reinsurance Agency(PIRA)	Mr.Micheal F.Rellosa	Executive Director(Trusted)
	PIRA	Mr.Rogelio J.Conception	General Manager
	PIRA	Mr.Carmencita R Pineda	Executive Asssistant
08-Mar-22	Land Bank Philippines	Lolita S.Huerta	Development Assistance Department Head
09-Mar-22	Insurance Commission(IC)	Dennis Funa	Insurance Commissioner
	Insurance Commission(IC)	Atty.Brian Gale T.Sibuyan	Manager,Regulations,Enforcement and Prosecution Divison
	Insurance Commission(IC)	Arturo S.Trinidad	Deputy Insurance Commisioner
	Insurance Commission(IC)	Randy Serrano	
	Insurance Commission(IC)	Ferdianand George A Florendo	Deputy Insurance Commissioner
	Insurance Commission(IC)	Atty.April Gwen Marquez	Legislative Liasion Officer
	Insurance Commission(IC)	Frances Anne Castillo	
	Insurance Commission(IC)	Atty Czarina.J.Pablo Nepomuceno	IC Division Manager(Chief of Staff)
	Phillippines Crop Insurance Corporation(PCIC)	Mr Luther Romeo C.Sating+Team	Vice President
10-Mar-22	Office of Civil Defence(OCD)	Susan GJuangro	Director 111,Policy Development and planning Service
11-Mar-22	Insured-IFAD	Emily Coleman	Head INSURED program
11-Mar-22	IBISA	Maria Mateo Iborra	CO-Founder IBISA
	IBISA	Jean Baptiste	Co-Founder IBISA
11-Mar-22	Pula Advisory	Rose Gosinga	CEO
18-Mar-22	Phillippines Statitics Authority(PSA)	Reynaldo Vallesteros	Statistian
28-Mar-22	Phillippines Crop Insurance Corporation(PCIC)	Mr Luther Romeo C Salting +Team	Vice President

B. OVERVIEW OF THE AGRICULTURAL INSURANCE PROGRAMS IN THE PHILIPPINES

Features of the agricultural insurance programs

Objectives

In the Philippines, agricultural insurance is conceived as something more than just a risk management tool. While this concept of agricultural insurance as a risk management tool is adopted in the legislation, it has also been viewed as a credit risk reduction mechanism: a collateral to lending institutions to encourage the latter to provide financial assistance to agricultural producers. Thus, the insurance programs of the government are usually linked to government-sponsored credit programs (Bangsal and Mamhot 2012).

Product lines and risks covered

Currently, there are seven insurance products and five insurance programs being administered and implemented by the PCIC. The seven insurance products are:

- Crop insurance for rice
- Crop insurance for corn
- Livestock insurance program
- Fisheries insurance program
- Non-crop agricultural asset insurance program
- High-value commercial crop (HVCC) insurance
- Accident and Dismemberment Security scheme

The seven major agriculture insurance products marketed by the PCIC are currently implemented through Regular (traditional) Insurance Programs and five Special Insurance Programs, namely:

- RSBSA Insurance Program for farmers and fisherfolk listed in the Registry System for Basic Sectors in Agriculture (RSBSA)
- Premium Subsidy/Discount Rice Crop Insurance for DA-LBP Sikat Saka Program
- Premium Subsidy/Discount Program for Unified Lending in Agriculture (PUNLA Track 1)
- Premium Subsidy/Discount for PPI-DA Masaganang Ani 200 Program
- Premium Subsidy/Discount for Agrarian Reform Beneficiaries (ARBs) Participating in the Agrarian Production Credit Program (APCP) and Credit Assistance

Regular Programs insurance products

Rice and corn crop insurance

Agricultural insurance for rice was first offered in 1981, followed by coverage for corn in 1982.

The object of the crop insurance policies issued by the PCIC is the standing crop planted on the farmland as identified in the insurance application. These insurance products are designed to protect farmers against crop losses caused by natural calamities (i.e., typhoon, flood, drought, earthquake, volcanic eruption, and tornado) as well as other perils such as P&D.

The insurance coverage offered by the PCIC for corn and rice can be either a multi-risk or a natural disaster cover. The multi-risk cover offers a comprehensive coverage against crop loss caused by natural disasters, i.e., typhoon, flood, drought, earthquake, and volcanic eruption, as well as pest infestation and plant diseases. The natural disaster cover offers limited coverage against crop loss caused by natural disasters (typhoon, flood, drought, earthquake, or volcanic eruption).

Borrowing and self-financed farmers are eligible for PCIC crop insurance coverage. In this regard, any borrowing farmer or group of farmers who obtains production loans from any lending institution participating in the government-supervised rice production program is eligible for PCIC coverage. Self-financed farmers, farmer organization (FO)/ people's organization (PO), or groups of farmers who agree to place themselves under the technical supervision of an Agricultural Technologist or a Supervising Credit Technician are also entitled to apply for PCIC crop insurance.

Farms must meet minimum preconditions to be eligible to buy PCIC crop insurance policies. In this regard, insured farms under PCIC policies must be suitable for production purposes in accordance with the recommended Good Agricultural Practices (GAP)/Package of Technology (POT), must not be situated in flooding areas (e.g., riverbed, lakebed, marshland, shoreline, or riverbanks), and must have effective irrigation and drainage systems in place.

In the case of rice and corn, PCIC crop insurance policies exclude losses caused by fire due to any cause, and crop losses caused by strong winds and heavy rains not induced by a typhoon. In the case of the exclusion of losses caused by strong winds and heavy rains not induced by a typhoon, there is an implicit understanding that to cover the damage caused by these perils, a named typhoon duly declared by the authority must exist. In the professional opinion of the World Bank, the rice and corn policies should cover losses caused by strong winds and heavy rains irrespective of whether these losses are associated with a named typhoon or not. Other standard insurance exclusions apply to these policies.

The period of coverage starts when the insurance certificate is issued or at the emergence of the crop after seeding (or transplanting if applicable), whichever is later, and ends when the crop is harvested.

PCIC crop insurance policies cover the cost of production of inputs including labor, plus an optional additional amount of cover of up to 20 percent subject to the ceilings defined hereinbelow. The sum insured under the PCIC coverage is defined upon the presentation of a Farm Plan and Budget (FPB), which must be surrendered by the insured farmer to the PCIC along with the insurance proposal and which is part of the insurance contract.

The costs of production insured under PCIC crop insurance policies are subject to the application of insurance ceilings. For rice and corn, the cover ceilings vary depending on the type of seeds used: for rice, PHP 41,000/ha for inbred commercial varieties, PHP 50,000/ha for seed production of inbred varieties as well as for commercial production of hybrid varieties, and PHP 65,000/ha for seed production of hybrid varieties. For corn, the cover ceilings are PHP 76,000/ha for hybrid varieties and PHP 68,000/ha for open-pollinated varieties.

Up to 2014, the PCIC adopted a system of regionally based premium rating for its rice and corn programs according to low-, medium-, and high-risk zones. In the case of annual crops such as rice and corn, premium rates varied depending on the insured crop, the type of zone where the insured farm was located, the crop season, and the risk classification. The premium rates were calculated using historical data on damage rate (ratio of claims to amount of cover). For rice crops, the premium rates varied from 2.39 percent to 19.52 percent, while for corn crops, which are riskier than rice, the premium rates varied from 2.96 percent to 36.62 percent.⁵⁵ Premium rates for the wet season were relatively higher than those for the dry season because wet season planting faces higher production risks (e.g., typhoons, floods, P&D). Premium rates were adjusted according to the risk faced by the crops in each region. In this regard, the rates in risky regions, such as Cagayan, were relatively higher than those in others deemed less risky because loss rates in the former had been higher (based on historical data) compared to those in the latter (refer to Table 28, which shows the national composite rates for rice and corn). It is noted that, in recent years, the PCIC has abandoned the practice of regional rating for all its Special Program clients (who now make up the bulk of its portfolio) and replaced it with a system of single fixed premium rates for each program (e.g., rice and corn premium rates are fixed at 10 percent). It is not known if the PCIC still continues to adopt regional ratings for its Regular Programs clients but if so, it will be necessary to update the premium rates listed in Table 28 to show the applicable ones for 2022.

⁵⁵ Based on information as of 2021 in PCIC, "Citizen's Charter," <https://pcic.gov.ph/citizens-charter/>.



Photo credit: EAP Photo Collection/ World Bank

TABLE 28. NATIONAL COMPOSITE RATES AND PREMIUM SHARING (%) FOR RICE AND CORN INSURANCE IN THE PHILIPPINES, 2014



	Borrowing Farmers				Self-Financed Farmers		
	Farmer	Lending Entity	Government	Total	Farmer	Government	Total
Rice							
Multi-Risk							
Low Risk	1.46%	2.00%	5.90%	9.36%	3.46%	5.90%	9.36%
Medium Risk	2.91%	2.00%	5.90%	10.81%	4.91%	5.90%	10.81%
High Risk	4.37%	2.00%	5.90%	12.27%	6.37%	5.90%	12.27%
Natural Disaster							
Low Risk	1.12%	1.50%	4.22%	6.84%	2.62%	4.22%	6.84%
Medium Risk	2.23%	1.50%	4.22%	7.95%	3.73%	4.22%	7.95%
High Risk	3.35%	1.50%	4.22%	9.07%	4.85%	4.22%	9.07%
Corn							
Multi-Risk							
Low Risk	2.83%	3.00%	10.62%	16.45%	5.83%	10.62%	16.45%
Medium Risk	5.65%	3.00%	10.62%	19.27%	8.65%	10.62%	19.27%
High Risk	8.48%	3.00%	10.62%	22.10%	11.48%	10.62%	22.10%
Natural Disaster							
Low Risk	1.90%	2.00%	7.50%	11.40%	3.90%	7.50%	11.40%
Medium Risk	3.80%	2.00%	7.50%	13.30%	5.80%	7.50%	13.30%
High Risk	5.70%	2.00%	7.50%	15.20%	7.70%	7.50%	15.20%

Source: PCIC 2014.

The procedure to apply for PCIC insurance for rice and corn crops varies depending on whether the farmers are applying individually or as part of a group. For both types of application, farmers must submit a FPB for the definition of the sums to be insured and the exposures at each time of the crop cycle. In the case of individual applications, farmers must also attach an insurance application with basic information about the farmer, the farm (e.g., planting/harvest schedules, farm location, farm size, variety planted, boundaries), and other details needed to determine the coverage. Group applications require the same information as the one provided by individual farmers, but in a bordereauformat. Individual-farmer crop insurance applications can be submitted up to 30 days after the date of sowing of the insured crop if no insured events have taken place. In the case of insurance applications through bank loans, farmers can apply at any time jointly with the application for the loan.

The claims handling process for rice, corn, and HVCs insurance is similar. In the event of an insured loss that may give rise to a claim, the insured farmer, or any immediate member of his/her family, must complete a Claim for Indemnity (CI) form for rice and corn or a Notice of Loss (NL) form for HVCs and submit it to the corresponding PCIC Regional Office (RO) within a determined period (20 calendar days for rice and corn; 10 calendar days for HVCC) after the date of the loss. Claims reporting is subject to deadlines. In the case of losses caused by a typhoon, flood, earthquake, or tornado, a written CI must be reported to the PCIC within twenty (20) calendar days from the occurrence of the loss and before the scheduled date of harvest. In cases where the cause of loss is due to a slow-onset event (e.g., droughts, pest infestation, or plant disease), claims must be filed upon discovery of the loss but in no case later than 10 calendar days before the scheduled date of harvest. For highly perishable HVCs, the NL must be completed and submitted by the farmer to the PCIC within 72 hours (3 days) from the occurrence of the event.

The verification and loss assessment immediately follows the filling of the claim. The verification and loss assessment of crop insurance policies are performed on site by a team of loss adjusters. In the case of rice or corn crops, such team is composed of two members, one from the PCIC and the other from one of the following: Department of Agriculture (DA), Department of the Interior and Local Government (DILG), Department of Agrarian Reform (DAR), National Irrigation Administration (NIA), or the concerned lending institution. In case of a widespread occurrence of a calamity, the DA-PCIC may adopt the collective claims adjustment scheme and the Regional General Assessment Team can be activated.

After verification, the team of loss adjusters submits its findings to the RO. The amount of indemnity or claims paid for rice and corn is based on the stage of cultivation at the time of loss, the actual cost of production investments (CPIs) (as indicated in the FPB) applied at the time of loss, and the percentage of crop loss determined by the loss adjusters.

Crop losses are classified into three loss categories: total loss, partial loss, and no loss. A total loss is defined as any loss due to a risk covered by the insurance policy which prevents the profitable continuation of the crop. The PCIC defines that crops are lost in full when the percentage of loss defined by the loss adjusters is 90 percent or more. A partial loss is defined as any loss due to a risk covered by the insurance policy which does not prevent the profitable continuation of the crop. In this regard, crop losses between 10 and 90 percent are considered as partial losses. Crop losses of less than 10 percent are considered “no loss.”

Crop or yield losses (YL%) are determined based on the prevalence (P) and severity (S) of the damage, applicable loss prediction models (LPM), loss caps, damage matrices, and crop stand.

In the case of total losses, the final amount of indemnity is computed using the following formula:

$$I = (AC/1000) \times IF \}$$

or,

$$I = \{CPI_{atl} + (YC \times DF)\}$$

from both equations, whichever has the lowest results.

Where:

I = amount of indemnity

IF = indemnity factor per the indemnity matrix/table as determined from time to time by the Board

AC = sum of the basic cover (BC) for the cost of production inputs and yield cover (YC) for the portion of expected yield, or adjusted amount of cover (AAC), whichever is lower

YC = yield cover (additional cover for the portion of expected yield not to exceed 20 percent of CPI), if any, or adjusted yield cover (AYC)

CPI atl = cost of production inputs (material inputs and labor) already applied at the time of loss per the team of adjusters' report, if the cost of labor does not exceed 50 percent of the total

DF = distribution factor as determined from time to time by the Board

In the case of partial losses, the following formula is used:

$$I = IBC + IYC$$

Where:

I = amount of indemnity

IBC = indemnity pertaining to the basic cover to be computed as follows:

$$IBC = (BC/1000) \times IF \times AF \}$$

or,

$$IBC = \{[(CPI_{atl}) / (1000 \times DF)] \times IF \}$$

from both equations, whichever has the lowest results.

Where:

CPI atl = cost of the production inputs and labor at the time of loss as determined in the crop loss adjusters' report, if the cost of labor does not exceed 50 percent of total

BC = amount of basic cover representing the cost of production inputs or adjusted basic cover (ABC) amount

IF = indemnity factor per the indemnity matrix/table as determined from time to time by the Board

AF = crop condition adjustment factor, which is based on three categories defined by the stand of plants at the time of the loss:

Description of the stand of plants	Adjustment factor
Actual stand of plants equals at least the expected stand of plants of the standard crop model	1.00
Moderate deviations of the actual stand of plants compared to the standard crop model	0.80
Alarming deviations of the actual stand of plants compared to the standard crop model	0.65

DF = distribution factor as determined from time to time by the Board

IYC = indemnity pertaining to yield cover to be computed as follows:

$$IYC = (YC/1000) \times IF$$

Where:

YC = yield cover pertaining to the additional amount of cover for the portion of the expected yield (not to exceed 20 percent of CPI)

IF = indemnity factor per the indemnity matrix/table as determined from time to time by the Board

If the actual area planted is less than the area per CIC, the amount of cover is adjusted as follows:

$$AAC = ABC + AYC$$

Where:

ABC = adjusted basic cover, which is computed as follows:

$$ABC = (Actual\ Area\ Planted)/(Area\ per\ CIC) \times BC$$

Where:

AYC = adjusted yield cover, which is computed as follows:

$$AYC = (Actual\ Area\ Planted)/(Area\ per\ CIC) \times YC$$

The insurance contracts are treated differently depending on whether the insured farmers are borrowing farmers, whether they are member/borrowers of FOs/NGOs, or if they are self-financed farmers. In the case of borrowing farmers for rice and corn crops, the insurance policies are considered to be automatically assigned to the lending institution/lending conduit where the loans were obtained to the extent of the ratable proportion of the loan to the total amount of cover. For farmers who are members of or borrowers from FOs/NGOs, the proceeds of the indemnity are assigned to the lending institution where said FOs/NGOs obtained their production loans, which were then re-lent to their members, also to the extent of the ratable proportion of the loan to the total amount of cover. For self-financed rice and corn farmers, any assignment of the policy requires prior consent from the PCIC.

PCIC's rice and corn insurance policies also have some in-built benefits for the policyholders. Under such policies, the insured are entitled to a no-claim benefit of 10 percent of their aggregated net premiums paid during the immediately preceding three insured crop seasons if they have not filed any claim for the said crop seasons. In addition to the no-claim bonus, PCIC crop insurance policies also include a death benefit for policyholders. This death benefit is equivalent to PHP 10,000, regardless of the amount of cover, per assured farmer who may suffer death within the term of coverage, provided that said farmer is less than 80 years old at the inception of insurance.

High-value commercial crop insurance (HVCC)

Agricultural insurance for high-value commercial crops (HVCC) started in 1991 for tobacco and was expanded in 1993 to cover other commodities.

The object of the HVCC insurance policies are the standing crops planted on the farmland over which the insured has an interest.

HVCC insurance coverage is offered to plantation owners, cooperative farm farmers, corporate farm owners, and other planters/growers with insurable interest in the farm, who grow HVCs individually or collectively. The precondition for farmers or Farmer Organization (FO)/people's organization (PO) or groups of farmers to buy PCIC HVCC insurance coverage is that they must agree to place themselves under the technical supervision of an Agricultural Technologist.

HVCC insurance policies are designed to protect farmers against crop losses caused by natural calamities such as typhoon, flood, drought, earthquake, volcanic eruption, tornado, plant diseases, and pest infestations. Damages to crops caused by fires of not accidental nature are excluded from the coverage.

HVCC insurance policies provide coverage for a myriad of crops. The crops covered by HVCC insurance include: abaca, ampalaya, anthurium, avocado, baguio beans/snap beans, bamboo, banana, black pepper, broccoli, cabbage, cacao, cacao nursery seedlings, calamansi tree, carrot, cashew tree, cassava, cauliflower, chrysanthemum, celery, coconut, coffee, cotton, cucumber, dragon fruit, durian, eggplant, falcata, garlic, gerbera, ginger, gladioli, guyabano, honeydew, jackfruit, jathropa, lanzones, lemon tree, lettuce, mahogany, mango-fruit, mangosteen, mango-tree, marang, melon, mungbeans, mushroom, oil palm, okra, onion, onion-red, onion-white & yellow, orange tree, pakchoi papaya, patani, patola, peanut, pechay-native & Chinese, pili nut, pineapple, pomelo, potato, purple yum or ube, radish, rambutan, rose, rubber tree, santol, sayote, shallot, sorghum, soybeans, squash, star apple, strawberry, stringbeans/pole sitao, sugarcane, sunflower, sweet peas, sweet potato, sweet/hot/bell pepper, sweetcorn, taro, tobacco, tomato, upo/bottle gourd, watermelon, winged bean, and yam bean/turnips.

The period of coverage varies depending on the duration of the crop cycle of the insured crop. In the case of perennial HVCCs, insurance coverage is issued on a yearly basis for annual, biennial, and perennial crops. In the case of short-duration HVCCs, which mature in less than one (1) year, the period of cover runs from the time of planting to the time of harvesting, subject to some stipulations such as a waiting-period and pre-harvest termination of cover for some crops, as may be specified in the policy.

HVCC insurance policies cover an agreed cost of investment value and, if the farmer wants to, they can also include a portion of the value of the expected yield not to exceed 120 percent of the cost of production. The sum insured is defined upon the presentation of the FPB which must be handed by the insured farmer to the PCIC before inception and which is part of the insurance contract. No monetary sum insured ceilings are established for HVCC insurance.

In the case of PCIC's Regular Programs, HVCC insurance premium rates are market-rated and are not subsidized by the government; however, for Special Program clients (e.g., RSBSA farmers) the HVCC premium rates are 100 percent-subsidized. HVCC crop insurance premium rates range from 2 percent to 7 percent depending on the pre-coverage evaluation and other factors such as agroclimatic conditions, type of soil, terrain, and other location-specific factors (refer to Table 29, below, showing the 2014 premium rates for selected crops under HVCC insurance). HVCC insurance premium rates are subject to a 2 percent tax, plus a 12.5 percent stamp fee. The rates in Table 29 would need updating to show the applicable rates for 2022.



Photo credit: EAP Photo Collection/ World Bank

TABLE 29. PCIC'S PREMIUM RATES FOR HVCC INSURANCE IN THE PHILIPPINES, 2014


Crop	Premium Rate (%)	Crop	Premium Rate (%)	Crop	Premium Rate (%)	Crop	Premium Rate (%)
Abaca	4.99%	Cotton	4.77%	Onion Leek	7.00%	Stringbeans	6.94%
Ampalaya	5.50%	Cucumber	6.32%	Orange Tree	7.00%	Sugarbeet	7.00%
Avocado	7.00%	Durian	7.00%	Paper Tree	7.00%	Sugarcane	3.49%
Baguio Beans	1.55%	Eggplant	5.94%	Papaya	3.16%	Sweet Peas	7.00%
Banana	6.64%	Garlic	4.85%	Patani	7.00%	Sweet Potato	6.62%
Broccoli	7.00%	Ginger	6.91%	Patola	5.50%	Peppers	6.78%
Cabbage	6.34%	Guyabano	7.00%	Peanut	4.35%	Sweetcorn	6.99%
Cacao	6.94%	Honeydew	3.35%	Pechay	5.53%	Tiger Grass	7.00%
Cacao Seedlings	3.34%	Jackfruit	7.00%	Pepper	7.00%	Tobacco	2.01%
Calamansi Tree	6.95%	Lanzones	7.00%	Pineapple	5.24%	Tomato	6.95%
Carrot	6.80%	Lettuce	3.19%	Pole Sitao	4.91%	Upo	
Cashew Tree	7.00%	Mango-Fruit	6.51%	Radish	6.90%	Watermelon	6.65%
Cassava	4.07%	Mango-Tree	7.00%	Rambutan	7.00%	White Potato	5.71%
Cauliflower	7.00%	Mangosteen	7.00%	Sayote	7.00%	Winged Beans	6.03%
Celery	7.00%	Marang	7.00%	Shallot	7.00%	Yam	7.00%
Chinese Pechay	7.00%	Melon	6.07%	Snap Beans	4.69%	Zucchini	7.00%
Coconut	6.91%	Mongo	4.59%	Sorghum	4.63%	Star Apple	7.00%
Coffee	5.53%	Okra	6.43%	Soybeans	5.00%		
Falcata/ Mahogany	7.00%	Oil Palm	4.95%	Squash	5.98%		
Rubber Tree	7.00%	Onion	6.00%	Strawberry	7.00%		

Source: PCIC 2014.

To apply for HVCC insurance cover, farmers must submit a proposal and the required accompanying documents to the PCIC. HVCC insurance proposals are received at the PCIC's Extension Offices, ROs, or its Head Office. The required documentation to apply for HVCC insurance, includes but is not limited to: (i) the application for HVCC insurance; (ii) a map of the location indicating the parcel/parcels to be insured; (iii) the age group in each parcel; (iv) the area corresponding to the age group in each parcel; (v) the tree density for each age group in each parcel; and (vi) if it is a group application, the list of growers comprising the group.

Certain deadlines apply for the submission of claims under the HVCC insurance policies. In this regard, In the event of a loss due to a peril insured against, the insured must send a NL to the PCIC within 3 days of the date of the loss. The NL must include, at least, the information about the time of occurrence of the loss, its nature, description of the cause, and the farmer's assessment of the extent of the damage. Within the next 30 days after the date of the loss, the farmer must provide to the PCIC a formal claim (in a prescribed form), which must be accompanied by proof that the NL was submitted and by actual proofs of the loss (including an aerial survey) as may be required by the PCIC.

The verification and loss assessment immediately follows the filing of the claim. The verification and loss assessment of HVCC insurance policies are performed on site by a team of loss adjusters composed by, at least, two members commissioned by the PCIC. In case of a widespread occurrence of a calamity, the DA-PCIC may adopt the collective claims adjustment scheme and the Regional General Assessment Team shall be activated.

After verification, the team of loss adjusters submits its findings to the RO. The amount of indemnity or claims for HVCC is based on the stage of cultivation at the time of loss, the actual cost of production investments (CPIs) (as indicated in the FPB) applied at the time of loss, and the percentage of crop loss determined by the loss adjusters. In the case of short-term crops, the calculation of the loss is based on the percentage of crop damage, while for perennial trees the basis of calculation of the loss is based on the loss of the stand of trees against a standard defined by the PCIC or the crop density declared by the insured. The application of the CPIs for insurance purposes also differs depending on

whether the insured HVCC is a short-cycle crop or a perennial crop. In the case of short-cycle crops, CPIs are defined on an accumulative basis for each stage of the crop during its crop cycle. In the case of perennial crops, CPIs are defined based on the evolution of the investments deployed by the farmer on the insured crops in each age group. Table 30 presents the CPIs for short-term crops built on the example of the Mustard HVCC Indemnity Schedule. Table 31 presents the CPIs for perennial tree crops built on the example of the Narra Tree HVCC Indemnity Schedule.

TABLE 30. CUMULATIVE COST OF PRODUCTION INPUTS (CPI)/LIABILITY LIMITS FOR MUSTARD CROP		
Stage	# Days after transplanting	Cumulative CPI (% of Total Sum Insured)
1	1-10	33%
2	11-17	66%
3	18-24	84%
4	More than 25	100%

TABLE 31. PCIC'S PERENNIAL HVCC CPI/LIABILITY LIMITS: NARRA TREE HVCC INDEMNITY SCHEDULE					
Age of the crop	Establishment cost for each age counting from outplanting				
	1st year	2nd year	3rd year	4th year	5th year
1st & 2nd month		85%	88%	90%	100%
3rd & 4th month	68%	88%	90%	92%	100%
5th & 6th month	84%	91%	93%	94%	100%
7th & 8th month	92%	94%	95%	96%	100%
9th & 10th month	97%	98%	98%	98%	100%
11h & 12th month	100%	100%	100%	100%	100%

HVCC losses are classified into two categories: total loss and partial loss. A total loss is defined as any loss due to a risk covered by the insurance policy which prevents the profitable continuation of the crop. The HVCC insurance policy establishes that any loss equal to, or greater than, 90 percent would be factored as a total loss. A partial loss is defined as any loss due to a risk covered by the insurance policy which does not prevent the profitable continuation of the crop. The HVCC insurance policy establishes that any loss between 10 and 90 percent would be factored as a partial loss.

In the HVCC policies, the amount of indemnity is based on the actual cost of production inputs already applied by the farmer at the date of the loss as per the FPB (subject to limits stipulated in the policy contract); the prorated cost of the harvested crops; the salvage value (if any); and the percentage of yield loss.

The losses for short-term HVCCs are determined on a yield basis. In the case of a total loss, the indemnity is determined based on the actual costs of the production inputs applied at the time of loss (plus a ratable proportion of the coverage for the portion of yield, if any) subject to the pre-estimated loss limits as shown in Table 30 above. In the case of a partial loss, the indemnity is determined using the following formula:

$$I = [CPI_{atl} + (1 - YL)(CPI_{tot} - CPI_{atl})] - TSV$$

Where:

I = amount of indemnity

YL = estimated percentage yield loss or extent of damage

YC = yield cover (additional cover for the portion of expected yield not to exceed 20 percent of CPI), if any, or adjusted cover (AYC)

CPI atl = actual cost of the production inputs already applied at the time of loss or CPI at the time of loss per the CPI matrix (as determined from time to time by the PCIC), whichever is lower (plus ratable proportion of the coverage for portion of yield, if any)

DF = distribution factor as determined from to time by the Board

CPI tot = total cost of production inputs per the FPB (plus coverage for portion of yield, if any), or total sum insured (TSI), whichever is lower

TSV = total salvage value of the crop, if any

The claim payable under the HVCC policy for short-term crops is subject to the application of a 10 percent deductible of the net sum insured.

The losses for perennial HVCCs are determined based on the losses of the stand of trees against a predetermined standard. In the case of a total loss, the indemnity is determined based on the actual costs of the production inputs applied at the time of loss (plus ratable proportion of the coverage for the portion of yield, if any) subject to the pre-estimated loss limits as shown in Table 31 above. In the case of a partial loss, the indemnity is determined using the following formula:

$$I = (TND \times SLT_{alt} \times TSI) / (SNT \times Ha \times SLT_{ald}) - TSV$$

Where:

I = amount of indemnity

TND = Total number of dead trees

SLT alt = standard limit per tree

TSI = total sum insured, or standard sum insured (SNT × ha × SLT alt), whichever the lowest

SNT = standard number of trees per ha

ha = hectarage covered

SLT ald = standard limit per tree at the last day of the coverage (as defined in Table 31)

TSV = total salvage value

The claims payable under the HVCC policy for perennial crops are subject to the application of a deductible on the net sum insured.

Livestock insurance

The livestock insurance program started in 1988 through a tie-up with the Philippine Livestock Management Services Corporation. Livestock insurance can be bought for cattle, carabao, horse, swine, goat, poultry, and game fowls and animals, covering animal mortality due to accidents, diseases, and other perils affecting the livestock.

The types of insurance covers include: (i) noncommercial mortality insurance for cattle, carabao, horse, swine, goat, and poultry; (ii) commercial mortality insurance cover for cattle, carabao, horse, swine, goat and sheep, and poultry; (iii) special cover for livestock dispersal; and (iv) special cover for game fowls and animals such as fighting cocks and bloodstock.

The covered risks under PCIC's livestock insurance policies vary according to whether the insurance cover is noncommercial, commercial, or a special cover as described in Table 32.

TABLE 32. DESCRIPTION OF THE COVERED RISKS UNDER PCIC'S LIVESTOCK INSURANCE POLICIES


Insurance Cover	Animal	Covered Risks
Noncommercial	Cattle, Carabao, Horse, Swine, Goat and Sheep	Diseases like Liver Fluke, Verminous, Bronchitis, all other parasitic diseases, Leptospirosis, Swine Enzootic Pneumonia, Colibacillosis, Streptococcosis, Tetanus, Aflatoxicosis, Cancerous Diseases, Foot rot, Rabies, Poisoning, Heat Stroke, heart attack, and all other diseases except those appearing in the exclusions in the policy
		Accidental drowning, strangulation, snakebites, and other events of accidental nature except those caused by vehicular accidents
		Fire and/or lightning
		Dog bites (for goat and sheep only); and
	Accidents arising from the transport of animals to and from the farm and place of treatment	
	Poultry	Diseases, typhoon, flood, lightning, and fire
Commercial	Cattle, Carabao, Horse, Swine, Goat and Sheep	All diseases covered in Noncommercial Cover
		All accidents covered in Noncommercial Cover except for fire and lightning; and Accidents arising from the transport of animals to and from the farm and place of treatment
	Poultry	Diseases, typhoon, flood, lightning, and fire
Special Cover	Livestock dispersal	Same risks under Noncommercial Cover
	Game fowls and animals	Same risks under Noncommercial Cover

The PCIC also offers extended livestock insurance coverage which includes coverage for epidemic diseases, transportation, fire, lightning, typhoon, and flood perils excluded in the commercial livestock insurance. The extended livestock insurance coverage is offered on top of the basic coverage, and it is subject to an extra premium (which usually ranges from 0.25 to 0.50 percent of the sum insured depending on the risk), as well to specific conditions in terms of limits, non-deductible franchise, and eligibility.

The insurable livestock is subject to eligibility criteria depending on whether the coverage is for non-commercial livestock mortality insurance or commercial livestock mortality insurance. The number of head that may be insured per farmer under noncommercial insurance is: 2 to 10 for cattle and carabao used for draft, dairy, or as breeder or fattener; 2 to 10 for horses used for draft; 20 to 25 for cattle and sheep used as breeder or fattener; 2 to 10 swine breeders; and 7 to 20 swine fatteners. Under the commercial mortality insurance, the number of head that may be insured by farmer are as follows: 11 or more (or at least 1 animal involving coverage of at least PHP 15,001) for cattle and carabao for draft, dairy, as breeder, or as fattener; a minimum of 11 horses for draft; a minimum of 26 breeder or fattener goat or sheep; at least 26 swine breeders or at least 21 swine fatteners; at least 5,000 broiler chickens; and at least 1,000 pullets and layers of chicken and duck.

PCIC livestock insurance policies establish different sum insured ceilings/caps depending on whether the policy is issued for noncommercial or for commercial livestock mortality. In this regard, the maximum total sum of insurance is less than PHP 110,000 per farmer or PHP 15,000 per head for noncommercial mortality insurance, and PHP 110,000 for commercial mortality insurance.

Table 33 shown below presents the eligibility criteria for the selection of animals under the coverage and the sum insured for commercial and noncommercial livestock mortality insurance.

TABLE 33. ELIGIBILITY CRITERIA FOR THE SELECTION OF ANIMALS UNDER THE COVERAGE AND THE SUM INSURED



Insurance Cover	Animal	Purpose	No. of Heads/ Birds per Farmer	Sum Insured
Noncommercial Mortality Insurance	Cattle and Carabao	Draft, Dairy, Breeder, Fattener	2 to 10	Max total sum insured of less than PHP 110,000, or PHP 15,000 or less per head
	Horse	Draft/Working	2 to 10	
	Goat and Sheep	Breeder, Fattener	10 to 25	
	Swine	Breeder	2 to 10	
Fattener		7 to 20		
Commercial Mortality Insurance	Cattle and Carabao	Draft, Dairy, Breeder, Fattener	11 and up (or at least one (1) animal involving coverage of at least PHP 15,001)	A minimum total sum insured of PHP 110,000
	Horse	Draft/Working	11 (minimum)	
	Goat and Sheep	Breeder, Fattener	26 (minimum)	
	Swine	Breeder	11 (minimum)	
		Fattener	21 (minimum)	
	Poultry-chicken	Broilers	5,000 (minimum)	
		Pullets/Layers	1,000 (minimum)	
Poultry-ducks	Pullets/Layers	1,000 (minimum)		

PCIC livestock insurance policies set out age limits for the animals to be accepted for coverage. These age limits vary by the type and purpose of the animal. In this regard, the age limits settled out in PCIC's livestock insurance policies are as follows: 7 months to 5 years for cattle and carabao; 3 to 5 years for draft horses; 4 months to 1 year for goats and sheep; 6 months to 2 years for swine breeders; 50 days to 6 months for swine fatteners; 1 day to 8 weeks for broiler chicken; 1 day to 75 weeks for chicken pullets/layers; and 12 to 63 weeks for duck pullets/layers. Table 34 presents the age limits for the acceptance of animals for livestock coverage.

TABLE 34. AGE LIMITS FOR THE ACCEPTANCE OF ANIMALS FOR LIVESTOCK COVERAGE



Animal	Purpose	Insurable Age	Remarks
Cattle and Carabao	Draft, Dairy, Breeder, Fattener	7 mos.-5 yrs.	Animals over 5 years but not over 17 years old can be accepted for coverage subject to additional premium.
Horse	Draft/Working	1 yr.-5 yrs.	Animals over 5 years but not over 17 years old can be accepted for coverage subject to additional premium.
Goat and Sheep	Breeder,	4 mos.-1 yr.	Renewable annually up to 7 years old
	Fattener	4 mos.-1 yr.	Until sold, whichever comes earlier
Swine	Breeder	6 mos.-2 yrs.	Can be renewed up to the 4th year of life
	Fattener	45 days-3 mos.	Until sold, whichever comes earlier
Poultry-chicken	Broilers	1 day-8 weeks	
	Pullets/Layers	1 day-75 weeks	Or insurable age could be agreed upon
Poultry-duck	Pullets/Layers	12-75 weeks	Or insurable age could be agreed upon

The premium rates under the PCIC's livestock insurance policies are variable according to the type and purpose of the animal, and the age of the animals upon their acceptance for coverage. Essentially, premium rates are calculated using historical data on the damage rate (ratio of claims to amount of cover). PCIC's livestock insurance policies also differentiate premium rates for different ranges of sum insured.

For livestock insurance, premium rates differ between noncommercial (small-scale or backyard) and commercial cover. In the case of noncommercial livestock insurance, the premium rates are applicable for the first/initial coverage and for any subsequent continued renewal of the policy, and the insured is entitled to the premium rate established for the first/initial coverage, based on the age the animal had when first insured. Table 35 and Table 36 present the premium rates for noncommercial and commercial livestock insurance, respectively.

TABLE 35. PREMIUM RATES FOR NONCOMMERCIAL LIVESTOCK INSURANCE



Animal/ Purpose	Age upon acceptance	Sum Insured (SI) and Premium Rate (% SI)				Deductibles (% SI)
		PHP 7,000 - 9,000	PHP9,001 - 11,000	PHP11,001 - 13,000	PHP 13,001 - 15,000	
Cattle & Carabao Draft, Dairy, Breeder, Fattener	7 mos.-5 yrs.	5.00	5.50	6.00	6.50	N.A.
	6 yrs.	5.25	5.75	6.25	6.75	N.A.
	7 yrs.	5.50	6.00	6.50	7.00	N.A.
	8 yrs.	5.75	6.25	6.75	7.25	N.A.
	9 yrs.	6.00	6.50	7.00	7.50	N.A.
	10 yrs.	6.25	6.75	7.25	N.I.	N.A.
	11 yrs.	6.50	7.00	N.I.	N.I.	N.A.
	12 yrs.	6.75	N.I.	N.I.	N.I.	N.A.
	13-17 yrs.	+6.75	N.I.	N.I.	N.I.	N.A.
Horse Draft/ Working	7 months-5 yrs.	5.00	5.50	6.00	6.50	N.A.
	6 yrs.	5.25	5.75	6.25	6.75	N.A.
	7 yrs.	5.50	6.00	6.50	7.00	N.A.
	8 yrs.	5.75	6.25	6.75	7.25	N.A.
	9 yrs.	6.00	6.50	7.00	N.I.	N.A.
	10 yrs.	6.25	6.75	N.I.	N.I.	N.A.
	11 yrs.	6.50	N.I.	N.I.	N.I.	N.A.
	12 yrs.	6.75	N.I.	N.I.	N.I.	N.A.
	13-17 yrs.	+6.75	N.I.	N.I.	N.I.	N.A.
Swine Fattener	45 days	Total sum insured (TSI) is 70 percent of the value of swine at selling/ slaughter time in the locality but not to exceed PHP 8,000/head. The premium rate per raising period is 3.0 percent for diseases plus 0.50 percent for typhoon and flood.				10%
Swine Breeder	6 months	TSI is 70 percent of the value of swine at time of purchase but not to exceed the following: 1st generation: PHP 12,500; Parent Stock: PHP 31,500; and Grandparent Stock: PHP 52,500.				10%
Goat and Sheep	4 months	10 percent for breeders and fatteners across the options of SI: PHP 1,000; PHP 2,500; and PHP 6,000				10%-20%
Chicken- broilers	1 day	TSI is 70 percent of the prevailing market value in the locality. Premium rate is 0.76 to 1.29 percent depending on the number of days per rearing or growing period.				N.A.
Chicken- Layers	1 day	TSI is 70 percent of the prevailing market value in the locality. Premium rate is 2.60 percent per annum.				N.A.

TABLE 36. PREMIUM RATES FOR COMMERCIAL LIVESTOCK INSURANCE


Animal	Purpose	Sum Insured (SI) PHP per unit	Premium Rate (% SI)	Deductible (% SI)
Cattle & Carabao	Draft, Dairy, Breeder, Fattener	10,000 to 15,000	5.00% to 7.00%	10% to 30%
		15,001 to 20,000	6.00% to 8.00%	
		20,001 to 25,000	7.00% to 9.00%	
		25,001 to 30,000	8.00% to 10.00%	
		30,001 to 50,000	Above 10.00%	
Horse	Draft	T.B.A. with the PCIC	T.B.A. with the PCIC	T.B.A. with the PCIC
Swine	Breeder	70% market value	3.00% to 6.00%	
		70% market value	4.00% to 8.00%	
	Fattener	70% market value	1.75%	
Goat and Sheep	Breeder	20,000	12.00%	
	Fattener	1,000	10.00%	
Poultry-Chicken	Broilers	70% market value	0.24% for typhoon, flood, lightning, & fire	2.5% of Total sum insured (TSI) per event, one loss event limited to one (1) week
			0.52% to 1.05% for diseases	
Chicken- Ducks	Pullets/ Layers	70% market value	2.60% for regular disease and natural calamities (typhoon, flood, lightning, and fire)	2.5% of TSI per event, one loss event to 72 hours or as agreed

Livestock insurance premiums are subject to a 2 percent tax plus a 12.5 percent stamp fee.

Certain exclusions apply to the PCIC's livestock insurance coverage. The destruction and the emergency slaughter of animals by administrative order of the government are expressly excluded from the coverage. PCIC livestock insurance policies do not provide coverage for disappearance, theft, robbery, or confiscation by order of the government. Losses due to herd/flock mismanagement and due to vehicular accidents are excluded as well. Diseases presented in Table 37 are also excluded from coverage by PCIC's livestock insurance policies.

TABLE 37. DISEASES EXCLUDED FROM PCIC'S LIVESTOCK INSURANCE POLICIES



Animal	Excluded Diseases
Cattle & Carabao	Anaplasmosis, Anthrax, Babesiosis, Blackleg, Hemorrhagic Septicemia, Hoof and Mouth Disease, Johne's Disease, Rinderpest, Leucosis, and Tuberculosis
Horses	African Horse Sickness, Infectious Anemia, Racing and/or Participation in Tournaments/Sports and Scab
Swine	Dysentery, Erysipelas, Hog Cholera, Hoof and Mouth Disease, Swine Plague, Porcine Epidemic Diarrhea Virus (PEDv), Salmonellosis, and African Swine Fever (ASF)
Poultry	Avian or Bird Flu, Mycoplasma spp. Infection, and Salmonella

PCIC livestock insurance policies establish waiting periods for the coverage to be effective. Such waiting periods apply to all the risks covered, except for losses due to accidents and for renewed policies. In general, the waiting period is set at 21 calendar days except for diseases, where the waiting period is set at 3 months.

The ultimate net loss under PCIC's livestock insurance policies is defined by the sum insured at the time of loss less the applicable deductible and salvage value. An insured participation on the loss of 10 percent of the sum insured applies for goats and sheep fatteners under the noncommercial livestock insurance, and of 20 percent of the sum insured for horses under the commercial livestock insurance policies. The deductible and salvage value are deducted from the loss to determine the insurance payout. Table 38 presents the percentage of loss assessment for livestock insurance.

TABLE 38. PERCENTAGE OF LOSS ASSESSMENT FOR LIVESTOCK INSURANCE



Insurance Cover	Animal Purpose	Percentage of Loss Assessment/Remarks
Noncommercial	Cattle, Carabao, Swine-breeder, Goat & Sheep-breeder	100 percent of sum insured, less applicable deductible and salvage value
	Swine-fattener	100 percent of the value of animal at the time of loss, based on the table of assessment less applicable deductible and salvage value
	Goat & Sheep-fattener	90 percent of the value of the animal at the time of loss, less applicable deductible and salvage value
Commercial	Cattle, Carabao, Swine, Goat & Sheep	Maximum of 100 percent of sum insured less applicable deductible and salvage value
	Horse	80 percent of the actual cash value of the insured animal at the time of loss but not to exceed 80 percent of the sum insured
	Poultry	Indemnity shall be based on the remaining loss after deduction of the policy deductible
	All animals	Deductible shall be reckoned on a per farm per event basis on varying percentages depending on type of animal and cause/nature of loss

The PCIC does not usually conduct verification and loss assessment for livestock losses. Claims under PCIC's livestock insurance policies are settled within 45 calendar days from the date of the loss. To be entitled to receive an insurance payout, claimants must document the loss within certain deadlines. In this regard, the claimant must send a NL to the PCIC within 10 calendar days from date of the loss and must provide the supporting documentation within 30 days from the date of the loss.⁵⁶ The supporting documentation consists of a claims report jointly with a veterinary disease report, the certificate of ownership, the death certificate, necropsy/laboratory reports (if performed), and photographs of the dead animals to support the claim. Claims for indemnity are merely based on the documents submitted by the insured herder.

56. "(a) Claim for indemnity/loss report, duly accomplished [and signed] by the assured; (b) veterinary disease report, duly accomplished and signed by the authorized veterinarian or LGU livestock inspector/technician; (c) original copy of the certificate of ownership/transfer of large cattle or certified machine cope of memorandum receipt for government-dispersed animals; (d) livestock death certificate; (e) necropsy/laboratory reports, if performed; (f) photographs of the dead animal/s showing clearly the identifying marks ([e.g.,] ear tags, ear notch, brand, or tattoo); [and,] (g) other documents as may be required by the PCIC such as affidavit of two disinterested parties. For poultry [:] (a) weekly loss report; (b) veterinary report accomplished by a duly authorized veterinarian; (c) farm management chart or daily mortality chart; (d) photographs of dead birds; and (e) pertinent proof of proceeds."

Fisheries insurance

Fisheries insurance, meanwhile, is the newest addition to the set of insurance products offered by the PCIC. This program has only been implemented since 2011. The objective of PCIC's fisheries insurance program is to provide insurance protection to fish farmers/fisherfolk/fish growers against losses in unharvested crop or stock in fishery farms due to natural calamities and fortuitous events.

Individual fish farmers/fisherfolk/fish growers, fish farmers/fisherfolk/fish growers congregated in cooperatives/organizations, and aquaculture farms are entitled to be insured under this coverage. The prerequisite for these subjects to access PCIC's insurance is that they must be licensed operators and agree to place themselves under the technical supervision of an accredited Fishery Technologist/Technician.

The PCIC's fisheries insurance program provides coverage for different species and fish production systems. In this regard, PCIC fisheries insurance offers protection to fishponds, fish cages, fish pens, and fishery farms that culture/produce selected fish species such as milkfish, shrimps, groupers, snappers, tilapia, mud crab, pangasius, red tilapia, and seaweeds.

PCIC fisheries insurance offers basic coverage to farmers/fisherfolk/fish growers against the loss of crop/stock due to natural disasters and extended coverage against the loss of crop/stock and other eligible properties due to fortuitous events and force majeure.

Beside other standard exclusions, the PCIC excludes biological risk affecting the biomass. In this regard, losses due to insects, mites, birds, and P&D are expressly excluded from the coverage. The PCIC also excludes intentional destruction and/or killing irrespective if it is by order of an official body or not.

The sum insured is the cost of the production inputs as agreed upon by the PCIC and the insured, provided that in no case shall the coverage exceed the cover ceiling as determined by the PCIC.

The period of coverage includes the whole fish production cycle from the time of stocking up (or the date of policy issuance, whichever the later) to the time of harvest as indicated in the production plan and budget, which must be duly certified by an accredited Fishery Technologist. The insurance contract covers a period not to exceed 120 days from the date of seeding/stocking.

The premium rates under PCIC fisheries insurance range from 2 percent for motorized vessels to 3 percent for nonmotorized vessels. The final rate depends on the result of the evaluation of the risk proposal and other factors such as agroclimatic conditions and terrain, project management factors, and production and loss records. The PCIC calculates the premium rates for fisheries insurance based on experience. Fisheries insurance premiums are subject to a 12 percent VAT tax and a 12.5 percent stamp fee over the basic premium.

Claimants under PCIC fisheries insurance must follow a process to claim losses. In this regard, claimants must surrender a NL to the PCIC containing the basic details of the loss within 2 calendar days from the date of occurrence of the loss and before the stock is harvested. Within 7 days from the date of the loss, the claimant fisherfolk/grower must surrender the claim form with the full description of the loss. Following the receipt of the claim, the PCIC commissions



Photo credit: Ezra Acayan/World Bank

a team of loss adjusters composed of two members (one from the PCIC and one assigned by the Local Government Unit Fishery/ Fisheries Program) to verify the claim and submit its findings back to the PCIC.

The extent of the loss is generally determined based on the severity of the damage with the use of applicable loss prediction models, if available. Any or a combination of the following methods may also be used depending on its practicability: (i) actual production count, if applicable; and/or (ii) production difference approach, where the extent of damage shall be measured and expressed as the ratio of the difference between the average normal production and the actual production.

Insurance payouts are determined by the extent of the loss defined by the loss adjusters subject to the application of a non-deductible franchise of 10 percent and the application of a total constructive loss of 10 percent. In this regard, if the extent of the loss assessed by the loss adjusters is 10 percent and below, then the PCIC considers that the loss is below the non-deductible franchise of 10 percent of the sum insured and determines that no insurance payout would apply. If the adjusters determine that the extension of the loss is 90 percent or above, then the PCIC would consider that the salvage cost is higher than the actual value of the salvage and will pay out in full. If the adjusters determine that the extension of the loss is between 10 and 90 percent, then the PCIC will generate a payout proportional to the extension of the loss.

In the case of a total loss, the indemnity is determined based on the actual cost of production inputs applied at the time of loss, subject to pre-estimated loss limits at the age of the unharvested stock at which the loss occurred. As an example, Table 39 presents the indemnity loss limits for milkfish.

Stage	No. of Days After Stocking/Seeding	Cumulative CPI as % of TSI		
		120 days	100 days	90 days
1	1 – 7	20	26	30
2	8 – 14	24	30	35
3	15 – 21	27	35	40
4	22 – 31	31	39	45
5	32 – 38	34	43	5
6	39 – 45	37	48	55
7	46 – 57	44	56	64
8	58 – 69	51	65	75
9	70 – 75	56	70	81
10	76 – 82	61	78	89
11	83 – 89	68	87	100
12	90 – 113	93	100	
13	114 - 120	100		

In the case of a partial loss (i.e., a loss shall be considered partial if it is still profitable to continue growing the unharvested stock), the indemnity shall be determined as follows:

$$I = [CPI_{atl} + (1 - YL)(CPI_{tot} - CPI_{atl})]$$

Where:

I = amount of indemnity

YL = yield cover (additional cover for the portion of expected yield not to exceed 20 percent of CPI), if any, or adjusted yield cover (AYC)
 CPI atl = actual cost of the production inputs already applied at the time of loss or CPI at the time of loss per the CPI matrix (as determined from time to time by the PCIC), whichever is lower

CPI tot = total cost of the production inputs or total sum insured

YL = estimated percentage yield loss or extent of the damage reported by the team of adjusters, using the following formula:

$$YL = (ANY - AY) / ANY$$

Where:

ANY = average normal yield

AY = actual yield

The claim payable under this policy is subject to a deductible of 10 percent of net exposure.

The claims settlement takes place as expeditiously as possible but not later than 60 days from the submission of the complete claim documents to the PCIC by the insured fish farmers/fisherfolk/fish growers.

The insured is entitled to a no-claim benefit of 10 percent of the premium paid during the immediately preceding growing period not subject to any claim, which can be used toward payment of the premium renewal for the immediately following growing period.

Non-crop agricultural insurance (NCI) program

The objective of the PCIC's non-crop agricultural insurance program is to offer protection of agricultural assets and other related infrastructures directly or indirectly used in the pursuit of agricultural activities, including production and processing, marketing, storage, and distribution of goods and services.

The covered assets under the PCIC's non-crop agricultural insurance program include warehouses, food processing facilities, poultry houses, pig pens, stables, and other related stables. The policy also includes coverage for rural machinery and transport facilities/vehicles used for hauling agricultural products.

PCIC non-crop agricultural insurance policies provide a comprehensive coverage for an array of perils and risks. The policies provide protection against damage to insured property due to fire and lightning for agriculture warehouse and industrial facilities. In addition to fire and lightning, these policies provide all-risk coverage of direct physical loss or damage to the property insured from any external cause for rural machinery. In the case of transport facilities and vehicles used for hauling agricultural products, PCIC's non-crop agricultural insurance policies provide hull and inland cargo coverage. Additional coverage for allied perils (such as typhoon, flood, earthquake, and other perils) loaded onto fire policies may be included subject to the approval of the PCIC's Head Office and subject to additional premium.

The premium rates for non-crop agricultural insurance depend on the type of risk and/or equipment. For fire and lightning risks, as well as for commercial cars, the PCIC sets the premium rates (including applicable discounts and deductibles) in accordance with the prevailing industry practice. For property floaters, on the other hand, the premium rate is based on the prevailing rate in the area, if it is not lower than 1 percent of the sum insured. Non-crop asset insurance premiums are subject to a 12 percent VAT tax and a 12.5 percent stamp fee. PCIC's current rates for non-crop assets insurance are shown in Table 40.

TABLE 40. PREMIUM RATES UNDER THE NON-CROP ASSETS INSURANCE COVERAGE	
Coverage	Rates
1. Fire Insurance	
• Basic	0.336%
• Loading – Typhoon	0.015% to 0.15%
Flood	0.01% to 0.06%
Earthquake	0.144% to 0.48%
2. Property Floater (cars, machinery, etc.)	0.075% to 1.50%

Source: PCIC, "Citizen's Charter," <https://pcic.gov.ph/citizens-charter/>.

The insured under the non-crop agricultural insurance policies must follow a process to claim eventual losses. In the event of a loss, the insured claimant must submit a NL to the PCIC within 10 calendar days after the occurrence of the loss. The insured claimant must send a proof of the loss to the PCIC within 60 calendar days after the occurrence of such loss in the case of fire and lighting, 90 days in the case of rural machinery, and 3 calendar days in the case of vehicles used for hauling agricultural products.

Loss adjustments under PCIC's non-crop agricultural insurance are performed on site by PCIC personnel or by independent adjusters designated by the corporation. The claims are settled as expeditiously as possible upon delivery of all the claim documents by the claimant.

Term insurance (CLTI)

Accident and Dismemberment Security (ADS) scheme

The objective of the Accident and Dismemberment Security (ADS) scheme is to provide protection to agricultural producers, farmers, fisherfolk, and other stakeholders by covering the death or dismemberment of the insured due to accident.

The covered risks under the ADS scheme include death of the insured and/or dismemberment of the following body parts of the insured due to accident: (i) both hands or both feet or sight of both eyes; (ii) either hand or foot and sight of one eye; (iii) one hand and one foot; (iv) either hand or foot; and (v) sight of one eye.

The accident and dismemberment coverage can be purchased either on an individual basis or on a group plan basis, or as a family plan. In essence, all persons related to the agriculture sector who are ages 12 to 80 years old and in a healthy condition are eligible for the ADS scheme. In this regard, the coverage is provided to all agricultural producers, farmers, and fisherfolk, preferably with existing PCIC agricultural and/or crop insurance coverage, including their family members up to the 4th degree of consanguinity or affinity, as well as farm workers and other agricultural stakeholders.

The sum insured and the annual premium under the ADS scheme vary by function of the type of plan. Table 41, shown below, presents the sum insured per policy member and the premiums per type of plan.

TABLE 41. ACCIDENT AND DISMEMBERMENT SCHEME COVERAGE: SUM INSURED PER POLICY MEMBER AND PREMIUMS PER TYPE OF PLAN			
Type of Plan	Sum Insured (SI) per Policy/Member (PHP)		Annual Premium Rate (%)
	Minimum	Maximum Total Amount of Cover per Insured Individual	
Individual	15,000	100,000	0.10% - 0.50%
Group ^a	15,000	100,000	0.10% - 0.50%
Family:	50,000		
• Primary	25,000		
• Secondary	10,000 /child (max. three		
• Tertiary	children 12-21 years old)		

a. Groups of 15 to 25 persons are subject to a premium discount of 5 percent of the SI; groups of more than 40 persons can get a premium discount of 15 percent of the SI.

In the case of death or dismemberment of the insured, the PCIC pays the principal sum of the insurance coverage as stipulated in the certificate of coverage, subject to a limit of 100 percent of the sum insured in the case of loss of life, loss of both hands or both feet or sight of both eyes, loss of either hand or foot and sight of one eye, loss of one hand and one foot; and 50 percent in the case of loss of either hand or foot or loss of sight of one eye. Other benefits under the ADS scheme include medical expenses reimbursements net of other insurance up to 10 percent of the sum insured and a burial benefit of PHP 2,000 whether the death is due to a natural cause or an accident.

Agriculture Producers Protection Plan

The Agriculture Producers Protection Plan is an insurance protection product for agricultural producers, farmers, fisherfolk, and other stakeholders that covers death of the insured due to accident, natural causes, or assault.

In essence, all persons related to the agriculture sector between 12 and 80 years old and in a healthy condition are

eligible for the Agriculture Producers Protection Plan. The following are all eligible for the protection plan: agricultural producers, farmers, and fisherfolk, preferably with existing PCIC agricultural and/or crop insurance coverage, including their family members up to the 4th degree of consanguinity or affinity; farm workers, hired or otherwise; and other agricultural stakeholders.

The premium rate is 0.75 percent, regardless of age. Premiums are inclusive of taxes. The aggregate sum insured per individual must not exceed PHP 100,000.

The Agriculture Producers Protection Plan sets dismemberment/disablement benefits due to accident subject to a limit of 100 percent of the sum insured in case of loss of life, loss of both hands or both feet or sight of both eyes, loss of either hand or foot and sight of one eye, loss of one hand and one foot; and 50 percent in case of loss of either hand or foot or loss of sight of one eye.

Loan Repayment Protection Plan

The Loan Repayment Protection Plan is an insurance protection product for agricultural producers, fisherfolk, and other agricultural stakeholders that guarantees the payment of the face value or the amount of the released agricultural loans by the finance institutions upon the death or total permanent disability of the insured borrower.

The Loan Repayment Protection Plan covers the death or total and permanent disability of the insured resulting from accident, natural causes, and/or murder or assault. Any individual or group of borrowers between 18 and 80 years old with an agricultural loan is eligible for the protection plan.

The sum insured under the Loan Repayment Protection Plan is equal to the amount of the approved loan to the borrower or the full amount of the loan including legitimate interest thereof, subject to a limit of up to PHP 500,000 upon the approval of the PCIC's Head Office.

Premiums vary from 0.375 to 1.50 percent of the loan amount depending on the term of the loan: the lowest rate corresponds to a 3-month loan and the maximum rate to a 12-month loan. Premium rates are inclusive of taxes. Discounts ranging from 5 to 15 percent of the total premium value apply in case of group coverages.

In case of death or total permanent disability of the insured, the PCIC pays the face value of the loan; otherwise, the limit of liability shall be the actual amount released including legitimate interest, if applicable. The payment of the claim is made to the lending institution/cooperative where the loan was obtained. The payment is applied to liquidate and settle the outstanding obligation of the insured borrower. Any excess is paid by the lending institution/cooperative to the primary beneficiary of the borrower.

The three CLTI insurance programs have similar processes for filing the indemnity claim. Within 45 days from the death (or dismemberment or permanent disability, in the case of the ADS2 and AP3, respectively) of the insured, a family member, beneficiary, or representative (or the insured himself, in the case of the ADS scheme and the Agriculture Producers Protection Plan) should file a notice of claim to the PCIC's RO indicating the name and address of the insured, the certificate of coverage number, the cause of death/injury, and the date of death/accident.

Claim documents must be submitted within 90 days of the death/accident of the insured. The following documents are required for all three CLTI packages: death certificate and/or medical certificate of the insured; police report if the event occurred through violent means; and birth certificate of the insured in the case of the insured's death. For the ADS scheme and the Agriculture Producers Protection Plan, the hospital bill as well as the hospital-issued official receipt should be presented for medical reimbursement claims. For the Loan Repayment Protection Plan, the manager of the lending institution or the cooperative involved must fill out a Claimant Statement Form. In case the indicated beneficiary for the ADS scheme dies earlier than the insured, a proof of being the next of kin must be submitted. This is also the case when no endorsement for beneficiary replacement was filed earlier. The PCIC may require the submission of other documents as needed.

Special Programs insurance products

The PCIC currently implements Regular and Special Programs.

Under the Regular Programs, PCIC's clients pay anywhere between less than 50 percent of the total premium amount (rice and corn farmers) to the full amount of the insurance premium (other agricultural producers).

Under the Special Programs, the insurance premium is fully subsidized by the Government. The Special Programs are divided into support programs for farmers and fisherfolk registered in the Registry System for Basic Sectors in Agriculture (RSBSA), namely the RSBSA Program, and those programs supported by the Department of Agriculture

(DA): rice crop insurance under the DA-LBP Sikat Saka Program; insurance premium subsidies under the Program for Unified Lending in Agriculture (PUNLA), and the PPI-DA Masaganang Ani 200 Program (which includes the Agricultural Insurance for Agrarian Reform Beneficiaries under the APCP and the Credit Assistance Program for Program Beneficiaries' Development (CAP-PDB) programs). A detailed description of each of these programs is presented in the following sections of this Annex.

Agricultural insurance program for farmers and fisherfolk under the RSBSA (RSBSA Program)

The RSBSA Program is a special component of the agricultural insurance program implemented by the PCIC. The objective of the program is to protect the investments made by subsistence farmers and fisherfolk in agriculture production. Target farmers and fisherfolk are those listed in the Registry System for Basic Sectors in Agriculture (RSBSA).

The RSBSA is a nationwide database of farmers, fisherfolk, and farm workers built through a survey that was initiated by the Department of Budget Management in 2012. Seventy-five provinces, except the National Capital Region and the Autonomous Region of Muslim Mindanao, are covered by the RSBSA. Currently there are more than 10.9 million agricultural producers recorded in the RSBSA.

Farmers listed in the RSBSA who are not already insured by similar types of insurance are entitled to receive free insurance from the PCIC to cover their crops, livestock, fisheries, and non-crop agricultural assets. The insurance premium for RSBSA subsistence farmers is fully financed by a government premium subsidy worth PHP 3.5 billion (2021 fiscal year allocation) which is paid to the PCIC. Priority is given to those locations that are classified as geo-hazard zones.

The RSBSA Program includes coverage for six product lines administered by the PCIC, which are: (i) rice crops; (ii) corn crops; (iii) high-value crops (HVCs); (iv) livestock insurance; (v) fisheries/aquaculture insurance; and (vi) insurance for non-crop agricultural assets.

Premium rates for the RSBSA Special Program are defined by resolution of the PCIC's Board. For the rice and corn crop insurance product lines, rates are fixed at a flat 10 percent per insured crop with no geographic discrimination according to the risk in each location. Fixed flat rates are also applied to HVCs. In the case of livestock, rates are discriminated either by the final use of the animal or taking into consideration how adapted the animal is to the local conditions. Rates for fisheries/aquaculture farms are also the same across the country but can be adjusted based on the pre-underwriting survey inspections. Table 42 presents the insurance rates for the different product lines of the RSBSA Program.

TABLE 42. INSURANCE PREMIUM RATES FOR THE DIFFERENT PRODUCT LINES UNDER THE RSBSA PROGRAM	
Product line	Rates
Rice and Corn Crops	10%
High-Value Crops	3% for coconut crops and 5% for other crops, which include coverage for P&D
Livestock	<ol style="list-style-type: none"> 1. Swine: Fattener: 1.75% per growing period; Breeder: 3.50% per annum 2. Cattle, Carabao, Horse: Island-Born: 4.00% per growing period; Imported: 5.00% per annum 3. Goat, Sheep: Island-Born: 6.00% per growing period; Imported: 8.00% per annum 4. Poultry (chicken, duck, quail): Broilers: 1.00% per growing period; Pullets/Layers: 2.00% per annum
Nonagriculture Assets	<ol style="list-style-type: none"> 1. Fishing Boats: Motorized: 2.00% per growing period; Nonmotorized: 3.0% per annum 2. Other: Existing premium rates in PCIC's Regular Insurance Programs
Fisheries/ Aquaculture	Based on the results of the pre-underwriting risk survey, but in no case greater than 7%

The insurance policies under the RSBSA Program are subject to maximum limits that depend on whether the insured is a borrower farmer or a self-financed farmer. In the case of borrowing farmers, the limits are defined by the loan amounts received by the farmers, subject to ceilings that depend on the credit program and could be defined either in monetary terms or in area terms. In the case of self-financed farmers, these limits are defined in terms of area. In this regard, the underwriting limits for rice and corn are defined at PHP 20,000/ha. For HVCs, the limit is set at PHP 100,000/ha for all crops (except for banana crops, for which the maximum allowable amount is set at PHP 50,000/ha). The underwriting limits for livestock, nonagricultural assets, and fisheries/aquaculture follow the PCIC's general underwriting guidelines, except for fisheries with production systems based on fish cages, where the limit is set at PHP 300,000 per fish grower.

Farmers' eligibility to access the benefits of the RSBSA Program is subject to a prioritization criterion. Farmers with 1.5 ha of land or smaller plots have priority over farmers with land plots between 1.5 and 2 ha, who in turn have priority over farmers with areas bigger than 2 ha. Farmers participating in programs managed by the DA have priority over farmers that are not enrolled in these programs. Organized groups of farmers under the Sagip Saka have priority over those farmers who are not organized. Women, youth, and indigenous policyholders have priority over other groups. The crops/investments/assets of RSBSA farmers and fisherfolk must not be insured under other programs to access the benefits of the RSBSA Program.

The insurance cover provided by the PCIC under the RSBSA Program is subject to underwriting limitations. Such limitations are defined in terms of the maximum number of units that can be insured for each of the product lines included in the RSBSA Program. The underwriting limitations for each of the product lines in the RSBSA Program are summarized in Table 43.

TABLE 43. UNDERWRITING LIMITS PER INSURED UNDER THE RSBSA PROGRAM 	
Product line	Underwriting limits
Rice, Corn, and HVCs	Up to a maximum of 5 hectares for farmers borrowing from lending institutions and rural credit programs, and up to 3 hectares for self-financed farmers
Livestock	<ol style="list-style-type: none"> 1. Swine: Fattener: maximum of 20 head; Breeder: maximum of 10 head 2. Cattle, Carabao, Horse: Maximum of 10 head with a maximum insured value of PHP 20,000 per head 3. Goat, Sheep: Maximum of 25 head 4. Poultry (chicken, duck, quail): Broilers: maximum of 5,000 head/birds per rearing period; Pullets/Layers: maximum of 1,000 head/birds per rearing period; Quail/Layers: maximum of 5,000 head/birds per rearing period
Nonagriculture Assets	<ol style="list-style-type: none"> 1. Fisheries: Maximum of 3 units of fishing boats/equipment for fishing activities with a maximum gross tonnage of 3 tons each 2. Livestock: ibid the description for livestock 3. Farming: Maximum of 3 units of machines/equipment used for crop activities
Fisheries/ Aquaculture	<ol style="list-style-type: none"> 1. Aquaculture Projects: Inland Ponds of 2,500 sq. meters 2. Mariculture Parks (offshore): <ul style="list-style-type: none"> • Cultured fish in cages: maximum of 400 cubic meters • Cultured fish in pens: maximum of 1,000 sq. meters

The underwriting process depends on whether the insured participants are borrowing farmers or self-financed farmers. In the case of borrowing farmers, the lender, or the program under which the loans were given, is responsible for preparing the application and other documents, and the proposals are approved in batches. In the case of self-financed farmers, they must prepare the proposal and submit the documentation on their own. Claims adjustments and settlement procedures under the RSBSA Program are performed in accordance with PCIC's underwriting manuals.

Insurance partners and collaborators are paid service fees. In this regard, the PCIC pays a service fee of 2 percent of the total premium amount to the lending institutions or program managers—this applies to the rice and corn crop insurance lines. A service fee of 2 percent of the total premium amount is also paid to livestock solicitors. For all the other lines in the RSBSA Program, a service fee of 1 percent of the total amount of premiums applies.

Rice crop insurance for the DA-LBP Sikat Saka Program

The Sikat Saka Program (SSP) is the credit component of the Food Staples Sufficiency Program (FSSP) of the DA. The LBP is the lending conduit of the program.

The PCIC provides full premium subsidy for rice crop insurance coverage of the subsistence farmers participating in the DA-LBP Sikat Saka Program.

In order to qualify for the full premium subsidy, the insured farm needs to meet the following requisites: (i) it must have an effective irrigation system and a functional drainage system; (ii) it must have an area of at least 0.5 ha and a maximum of 5 ha; (iii) it must be situated at least 200 meters from the closest body of water; and (iv) the farm's rice production must be in conditions to economically reach the market (i.e., a transportation network must be reachable from the farm, and it must be located in a generally peaceful and stable region).

The sum insured per policy issued through this program can be as high as the amount of the loan granted by the LBP, and the standard PCIC rice insurance rates apply to this coverage.

To access the crop insurance coverage offered under the program, applicant farmers must pass the scrutiny of the National Irrigation Administration's Irrigators' Association (NIA-IA), which identifies which farmers within the Irrigators' Association qualify for the program in accordance with the lending criteria. If the applicant farmer meets the lending criteria, then the Irrigators' Association focal person assists the qualified member to complete the crop insurance application documents.

Farmers can apply for the coverage either through a group application or an individual application. In the case of a group application, the group must surrender the list of borrowers belonging to the group, the consolidated farm information, the standard plan and budget, and the Group Deed assignment. In the case of individual applications, the farmer must submit a crop insurance application indicating his/her affiliation to an Irrigators' Association, a location sketch, the Farm Plan and Budget, and the Deed assignment in favor of the LBP Lending Center. The insurance applications under this program are received at the PCIC's ROs or Extension Offices in any of the 45 major rice producing provinces where the Sikat Saka coverage is available.

Farmers insured under the Sikat Saka Program must follow certain rules to be entitled to receive insurance payouts. In this regard, the insured farmers must report to the PCIC any deviations from the information reported in the Farm Plan and Budget within 10 days from the actual planting day. In case of loss damage, the insured farmers must submit a NL to the PCIC within 20 days of the date of the loss in case of a typhoon/flood/earthquake event and within 10 days before harvest in case of drought or plant P&D. The CI must be filed within 45 calendar days from the occurrence of the loss using the prescribed form. The existing PCIC policies and procedures on claims adjustment and settlement shall apply on all claims filed.

PCIC's premium subsidy/discount for the Unified Lending in Agriculture (PUNLA Track 1) Program

The PCIC is providing premium subsidies/discounts for free insurance coverage of farms/farm investments that are the subject of agricultural loans to farmers and fisherfolk participating in the PUNLA program. Such premium subsidies/discounts are delivered through the PCIC's RSBSA free crop insurance program.

PUNLA is a special credit facility designed to address the financial needs of small marginal farmers and fisherfolk by offering them fast, convenient, and affordable credit. The program provides institutional and capacity-building support to lending conduits to ensure the effective and sustainable delivery of credit to the intended borrowers in the poorest provinces of the country.

Under PUNLA, the PCIC provides full premium subsidies through its crop insurance products (i.e., rice, corn, and HVCs) as well as for livestock, fisheries, and non-crop agricultural assets product lines. The premium rates applied by the PCIC for the risk written under the PUNLA program vary according to the product line. For rice and corn crops, the standard premium rate for the risk written under the program is 10 percent. For HVCs, the PCIC charges a rate of 3 percent. The standard PCIC's rates apply for livestock, fisheries, and non-crop agricultural assets risks written under PUNLA. The policy limits under PUNLA are subject to a maximum of PHP 100,000, while for the Production Loan Easy Access Program (a component of the PUNLA Program), the policy limits are set at PHP 50,000 per policy.

The submission of the insurance proposals under the PUNLA program is done through accredited lending organizations that must be approved and registered to operate in the program. Such organizations submit the list of eligible farmers/participants in the program to the PCIC. The accredited lending organizations also assist the farmers with

the preparation and submission of the required underwriting documents for insurance coverage. The PCIC reviews the submitted underwriting documents for completeness and, in the event that the documentation is in good order, issues the insurance policies to the farmers.

The claims adjustment and settlement procedures are performed by the PCIC in accordance with the corporation's Operations Manual for its rice and corn crop insurance lines.

PCIC's premium subsidy/discount for the PPI-DA Masaganang Ani 200 Program

The DA promotes the Masaganang Ani 200 Program in support to the DA-Food Sufficiency and Poverty Alleviation Programs. This program is implemented under a PPP with an input supplier (IS) who provides production inputs, as a production loan, to subsistence rice farmers participating in the Masaganang Ani 200 – Plant Now Pay Later (PNPL) Program. The program aims to promote organic farming and will be piloted in M'lang ang Tulunan, North Cotabato.

The PCIC subsidizes in full the insurance premiums for subsistence rice farmers with less than 3 ha of land participating in the Masaganang Ani 200 Program in M'lang and Tulunan, North Cotabato, for insured values of up to PHP 20,000/ha.

The submission of the insurance proposals under the Masaganang Ani 200 Program is done through the IS. The IS submits the list of eligible farmer-participants in the program to the PCIC. The IS also assists the farmers with the preparation and submission of the required underwriting documents for insurance coverage. The PCIC reviews the submitted underwriting documents for completeness and, in the event that the documentation is in good order, issues the insurance policy to the farmers.

The claims adjustment and settlement procedures are performed by the PCIC in accordance with the corporation's Operations Manual.

PCIC premium subsidy/discounts for PPI-DA Masaganang Ani 200 Program Agricultural Insurance for Agrarian Reform Beneficiaries (ARBs) participating in the Agrarian Production Credit Program (APCP) and in the Credit Assistance Program for Program Beneficiaries' Development (CAP-PBD)

The PCIC provides 100 percent-subsidized premiums for insurance coverage to ARBs participating in the APCP and CAP-PBD programs. APCP and CAP-PBD are financing programs being implemented by the DA, the DAR, and the LBP to provide credit to ARBs at an affordable cost, including development assistance and marketing support.

PCIC's agriculture insurance products offered under these programs include: rice crop, corn crop, HVCs, livestock, non-crop agricultural assets (for fixed asset acquisition plan), credit and life term insurance, loan repayment plan (for working capital loans), and fisheries/aquaculture insurance. The PCIC's standard rates and sum insured ceilings apply for these programs.

The programs exclusively target ARBs participating in the APCP and CAP-PBD. The target farmers must cultivate irrigated farms that are suitable for the insured crop, that have not yet been exposed to the covered risks, that are situated more than 200 meters from any body of water or marshland, and that have a functional drainage system.

The conduits for the loans and insurance proposals are the Agrarian Reform Beneficiaries Organizations (ARBOs), Farmer Organizations, cooperatives, NGOs, and rural banks. The proposals are aggregated at the LBP Lending Center, which is also in charge of approving the loans and transmitting the proposals and the documentation to the PCIC. PCIC's ROs process the insurance applications, issue the insurance policies, and/or transmit back to the LBP the list of rejected applications. The institutions participating in this process also assist the farmers with the completion of the applications and the documentation.

The claims adjustment and settlement procedures are performed by the PCIC in accordance with the corporation's Operations Manual.

TABLE 44. SUMMARY OF PCIC'S INSURANCE PRODUCTS

Product Line	Object of insurance	Area Coverage	Amount of cover	Premium rate(%)	Covered Risks	Eligible Borrowers	Period of Coverage
Rice crops	Standing rice crop planted on the land specified by the farmer in the insurance application and which the assured farmer/grower has an insurable interest in	Nationwide	<p>Cost of production inputs per the FPB plus (optional) additional amount of cover up to a maximum of 20 percent subject to the following prescribed cover ceilings per ha:</p> <ul style="list-style-type: none"> Inbred varieties: Irrigated/rainfed – PHP 41,000 per ha; Seed production – PHP 50,000 per ha Hybrid varieties: Commercial production – PHP 50,000 per ha; Seed production – PHP 65,000 per ha 	<ul style="list-style-type: none"> Variable per region, per season, and per risk classification; to be shared by the farmer, lending institution (if borrower), and the government Type of insurance cover: <ul style="list-style-type: none"> Multi-risk cover – Comprehensive coverage against crop loss caused by natural disasters as well as plant diseases and infestation by any major pests Natural disaster cover – coverage against crop losses caused by natural disasters 	<ul style="list-style-type: none"> Natural disasters – typhoons, floods, drought, earthquakes, volcanic eruptions, and tornados Plant diseases – tungro, rice blast/neck rot, grassy stunt, bacterial leaf blight, and sheath blight Pest infestation – rats, locusts, armyworms/cutworms, stem borer, black bugs, and brown plant hopper/hopper burn 	<ul style="list-style-type: none"> Farmer/Farmer Organization (FO) Any borrowing farmer or group of farmers who obtains production loans from a lending institution participating in the government-supervised rice production program and GOCCs/Fis/NGOs/DILG-LGUs-sponsored credit programs. Any self-financed farmers/FO/people's organization (PO), or group of farmers who agree to place themselves under the technical supervision of an Agricultural Technologist, or Supervising Credit Technician Any FO or PO or group of farmers duly qualified under the PCIC's rules and regulations 	Insurance covers the time between the direct seeding or transplanting of the crop up to harvesting; coverage commences from the date of issuance of the Certificate of Insurance Cover (CIC), or from the emergence of seed growth (coleoptiles), if directly seeded or upon transplanting, whichever is later.

Product Line	Object of insurance	Area Coverage	Amount of cover	Premium rate(%)	Covered Risks	Eligible Borrowers	Period of Coverage
Corn crops	Standing corn crop planted on the land specified by the farmer in the insurance application and which the assured farmer/grower has an insurable interest in	Nationwide	Cost of production inputs per the FPB, plus (optional) additional amount of cover up to a maximum of 20 percent subject to the following prescribed cover ceilings per ha: <ul style="list-style-type: none"> • Open-pollinated varieties: PHP 68,000 per ha • Hybrid varieties: PHP 70,000 per ha 	<ul style="list-style-type: none"> • Variable per region, per season, and per risk classification; to be shared by the farmer, lending institution (if borrower), and the government Type of Insurance cover: <ul style="list-style-type: none"> • Multi-risk cover <ul style="list-style-type: none"> – Comprehensive coverage against crop loss caused by natural disasters, as well as plant diseases and infestation by any major pests • Natural disaster cover – coverage against crop losses caused by natural disasters 	<ul style="list-style-type: none"> • Natural disasters –typhoons, floods, drought, earthquakes, volcanic eruptions, and tornados • Plant diseases – stalk rot, banded leaf, and sheath blight • Pest infestation – rats, locusts, armyworms/ cutworms, and corn borers 	<ul style="list-style-type: none"> • Farmer/Farmer Organization eligibility • Any borrowing farmer or group of farmers who obtains production loans from any lending institution participating in the government-supervised corn production program and GOCCs/FIs/NGOs/DILG-LGUs-sponsored credit programs • Any self-financed farmers/ farmer organization (FO)/ people's organization (PO) or group of farmers who agree to place themselves under the technical supervision of an Agricultural Technologist, or Supervising Credit Technician 	Insurance covers the time between the direct seeding or transplanting of the crop up to harvesting; coverage commences from the date of issuance of the Certificate of Insurance Cover (CIC), or from the emergence of seed growth (coleoptiles), if directly seeded or upon transplanting, whichever is later

Product Line	Object of insurance	Area Coverage	Amount of cover	Premium rate(%)	Covered Risks	Eligible Borrowers	Period of Coverage
High-value crops	Standing corn crop planted on the land specified by the farmer in the insurance application and which the assured farmer/grower has an insurable interest in	Nationwide	Cost of production inputs as agreed upon by the PCIC and the insured, including a portion of the value of the expected yield (at the option of the farmer) but not to exceed 120 percent of the cost of production inputs	On a per crop basis depending on the result of the pre-coverage evaluation, type and number of risks sought for coverage, location-specific agro-climatic conditions, type of soil, terrain, farm management practices, and production and loss records; shall range from 2 percent to 7 percent of the total sum insured, subject to deductible and coinsurance provisions	Any, all, or a combination of typhoon, flood, drought, earthquake, volcanic eruption, tornado, plant diseases, pest infestations; provided that the risk/s covered shall be limited to those specified in the policy contract. Other perils may be covered subject to the approval of the PCIC Board.	Farmer/farmer organization eligibility Plantation owners, cooperative farm farmers, corporate farm owners, and other planters/ growers with insurable interest in the farm, who grow HVCs individually or collectively at large scale, may qualify, provided that the crop production activities are supervised by an Agricultural Production Technician, whether he/she be an in-house technician (i.e., employed by the proponent) or a government-employed technician	Shall be on annual basis for annual, biennial, and perennial crops. For short-duration crops which mature in less than one year, the period of cover shall be from planting to harvesting, subject to some stipulations such as waiting period, and pre-harvest termination of cover for some crops, as may be specified in the policy.

Product Line	Object of insurance	Area Coverage	Amount of cover	Premium rate(%)	Covered Risks	Eligible Borrowers	Period of Coverage
Livestock	<ul style="list-style-type: none"> Noncommercial mortality insurance cover for cattle, carabao, horse, swine, goat, and sheep Commercial mortality insurance cover for cattle, carabao, horse, swine, goat and sheep, and poultry Special cover for livestock dispersal, game fowls and animals such as fighting cocks and racehorses 	Nationwide	<ul style="list-style-type: none"> Noncommercial cover: Cattle and carabao – PHP 7,000 to PHP 15,000; Horse – PHP 9,000 to PHP 15,000; Swine – shall be 70% of the value at selling/slaughter time in the locality but not to exceed PHP 8,000/head; Goat and sheep – PHP 1,000 to PHP 6,000 Commercial cover: Cattle and carabao – PHP 10,000 to PHP 15,000; Swine – 70% of market value (breeder), Goat and sheep – PHP 20,000 (breeder), PHP 1,000 (fattener); Poultry – 70% of prevailing market price or as agreed upon 	<ul style="list-style-type: none"> Plantation owners, cooperative farm farmers, corporate farm owners, and other planters/ growers with insurable interest in the farm, who grow HVCs individually or collectively at large scale, may qualify, provided that the crop production activities are supervised by an Agricultural Production Technician, whether he/she be an in-house technician (i.e., employed by the proponent) or a government-employed technician 	<ul style="list-style-type: none"> Noncommercial: Diseases; accidental drowning, strangulation, snakebites, and other events of accidental nature except those caused by vehicular accidents; fire and/or lightning; dog bites (for goat & sheep only) and accidents arising from the transport of animals to and from the farm and the place of treatment Commercial: All risks and diseases that are not included in the noncommercial cover except for fire and lightning; and accidents occurring from the transport of animals to and from the farm and place of treatment Special cover for livestock dispersal and game fowls and animals: same risks as under noncommercial cover 	<ul style="list-style-type: none"> For cattle, carabao, and horse: <ul style="list-style-type: none"> Animals over 5 years old can be accepted for coverage subject to additional premium up to age 17 For goat & sheep: <ul style="list-style-type: none"> breeder, renewable annually up to 7 years old. fattener, until sold whichever comes earlier For swine: <ul style="list-style-type: none"> breeder can be renewed annually up to 4th year of life. swine fattener, until sold whichever comes earlier. Chicken/duck, insurable age could be agreed upon 	

Product Line	Object of insurance	Area Coverage	Amount of cover	Premium rate(%)	Covered Risks	Eligible Borrowers	Period of Coverage
Fisheries/ aquaculture	Unharvested crop/ stock in fishery farms specified in the application for fisheries insurance on the farmland specified on the insurance application	Nationwide	Cost of production inputs, the value of the fish farmer's/ fisherfolk's/fish grower's own labor and that of the members of his/her own household, including the value of labor of hired workers per the fishery's FPB		<ul style="list-style-type: none"> Limited cover of crop/stock due to natural disasters. Extended cover against loss of crop/stock and other eligible properties due to fortuitous events and force majeure. 	<p>Fish Farmer Grower:</p> <ul style="list-style-type: none"> Individual Fish Farmer/ Fisherfolk/Grower Duly licensed owners/operators of fishponds, fish cages, fish pens, and fishery farms who culture/produce selected fish species such as milkfish, shrimps, groupers, snappers, tilapia, mudcrab, and seaweeds, and who agree to be placed under the technical supervision of an accredited Fishery Technologist/ Technician, may qualify for coverage under this program. Fish Farmer/Fisherfolk 	The period of coverage shall be from stocking up to harvest as indicated in the FFPB duly certified by an accredited Technologist. The insurance coverage shall commence from the date of issuance of insurance policy or actual date of seeding, whichever is later.

Product Line	Object of insurance	Area Coverage	Amount of cover	Premium rate(%)	Covered Risks	Eligible Borrowers	Period of Coverage
						<ul style="list-style-type: none"> • /Grower Cooperatives/ Organizations • Duly licensed owners, co-owners, operators, lessees, Fishpond Lease Agreement (FLA) holders, farmer organizations engaged in fish farming/ fisheries projects who culture/produce different fish species such as milkfish, shrimp, groupers, tilapia, mudcrabs, and seaweeds duly endorsed by a Fishery Technologist/ Technician. • Technician. The fish farmers/ fisherfolk agree to place themselves under the technical supervision of an accredited Fishery Technologist/ Technician. <p>Farm:</p> <ul style="list-style-type: none"> • Fishery farms evaluated by a Fishery Technologist/ Technician as suitable for fish farming/fisheries operations. • The farm must be accessible to regular means of transportation • The farm must be located in a generally stable and peaceful area and not be hazardous to health. 	

Product Line	Object of insurance	Area Coverage	Amount of cover	Premium rate(%)	Covered Risks	Eligible Borrowers	Period of Coverage
Non-crop agricultural assets	<ul style="list-style-type: none"> Fire and Lightning – Warehouses for agricultural produce, machineries, and equipment; industrial equipment for processing of agricultural produce; poultry houses, pig pens, stables, and other similar structures; and other related infrastructures Property Floater <ul style="list-style-type: none"> Tractors, threshers, trailers, shallow tube wells, other related farm machineries Commercial Vehicle – Agricultural transport facilities/vehicles used for hauling agricultural products such as trucks and pickups 	Nationwide	Not specified in the brochures/ website	<ul style="list-style-type: none"> Fire and Lightning – premium rating of all risks, including applicable discounts and deductibles, shall be in accordance with the prevailing industry practice. Property Floater – based on the prevailing rate in the area but not to exceed 1.0 percent of the sum insured if the coverage is an initial insurance coverage or the rate is expiring if renewal or a minimum of PHP 400.00 per policy. Commercial Vehicle – shall be in accordance with the prevailing industry practice. 	<ul style="list-style-type: none"> Fire and Lightning – damage to insured property due to fire and lightning Property Floater – all risks of direct physical loss or damage to the property insured from any external cause Commercial Vehicle <ul style="list-style-type: none"> Loss of or damage to the vehicle: <ul style="list-style-type: none"> by accidental collision or overturning consequent of mechanical breakdown or consequent of wear and tear by fire, external explosion, self-ignition or lightning, or burglary, housekeeping or theft by malicious act while in transit (including the processes of loading and unloading) incidental to such transit by road, rail, inland waterway, lift, or elevator. 	The period of insurance cover shall be a maximum of 1 year commencing on the effectivity date or as specified in the policy contract and the payment of premium thereof.	

Product Line	Object of insurance	Area Coverage	Amount of cover	Premium rate(%)	Covered Risks	Eligible Borrowers	Period of Coverage
Credit and life term	<ul style="list-style-type: none"> Agricultural Producers Protection Plan (AP3) – covers death of the insured due to accident, natural causes, and murder or assault Loan Repayment Protection Plan (LRP2) – guarantees the payment of the face value or the approved amount of the agricultural loan upon the death or total dismemberment or disablement of the insured due to accident Accident and Dismemberment Security Scheme (ADS2) – covers death or dismemberment or disablement of the insured due to accident 	Area Coverage	<ul style="list-style-type: none"> Those 66 to 80 years old shall be covered up to a maximum of PHP 50,000 only The amount of insurance is equal to the amount of the approved loan to the borrower or the full amount of the loan including legitimate interest thereof. Provides that the aggregate sum insured per individual shall not exceed PHP 100,000 	<ul style="list-style-type: none"> Premium rate is 0.75%, regardless of age, inclusive of taxes; amount of coverage Depending on the term of loan (up to 12 months): 0.375% to 1.5% of the approved loan/sum insured For Individual and Group – 0.1% to 0.5% of amount insured, per annum For Family – 0.36% of the amount insured, per annum 	<ul style="list-style-type: none"> Death of the insured due to accident, natural causes, or murder or assault Guarantees the payment of the face value or the amount of the approved agricultural loan upon the death or total permanent disability of the insured borrower due to accident, natural causes, or murder or assault Death of the insured due to accident; or dismemberment/loss of the following body parts (i.e., both hands, both feet or both eyes, either hand or foot and sight of one eye; one hand and one foot; either hand or foot and sight of one eye) insured due to accident. 	<p>For the Individual and Group Plan – agricultural producers, farmers, and fisherfolk preferably, with existing agricultural and/or crop insurance coverage from the PCIC, including their family members up to the 4th degree of consanguinity or affinity; farm workers, hired or otherwise; and other agricultural stakeholders between 15 and 80 years old and who are generally healthy.</p> <p>For the Family Plan – agricultural producers, farmers, and fisherfolk, preferably with existing agricultural and/or crop insurance coverage from the PCIC, including their family members up to the 4th degree of consanguinity or affinity; farm workers, hired or otherwise; and other agricultural stakeholders between 12 and 80 years old and who are generally healthy.</p>	<p>Period of cover duration – 1 year.</p> <p>Commencement – On the date indicated in the Certificate of Cover (COC).</p> <p>Termination – On the expiry date indicated in the COC.</p>

C. NUMBER AND AREA OF FARMS/HOLDINGS AND AVERAGE AREA PER FARM/HOLDING BY SIZE, 2012

TABLE 45. FARM HOLDINGS BY SIZE, 2012

Size of Farm	Number	% of Farms	Area (ha)	% of Area	Average Area (ha/Farm)
<0.5ha	2,159,693	38.8%	277,781	3.9%	0.13
0.5<1ha	1,004,633	18.1%	609,084	8.5%	0.61
Sub-Total<1ha	3,164,596	56.9%	886,865	12.3%	0.28
1ha<3ha	1,780,702	32.0%	2,594,815	36.1%	1.46
3<7ha	518,046	9.3%	2,111,232	29.4%	4.08
Sub-Total 3ha<7ha	2,298,748	41.3%	4,706,047	65.5%	2.05
>7ha	99,233	1.8%	1,597,176	22.2%	16.10
Total	5,562,577	100.0%	7,190,087	100.0%	1.29

Source: 2012 Census of Agriculture and Fisheries (CAF).

TABLE 46. NUMBER OF FARM HOLDINGS BY SIZE PER REGION

REGION	NUMBER OF HOLDINGS							Percent Farm Holdings<3Ha	
	Total	Percent of Farm Holdings(%)	..Under 1.0 Hectares	..1.00-2.99 Hectares	..3.00-4.99 Hectares	..5.00-9.99 Hectares	..10.00-24.99 Hectares		..25.00 Hectares and Over
..National Capital Region	38,580	1%	34,079	2,554	902	679	313	53	95%
..Cordillera Administrative Region(CAR)	167,515	3%	124,484	35,026	4,529	2,758	602	116	95%
..Region1 (ILOCOS REGION)	313,398	6%	233,353	71,733	6,189	1,828	277	18	97%
..Region2(CAGAYAN VALLEY)	443,260	8%	267,288	136,482	25,187	11,407	2,646	250	91%
..Region3(CENTRAL LUZON)	361,545	6%	196,570	126,476	24,840	10,889	2,511	259	89%
..Region4-A(CALABARZON)	341,851	6%	190,109	998,609	28,757	18,394	5,585	397	84%
..MIMAROPA Region	277,742	5%	142,317	90,349	24,618	15,721	4,323	414	84%
..Region5(BICOL Region)	486,312	9%	259,366	147,366	44,071	26,678	8,038	793	84%
..Region6(Western VISYAS)	517,796	9%	367,892	122,995	16,773	7,444	2,025	667	95%
..Region7(Central VISYAS)	427,464	8%	336,957	77,088	8,608	3,613	995	203	97%
..Region8(Eastern VISYAS)	412,852	7%	242,770	127,054	29,167	11,992	1,766	103	90%
..Region9(Zamboanga PENNSULA)	212,718	4%	72,771	95,341	25,474	14,694	4,094	344	49%
..Region10(Northern Mindanao)	371,950	7%	198,066	133,768	24,356	12,055	3,140	565	89%
..Region11(Davo Region)	338,344	6%	153,690	128,592	32,096	18,705	4,766	505	83%

REGION	NUMBER OF HOLDINGS							Percent of Farm Holdings(%)	Percent Farm Holdings<3Ha
	Total	..1.00-2.99 Hectares	..3.00-4.99 Hectares	..5.00-9.99 Hectares	-10.00-24.99 Hectares	..25.00 Hectares and Over	Percent Farm Holdings<3Ha		
..Region12(Davao Region)	385,648	7%	153,961	172,367	36,612	18,147	4,105	456	85%
..Region13(Caraga)	183,471	3%	60,253	81,803	23,933	13,403	3,706	373	77%
..Autonomous Region In Muslim Mindanao(ARMM)	282,692	5%	128,767	131,761	14,862	5,815	1,307	180	92%
Total Philippines	5,563,138	100%	3,162,683	1,779,364	370,974	194,222	50,199	5,696	89%

Source: PSA 2018 based on updated 2012 Census of Agriculture and Fisheries data.

TABLE 47. AREA OF FARM HOLDINGS BY SIZE PER REGION



REGION	Total	Percent of Farm Holdings (%)	NUMBER OF HOLDINGS							Percent Farm Holdings <3Ha
			..Under 1.0 Hectares	..1.00-2.99 Hectares	..3.00-4.99 Hectares	..5.00-9.99 Hectares	-10.00-24.99 Hectares	..25.00 Hectares and Over	Percent Farm Holdings <3Ha	
..National Capital Region	20,271	0%	986	3,804	3,089	4,235	4,259	3,899	24%	
..Cordillera Administrative Region(CAR)	138,817	2%	35,202	51,358	16,099	18,454	8,058	9,646	62%	
..Region1 (ILOCOS REGION)	218,658	3%	82,175	99,566	21,487	11,261	3,558	612	83%	
..Region2(CAGAYAN VALLEY)	480,957	7%	67,558	202,938	88,793	71,890	34,988	14,790	56%	
..Region3 (CENTRAL LUZON)	446,176	6%	54,257	186,619	85,865	67,592	33,021	18,822	54%	
..Region4-A (CALABARZON)	497,669	7%	45,463	145,865	99,093	117,417	73,965	15,864	38%	
..MIMAROPA Region	445,568	6%	37,204	136,273	86,216	99,827	57,358	28,689	39%	
..Region5 (BICOL Region)	774,225	11%	67,133	220,519	151,534	169,528	106,781	58,730	37%	
..Region6 (Western VISYAS)	467,789	6%	91,965	175,517	57,766	45,924	27,189	69,428	57%	
..Region7 (Central VISYAS)	292,505	6%	89,672	108,063	29,717	22,365	13,365	29,325	68%	
..Region8 (Eastern VISYAS)	453,641	6%	56,993	188,057	100,903	73,988	22,572	11,128	54%	
..Region9 (Zamboanga PENNSULA)	448,198	6%	29,282	141,078	88,193	92,001	54,678	42,965	38%	
..Region10 (Northern Mindanao)	565,231	8%	51,886	188,913	83,649	74,872	41,597	124,314	43%	
..Region11(Davo Region)	575,559	8%	41,215	190,344	110,304	115,145	35,519	56,662	40%	
..Region12(Davao Region)	638,267	9%	48,658	248,488	124,066	109,250	53,695	54,111	47%	
..Region13 (Caraga)	461,389	6%	22,613	122,620	81,863	83,415	48,587	102,290	31%	
..Autonomous Region In Muslim Mindanao (ARMM)	346,525	5%	50,422	176,913	49,675	33,970	16,735	18,809	66%	
Total Philippines	7,271,445	100%	872,684	2,586,935	1,278,312	1,211,134	662,625	659,625	48%	

Source: PSA 2018 based on updated 2012 Census of Agriculture and Fisheries data.

D. PCIC'S CROP, LIVESTOCK, AND NONAGRICULTURAL INSURANCE PROGRAM PRODUCTION: NUMBER OF POLICIES, AMOUNT OF COVER, PREMIUM, AND INSURED AREA BY YEAR, 2009–2021

TABLE 48. PCIC'S UNDERWRITING PRODUCTION FIGURES, 2009–2021



Number of Insured Farmers by Year									
Year	Rice	Corn	Rice & Corn Combined	High Value Crops	Livestock	Fisheries	NCI	CLTI	Total
2009	90,574	6,165	96,739	2,238	5,070		707	43,259	148,013
2010	88,843	8,595	97,438	1,131	5,672		1,375	45,360	150,976
2011	109,158	12,393	121,551	1,230	7,832	37	735	55,483	186,868
2012	136,339	20,027	156,366	1,221	13,575	2,626	2,627	134,973	311,388
2013	305,120	44,893	350,013	22,173	19,404	7,573	2,408	342,016	743,589
2014	396,415	104,800	501,215	84,418	99,185	588	11,882	220,528	917,814
2015	460,046	121,316	581,362	85,917	174,566	883	13,574	338,628	1,194,932
2016	470,291	118,951	589,242	86,082	124,994	843	7,415	286,448	1,095,024
2017	618,732	179,338	798,070	192,376	216,204	5,771	22,855	462,299	1,697,577
2018	780,383	248,126	1,028,509	308,395	335,921	40,496	4,211	549,961	2,267,493
2019	1,009,685	392,866	1,402,551	344,853	475,000	55,130	6,442	862,860	3,146,866
2020	1,278,887	425,977	1,704,864	284,799	370,346	47,332	4,116	678,794	3,090,251
2021	1,209,572	360,102	1,569,674	295,785	610,330	17,428	51,718	812,605	3,357,540
Total	6,954,045	2,043,549	8,997,594	1,710,620	2,458,101	175,709	130,065	4,833,242	18,308,331

Amount of Cover by Year (Php Million)									
Year	Rice	Corn	Rice & Corn Combined	High Value Crops	Livestock	Fisheries	NCI	CLTI	Total
2009	2,924	228	3,152	99	76		917	1,009	5,253
2010	2,998	255	3,253	80	82		1,421	1,118	5,956
2011	3,461	365	3,826	74	168	26	738	1,760	6,593
2012	3,898	1,534	9,891	3,656	508	71	1,143	16,598	31,867
2013	8,358	1,534	9,891	3,656	508	71	1,143	16,598	31,867
2014	12,394	3,517	15,711	3,621	2,117	114	1,597	10,461	35,621
2015	13,004	3,078	16,082	4,946	3,805	104	973	15,169	41,079
2016	13,887	2,985	16,872	5,766	3,077	100	899	12,373	39,088
2017	18,440	4,926	23,365	8,958	4,833	207	1,358	19,742	58,465
2018	22,766	7,122	29,888	16,266	7,859	1,531	1,026	23,259	79,828
2019	28,859	10,599	39,468	19,180	11,819	2,072	1,634	37,937	112,110
2020	30,602	9,050	369,652	13,159	9,471	1,862	1,051	29,388	94,592
2021	29,299	8,133	37,432	10,642	21,322	674	2,956	37,070	110,096
Total	190,899	52,059	242,958	88,488	65,395	6,784	16,469	211,934	636,392

Premium by Year (Php Million)									
Year	Rice	Corn	Rice&Corn Combined	High Value Crops	Livestock	Fisheries	NCI	CLTI	Total
2009	313	40	353	2	4		6	11	376
2010	317	43	359	2	4		10	11	387
2011	373	65	438	2	9	1	5	13	468
2012	440	84	524	1	13	0	5	18	561
2013	982	298	1,280	242	3	1	6	48	1,611
2014	1,467	656	2,122	399	161	3	12	30	2,727
2015	1,565	591	2,156	167	280	5	13	44	2,665
2016	1,641	581	2,222	207	209	4	11	35	2,688
2017	1,885	536	2,421	502	351	11	28	52	3,365
2018	2,301	740	3,040	1,124	558	84	15	60	4,881
2019	2,895	1,086	3,981	1,005	525	104	21	90	5,725
2020	3,062	941	4,003	555	378	77	11	62	5,085
2021	2,934	832	3,766	444	711	43	50	71	5,085
Total	20,172	6,494	26,666	4,654	3,236	332	192	545	35,625

Insured Area by Year (Hectares)									
Year	Rice (ha)	Corn (ha)	Rice&Corn Combined (ha)	High Value Crops (ha)	Livestock (No. Head)	Fisheries (ha)	NCI	CLTI	Total AREA (HA)
2009	141,325	9,697	151,022	4,466	10,619				155,488
2010	142,403	12,265	154,669	2,776					157,445
2011	165,286	16,817	182,103	2,823					184,926
2012	190,690	23,058	213,748	2,435					216,000
2013	399,145	59,945	459,090	46,937					506,027
2014	530,548	132,603	663,151	129,057					792,208
2015	600,491	152,429	752,921	102,584					855,505
2016	652,544	157,311	789,855	11,168					901,493
2017	856,128	256,066	1,092,194	234,474					1,326,618
2018	1,050,343	371,129	1,421,472	424,395	994,903	5,256			1,845,867
2019	1,342,876	548,547	1,891,423	487,502	1,578,285	8,782			2,378,925
2020	1,454,755	475,920	1,910,675	320,359	1,306,611	8,149			2,231,034
2021	1,366,504	405,759	1,772,265	292,454	2,376,970	3,155			2,064,717
Total	8,833,039	2,621,546	11,454,586	2,161,850	6,267,388	25,342			13616,253

Source: PCIC annual reports.

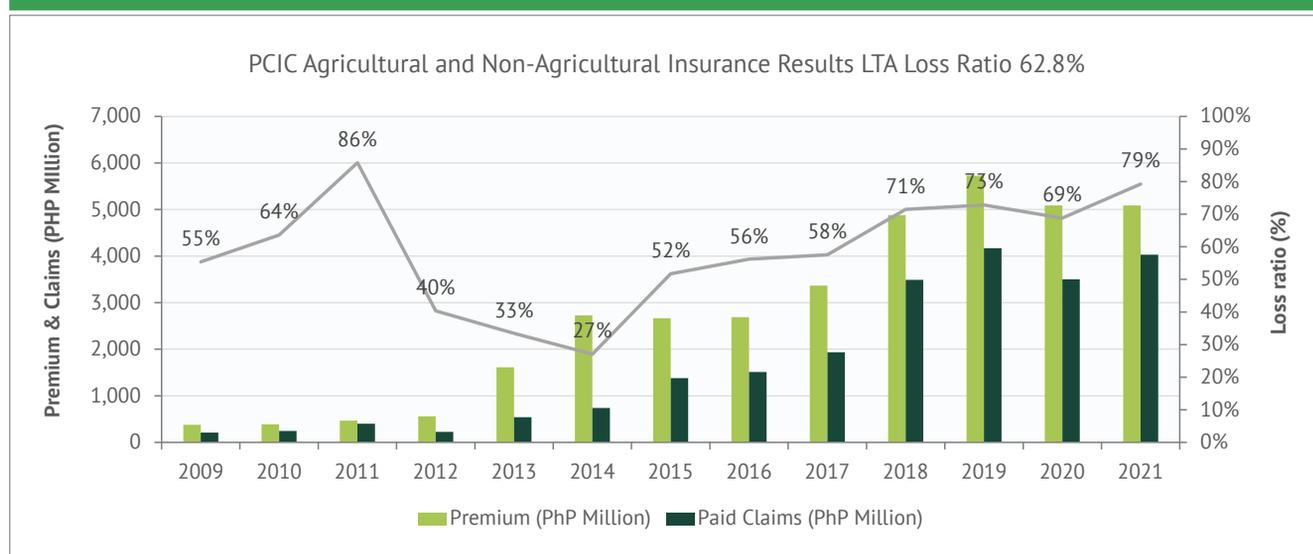
E. PCIC'S INSURANCE RESULTS, 2009–2021

TABLE 49. PCIC'S INSURANCE RESULTS: ALL AGRICULTURAL INSURANCE AND NONAGRICULTURAL INSURANCE PROGRAMS, 2009–2021

Year	No. Insured Policies	Insured Area (Million Ha)	Amount of Cover-TSI (PhP Million)	Premium (PhP Million)	No. Claims	Value of calims(PhP Milion)	%Policies Claimed	Loss Cost(%)	Loss Ratio(%)
2009	148,013	155,488	5,253	376	26,342	208	18%	4.0%	55%
2010	150,976	157,445	5,956	387	28,420	246	19%	4.1%	64%
2011	186,868	184,926	6,593	468	31,865	401	17%	6.1%	86%
2012	311,388	216,000	15,846	561	51,379	226	16%	1.4%	40%
2013	743,589	506,027	31,867	1,611	67,532	539	9%	1.7%	33%
2014	917,814	792,208	35,621	2,727	87,855	738	105	2.1%	27%
2015	1,194,932	855,505	41,079	2,665	154,224	1,379	13%	3.4%	52%
2016	1,095,024	901,493	39,088	2,688	171,700	1,510	16%	3.9%	56%
2017	1,697,577	1,326,618	58,465	3,365	241,096	1,937	14%	3.3%	58%
2018	2,267,493	1,845,867	79,828	4,881	433,188	3,489	19%	4.4%	71%
2019	3,146,866	2,378,925	112,110	5,725	569,344	4,170	18%	3.7%	73%
2020	3,090,251	2,231,034	94,592	5,086	611,998	3,500	20%	3.7%	71%
2021	3,357,540	2,064,717	110,096	5,086	735,970	4,030	22%	3.7%	79%
Total	18,308,331	13,616,253	636,392	35,625	3,210,913	22,374	18%	3.5%	63%

Source: PCIC insurance reports, 2009–2021.

FIGURE 33. PCIC AGRICULTURAL AND NONAGRICULTURAL INSURANCE RESULTS: LONG-TERM AVERAGE LOSS RATIO OF 62.8 PERCENT, 2009–2021



Source: PCIC insurance reports, 2009–2021.

TABLE 50. PCIC'S INSURANCE RESULTS BY PROGRAM: RICE, 2009–2021


RICE							
Year	No Insured Farmers	Insured Area(Ha)	Sum Insured(Php Million)	Premium(Php Million)	Paid Claims(Php Milion)	Average Rate(%)	Loss Ratio(%)
2009	90,574	141,325	2,924	313	196	10.7%	63%
2010	88,843	142,403	2,998	317	213	10.6%	67%
2011	109,158	165,286	3,461	373	375	10.8%	101%
2012	136,339	190,690	3,898	440	186	11.3%	42%
2013	305,120	399,145	8,358	982	379	1.7%	39%
2014	396,415	530,548	12,394	1,467	513	11.8%	35%
2015	460,046	600,491	13,004	1,565	1,040	12.0%	66%
2016	470,291	632,544	13,887	1,641	1,117	11.8%	68%
2017	618,732	836,128	18,440	1,885	1,447	10.2%	77%
2018	780,383	1,050,343	22,766	2,301	2,646	10.1%	115%
2019	1,009,685	1,342,876	28,869	2,895	2,807	10.0%	97%
2020	1,278,887	1,434,755	30,602	3,062	2,234	10.0%	73%
2021	1,209,572	1,366,504	29,299	2,934	2,638	10.0%	90%
Total	6,954,045	8,833,039	190,899	20,172	15,790	10.6%	78%

Source: PCIC insurance reports, 2009–2021.

TABLE 51. PCIC'S INSURANCE RESULTS BY PROGRAM: CORN, 2009–2021


Maize							
Year	No Insured Farmers	Insured Area(Ha)	Sum Insured(Php Million)	Premium(Php Million)	Paid Claims(Php Milion)	Average Rate(%)	Loss Ratio(%)
2009	6,165	9,697	228	40	7	17.5%	18%
2010	8,595	12,265	255	43	27	16.8%	63%
2011	12,393	16,817	365	65	19	17.9%	28%
2012	20,027	23,058	467	84	27	17.9%	33%
2013	44,893	59,945	1,534	298	68	19.4%	23%
2014	104,800	132,603	3,317	656	169	19.8%	26%
2015	121,316	152,429	3,078	591	262	19.2%	44%
2016	118,951	157,311	2,985	581	289	19.5%	50%
2017	179,338	256,066	4,926	536	345	10.9%	64%
2018	248,126	371,129	7,122	740	686	10.4%	93%
2019	392,866	548,547	10,599	1,086	946	10.3%	87%
2020	425,977	475,920	9,050	941	756	10.4%	80%
2021	360,102	405,759	8,133	832	818	10.2%	98%
Total	2,043,549	2,621,546	52,059	6,494	4,420	12.5%	68%

Source: PCIC insurance reports, 2009–2021.

TABLE 52. PCIC'S INSURANCE RESULTS BY PROGRAM: HVCS, 2009–2021


High Value Crops							
Year	No Insured Farmers	Insured Area(Ha)	Sum Insured(Php Million)	Premium(Php Million)	Paid Claims(Php Milion)	Average Rate(%)	Loss Ratio(%)
2009	2,238	4,466	99	2	1	2.0%	70%
2010	1,131	2,776	80	2	1	2.5%	60%
2011	1,230	2,823	74	2	1	3.2%	27%
2012	1,221	2,435	41	1	1	3.6%	61%
2013	22,173	46,937	3,656	242	24	6.6%	10%
2014	84,418	129,057	5,621	199	21	7.1%	8%
2015	85,917	102,584	4,946	167	31	3.4%	26%
2016	86,082	111,638	5,766	207	66	3.6%	32%
2017	192,378	234,424	8,958	502	91	5.6%	18%
2018	308,395	424,395	16,266	1,124	76	6.9%	7%
2019	344,853	487,502	19,180	1,005	245	5.2%	24%
2020	284,799	320,359	13,159	555	290	4.2%	52%
2021	295,785	292,454	10,642	444	205	4.2%	46%
Total	1,710,620	2,161,850	88,488	4,654	1,076	5.3%	23%

Source: PCIC insurance reports, 2009–2021.

TABLE 53. PCIC'S INSURANCE RESULTS BY PROGRAM: LIVESTOCK, 2009–2021


Livestock							
Year	No Insured Farmers	Insured Area(Ha)	Sum Insured(Php Million)	Premium(Php Million)	Paid Claims(Php Milion)	Average Rate(%)	Loss Ratio(%)
2009	5,070	10,619	76	4	2	5.3%	58%
2010	5,672	0	82	4	2	5.4%	43%
2011	7,832	0	168	9	2	5.1%	28%
2012	13,575	0	257	13	6	5.0%	49%
2013	19,404	0	508	33	17	6.6%	50%
2014	99,185	0	2,117	161	10	7.6%	6%
2015	174,568	0	3,805	280	18	7.4%	7%
2016	124,994	0	3,077	209	19	6.8%	9%
2017	216,204	0	4,833	351	22	7.3%	6%
2018	335,921	994,903	7,859	558	40	7.1%	7%
2019	475,000	1,578,285	11,819	525	81	4.4%	16%
2020	370,346	1,306,611	9,471	378	136	4.0%	36%
2021	610,330	2,376,970	21,322	711	242	3.3%	34%
Total	2,458,101	6,267,388	65,395	3,236	599	4.9%	19%

Source: PCIC insurance reports, 2009–2021.

TABLE 54. PCIC'S INSURANCE RESULTS BY PROGRAM: FISHERIES (AQUACULTURE), 2009–2021


Fisheries(Aquaculture)							
Year	No Insured Farmers	Insured Area(Ha)	Sum Insured(Php Million)	Premium(Php Million)	Paid Claims(Php Milion)	Average Rate(%)	Loss Ratio(%)
2009							
2010							
2011	37	0	26	1	0	2.0%	0%
2012	2,626	0	22	0	0	1.9%	0%
2013	7,575	0	071	1	0	1.7%	0%
2014	588	0	114	3	1	2.6%	21%
2015	883	0	104	5	2	4.4%	39%
2016	843	0	100	4	1	3.8%	13%
2017	5,771	0	207	11	4	5.4%	33%
2018	40,496	5,256	1,531	84	8	5.5%	9%
2019	55,130	8,782	2,072	104	27	5.0%	26%
2020	47,332	8,149	1,862	77	28	4.1%	36%
2021	17,428	3,155	674	43	34	6.3%	79%
Total	178,709	25,342	6,784	332	102	4.9%	31%

Source: PCIC insurance reports, 2009–2021.

TABLE 55. PCIC'S INSURANCE RESULTS BY PROGRAM: ALL AGRICULTURAL INSURANCE PROGRAMS, 2009–2021


All Agricultural Insurance Programs							
Year	No Insured Farmers	Insured Area(Ha)	Sum Insured(Php Million)	Premium(Php Million)	Paid Claims(Php Milion)	Average Rate(%)	Loss Ratio(%)
2009	104,047	155,488	3,327	359	207	10.8%	58%
2010	104,241	157,445	3,416	366	243	10.7%	67%
2011	130,350	184,926	4,095	450	397	11.0%	88%
2012	173,788	216,000	9,050	538	221	5.9%	41%
2013	399,165	506,027	14,126	1,557	489	11.0%	31%
2014	685,406	792,208	23,563	2,685	723	11.4%	27%
2015	842,730	855,505	24,937	2,608	1,365	13.5%	52%
2016	801,161	91,493	25,816	2,642	1,492	10.2%	56%
2017	1,212,423	1,326,618	37,364	3,285	1,909	8.8%	58%
2018	1,718,321	1,845,867	55,543	4,807	3,455	8.7%	72%
2019	2,277,534	2,378,925	72,539	5,615	4,105	7.7%	73%
2020	2,407,341	2,231,034	64,143	5,014	3,443	7.8%	69%
2021	2,493,217	2,064,717	70,070	4,964	3,938	7.1%	79%
Total	13,136,736	13,303,320	401,247	34,163	21,536	8.5%	63.0%

Source: PCIC insurance reports, 2009–2021.

TABLE 56. PCIC'S INSURANCE RESULTS BY PROGRAM: NCI, 2009–2021


Non Crop Agricultural Assests Insurance(NCI)							
Year	No Insured Farmers	Insured Area(Ha)	Sum Insured(Php Million)	Premium(Php Million)	Paid Claims(Php Milion)	Average Rate(%)	Loss Ratio(%)
2009	707		917	6	0	0.7%	5%
2010	1,375		1,421	10	0	0.7%	3%
2011	735		738	5	2	0.7%	33%
2012	2,627		746	5	2	0.6%	33%
2013	2,408		1,143	6	43	0.35%	699%
2014	11,882		1,597	12	9	0.8%	77%
2015	13,574		973	13	1	1.3%	10%
2016	7,415		899	11	0	1.2%	4%
2017	22,855		1,358	28	1	2.1%	3%
2018	4,211		1,026	15	1	1.4%	9%
2019	6,442		1,634	21	13	1.3%	61%
2020	4,116		1,061	11	11	1.1%	1.2%
2021	51,718		2,956	50	40	1.7%	80%
Total	127,983		14,130	176	124	1.2%	70%

Source: PCIC insurance reports, 2009–2021.

TABLE 57. PCIC'S INSURANCE RESULTS BY PROGRAM: CLTI, 2009-2021


Credit and Life Term Insurance(CLTI)							
Year	No Insured Farmers	Insured Area(Ha)	Sum Insured(Php Million)	Premium(Php Million)	Paid Claims(Php Milion)	Average Rate(%)	Loss Ratio(%)
2009	43,259		1,009	11	1	1.1%	12%
2010	45,360		1,118	11	2	1.0%	21%
2011	55,483		1,760	13	3	0.7%	20%
2012	134,973		6,050	18	4	0.3%	23%
2013	342,016		16,598	48	7	0.3%	15%
2014	220,526		10,461	30	6	0.3%	19%
2015	338,628		15,169	44	12	0.3%	28%
2016	286,448		12,373	35	18	0.3%	51%
2017	462,299		19,742	52	27	0.3%	52%
2018	549,961		23,259	60	33	0.3%	54%
2019	862,890		37,937	90	53	0.2%	59%
2020	678,794		29,388	62	45	0.2%	73%
2021	812,605		37,070	71	52	0.2%	73%
Total	4,833,242		211,934	545	263	0.3%	48%

Source: PCIC annual reports, 2009–2021.

F. ANALYSIS OF PCIC'S PORTFOLIO COMPOSITION IN 2019 AND 2020: COMMERCIAL FARMERS VERSUS SUBSISTENCE FARMERS INSURED UNDER THE SPECIAL PROGRAMS

TABLE 58. PCIC'S PORTFOLIO BY SOURCE OF PREMIUM, REGULAR AND SPECIAL PROGRAMS, 2019

Insurance Program	No of Insured Farmers	Sum Insured (PHP Million)	% of sum insured	Premium Contributors(Php Million)			Total Premium	Average Premium Rate%	Government Premium Subsidy(Php Million)	%Premium Subsidy	%Total Premium
				Farmer* Lending Institution	PCIC Subsidy	GAA /DA Subsidies					
Special Programs											
RS BSA	16,038,831	50,677	45%		315	3,500	3,815	7.5%	3,815	100%	70%
Non-Rs-BSA	496,576	15,006	13%		1,103		1,103	7.3%	1,103	100%	20%
DA Rice and Com Insurance	23,287	2,237	2%		209	15	224	10.0%	224	100%	4%
DA-Plea	15,246	556	0%		34		34	6.2%	34	100%	1%
DA Sure	2,973	57	0%		5		5	8.3%	5	100%	0%
DA-Yolanda Rehabilitation and Recovery(YRRP)	38,922	2,029	2%			54	54	2.7%	54	100%	1%
DA-DAR-LBP APCP	21,678	1,315	1%		118		118	9.0%	118	100%	2%
Sub-Total Special Programs	2,229,513	71,877	64%	0	1,784	3,569	5,353	7.4%	5,353	100%	98%
PCIC Regular Program											0%
Rice&Corn	65,374	2,269	2%	127	134		261	11.5%	134	51%	0%
High Value Crops	1,873	397	0%	11			11	2.8%		0%	0%
Livestock	16,059	421	0%	14			14	3.3%		0%	2%
Fisheries	2,531	153	0%	5			5	3.2%		0%	0%
sub-Total Agriculture	85,837	3,240	3%	157	134	0	291	9.0%	134	46%	2%
NCI+CLTIP	831,516	36,993	33%	81			81	0.2%		0%	
Total PCIC Regular Programs	917,353	40,223	36%	238	134	0	372	0.9%	134	36%	
Grand Total	3,146,856	112,110	100%	238	1,918	3,569	5,725	5.1%	5,487	96%	

Source: PCIC 2019 annual report.



TABLE 59. PCIC'S PORTFOLIO BY SOURCE OF PREMIUM, REGULAR AND SPECIAL PROGRAMS, 2020

Insurance Program	No of Insured Farmers	Sum Insured (PHP Million)	% of sum insured	Premium Contributors(Php Million)		Total Premium	Average Premium Rate %	Government Premium Subsidy(Php Million)	%Premium Subsidy	%Total Premium
				Farmer* Lending Institution	PCIC Subsidy					
Special Programs										
RS BSA	1,753,144	45,442	48%		56	3,500	7.8%	3,556	100%	74%
Non-Rs-BSA	490,158	12,015	13%		834	0	6.9%	834	100%	17%
DA Rice and Com Insurance	17,103	1,729	2%		167	6	10.0%	173	100%	4%
DA-Plea	9,958	364	0%		27	0	7.5%	27	100%	1%
DA Sure	1,121	28	0%		1	0	3.5%	1	100%	0%
DA-Yolanda Rehabilitation and Recovery(YRRP)										
DA-DAR-LBP APCP	14,735	983	1%		86	0	8.8%	86	100%	2%
Sub-Total Special Program	2,286,219	60,560	64%	0	1,172	3,506	7.7%	4,678	100%	97%
PCIC Regular Programs										
Rice&Corn	82,055	2,457	3%	138	146	0	11.6%	146	52%	3%
High Value Crops	6,276	479	1%	15	0	0	3.1%	0	0%	0%
Livestock	36,025	1,035	1%	41	0	0	3.9%	0	0%	0%
Fisheries	2,060	170	0%	5	0	0	3.0%	0	0%	0%
sub-Total Agriculture	126,416	4,142	4%	198	146	0	8.3%	146	42%	3%
NCI+CLTIP	677,616	29,889	32%	64	0	0	0.2%	0	0%	0%
Total PCIC Regular Programs	804,032	34,032	36%	262	146	0	1.2%	146	36%	3%
Grand Total	3,090,251	94,032	100%	262	1,318	3,506	5.4%	4,824	95%	100%

G. ANALYSIS OF THE SUITABILITY OF SUMS INSURED OFFERED UNDER PCIC'S SPECIAL PROGRAM POLICIES VERSUS THE COSTS OF PRODUCING RICE (PALAY) AND CORN

Data

The data used in this analysis have predominantly been obtained from the Philippine Statistics Authority (PSA). The PSA publishes data on economic statistics pertaining to the agriculture, forestry, and fisheries sectors. The key statistics extracted for rice (palay) and corn are:

- Average product costs and returns by type (of cost)
- Geolocation
- Item
- Season

Further details and definitions for this information can be found on the PSA OpenSTAT website at <https://openstat.psa.gov.ph/>.

Scope and methodology

For this analysis on production costs, only rice and corn crops were considered. These crops make up 76 percent of PCIC's agricultural premium and 74 percent of PCIC's full premium income for the 2020 underwriting year.

When considering the coverage offered by the PCIC, this analysis focuses only on the Special Programs, as these make up 92 percent of the premium volume for the 2020 underwriting year. For the Special Programs, the PCIC offers a maximum sum insured value of PHP 20,000/ha for rice and corn crops across all regions. The coverage offered by the PCIC is to cover production costs only.

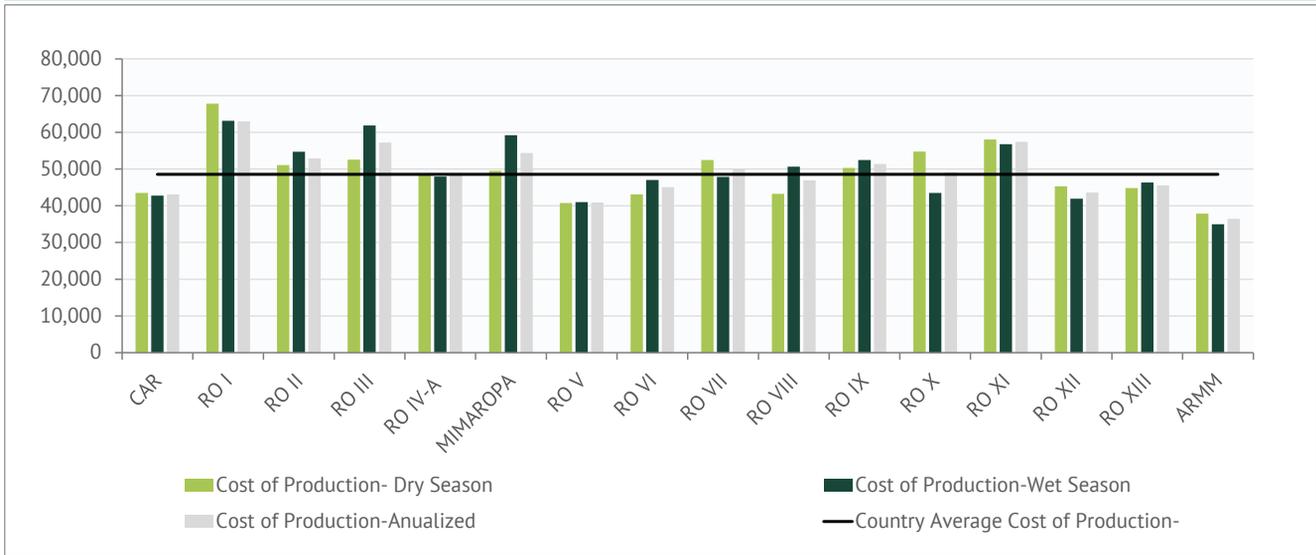
The main assumptions and groupings of data are the following:

- The last 3 years of costs (per ha) were averaged to provide overall costs.
- Dry and wet season data were averaged to obtain an annual average.
- Rice crop data were differentiated to distinguish between irrigated and non-irrigated rice; their respective averages were used to obtain an overall rice average.
- Summaries at the national level were obtained by summing up the average costs for all regions.
- To determine the cost of production for its comparison with the sum insured offered by the PCIC,
 - Indirect costs (such as land taxes, caretaker's/overseer's wages, permanent employees' salaries, rentals, food expenses, and repairs) and other variable costs (such as harvester's share, thresher's share, landowner's share, and land tax), were excluded.
 - For the purposes of this analysis, the costs that have been removed to arrive at the cost of production covered by the PCIC are referred to as indirect costs.
 - Actual average prices for each crop were used to calculate the break-even and expected yields.

Rice (palay) crops

The annualized total production cost for rice amounts to PHP 48,572/ha for rainfed and irrigated palay in the wet and dry seasons; this figure reflects all the costs related to production, including indirect costs, which would not be covered under PCIC's insurance coverage. There is a high variability in production cost across the regions with values ranging from PHP 62,000/ha in RO I to PHP 36,423/ha in the ARMN Region in the south of the country. Overall, there is a decreasing trend in rice production costs from the Palay Belt production areas in the north to the more marginal rice production areas in Mindanao Island in the south.

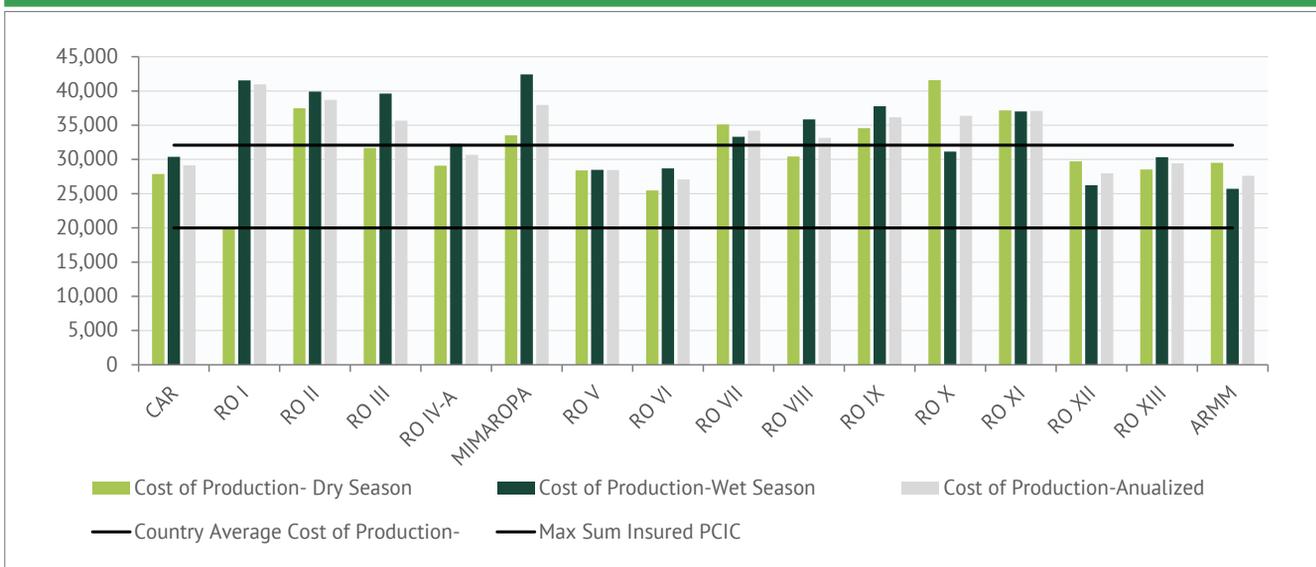
FIGURE 34. RICE: COST OF PRODUCTION (PHP PER HA)



Source: PSA.

The coverage offered by the PCIC is based on the total direct fixed cost of production. The concept behind this approach is that it considers only costs that are directly related to the production of the crop and within the classification of direct production costs. Costs that vary with the volume of production are therefore excluded as part of the comparisons of PCIC's coverage.⁵⁷ The exclusion of indirect costs from the total cost of production reduces the cost of production by 34 percent to PHP 32,094/ha. Figure 35 shows the cost of production excluding indirect costs compared to the maximum sum insured (PHP 20,000/ha) offered by the PCIC for rice crops. PCIC's maximum sum insured covers 62 percent of the average direct costs of production in the Philippines.

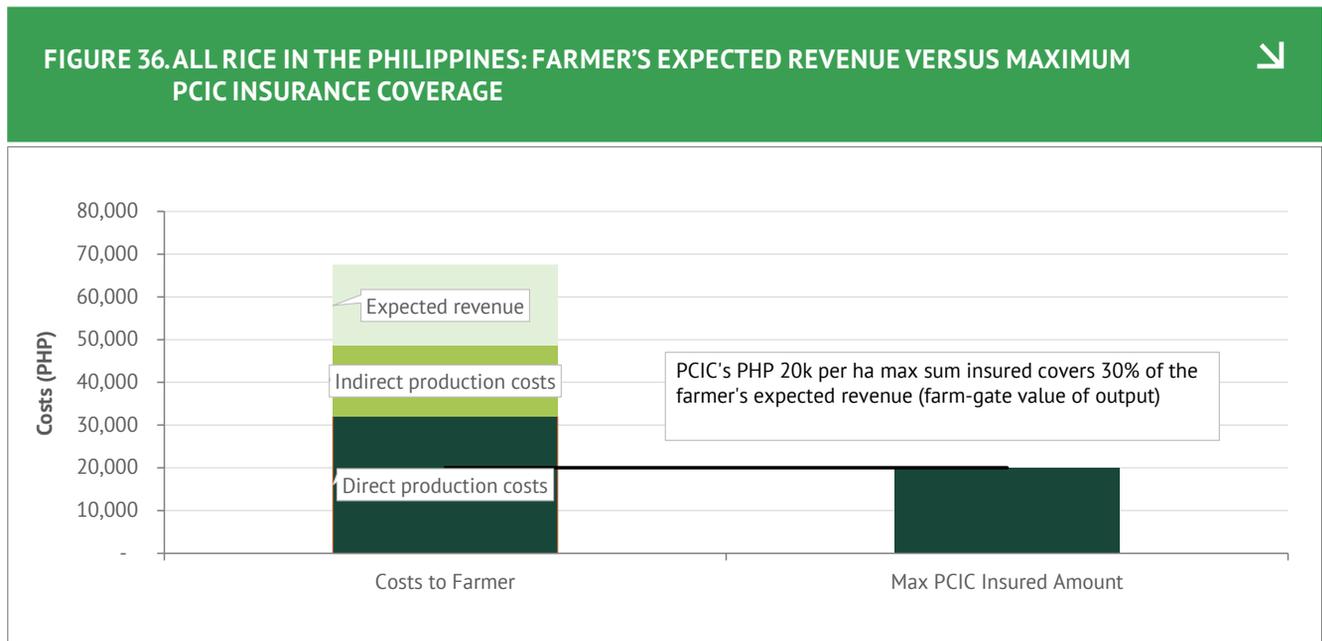
FIGURE 35. ALL RICE BY REGION: COST OF PRODUCTION NET OF INDIRECT COSTS VERSUS PCIC'S MAXIMUM SUM INSURED (PHP PER HA)



Source: PSA.

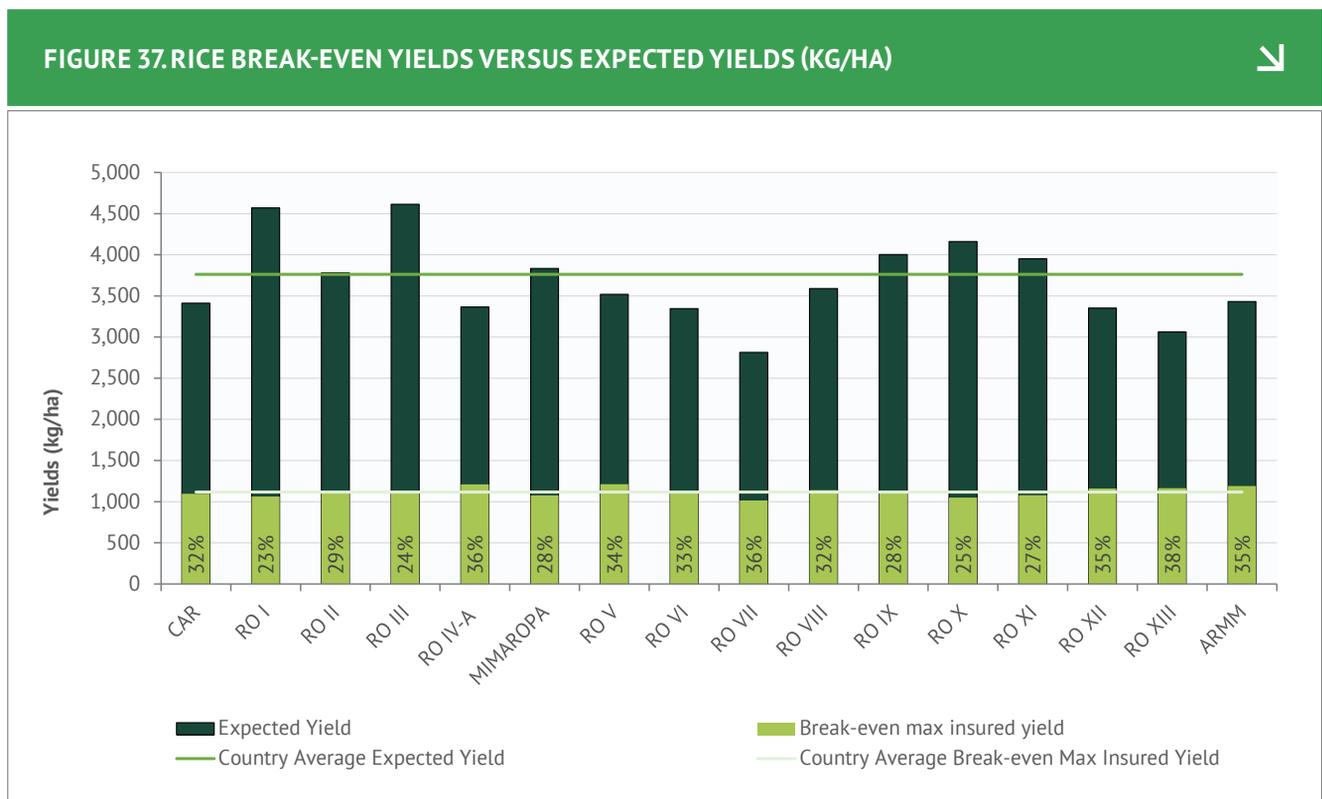
57. The costs that have been excluded include indirect costs such as land taxes, caretaker's/overseer's wages, permanent employees' salaries, food expenses, and repairs; and variable costs such as the harvester's share, the thresher's share, and the landowner's share.

By using the farm gate price combined with the expected yield, the expected level of income or profit to the farmer can be calculated. The costs to the farmer and the expected profit can be compared to the coverage offered by the PCIC. Figure 33 shows that PCIC's maximum coverage is equivalent to 30 percent of the farmer's expected profit and 62 percent of the direct production costs at the national level.



Source: PSA.

Production costs, expected yield, and farm gate prices vary by region. With this in mind, the maximum coverage provided by the PCIC was compared to the expected profit at the regional level, as shown in Figure 37. The proportion of expected profit covered by PCIC's maximum sum insured varies between 23 percent for RO I and 38 percent for RO XIII.

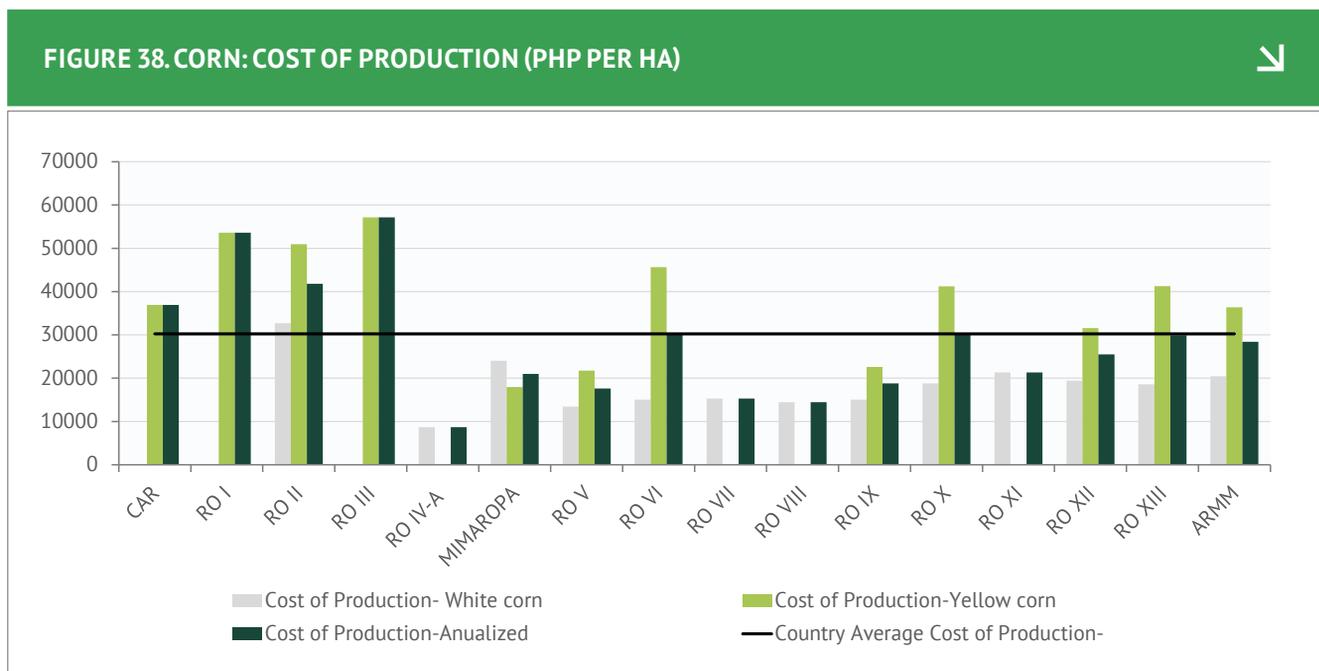


Source: PSA.

The actual insured values in PCIC's rice insurance portfolio indicate that the portfolio is underinsured. The maximum sum insured per hectare offered by the PCIC under its Special Programs for rice is PHP 20,000/ha for all regions. This compares to an average production cost of PHP 32,094/ha; allowing for indirect costs to the farmer this amount increases to PHP 48,572/ha, and allowing for the farmer's profit, this increases again to PHP 67,408/ha. This indicates that the maximum sum insured by the PCIC will, on average, cover only 30 percent of the farmer's expected profit.

Corn crops

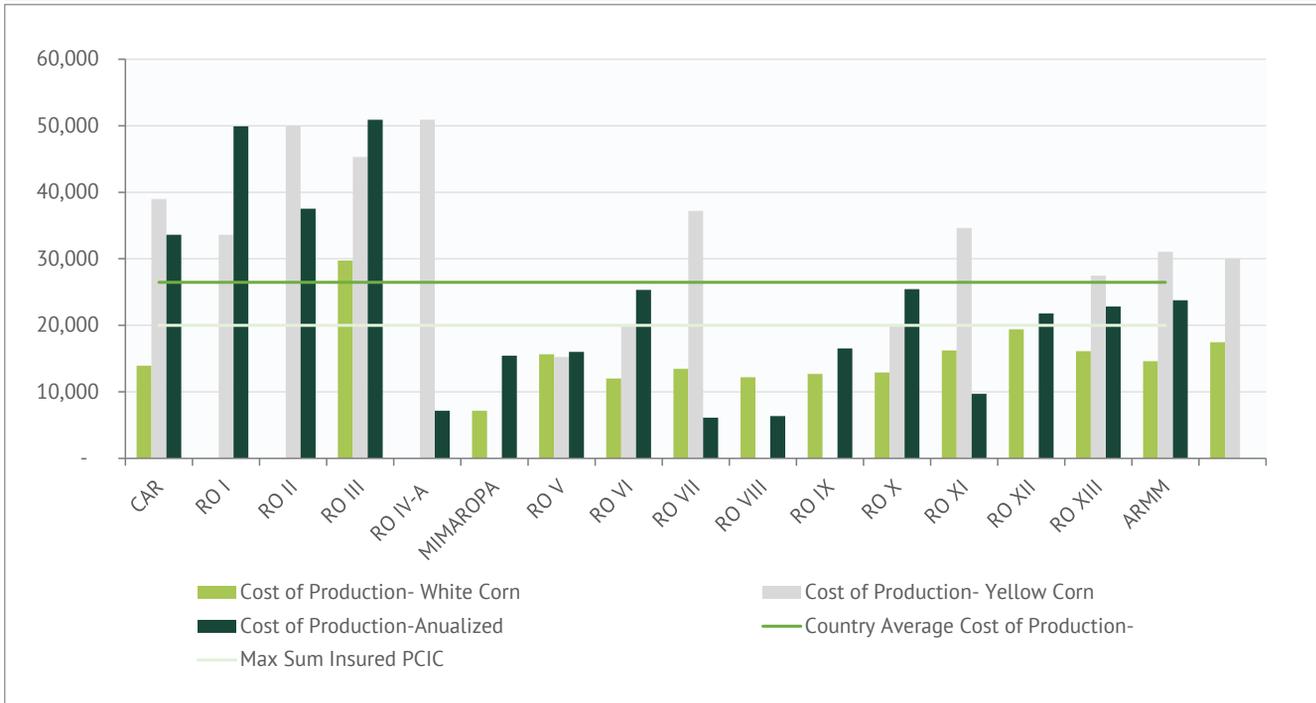
The annualized total production cost of corn crops amounts to PHP 30,253/ha, combining white and yellow corn. The cost of production for yellow corn is much higher than the cost for white corn: the annualized country average cost of production for yellow corn is PHP 43,955/ha, compared to PHP 16,550/ha for white corn. For this reason, this section focuses on yellow corn. The cost of production for corn crops is not even across the different regions of the Philippines. The average production cost for corn ranges from PHP 57,000/ha in RO III to PHP 18,000/ha in MIMAROPA. Overall, a decreasing trend in the cost of production of corn can be seen from the north to the south of the Philippines. Figure 38 shows the variations in the annualized cost of production of yellow and white corn across the different regions of the country.



Source: PSA.

As with rice, the PCIC has a maximum sum insurance level of PHP 20,000/ha for corn crops under its Special Programs, and the insurance covers only the costs of production. The exclusion of indirect costs from the total cost of production reduces the cost of production by 13 percent (11 percent for yellow corn) to PHP 26,452/ha (PHP 38,972/ha for yellow corn). Figure 36 shows the cost of production excluding indirect costs compared to the maximum sum insured (PHP 20,000/ha) offered by the PCIC for corn crops. PCIC's maximum sum insured covers 76 percent of the average direct costs of production in the Philippines, and 51 percent of the direct costs for yellow corn.

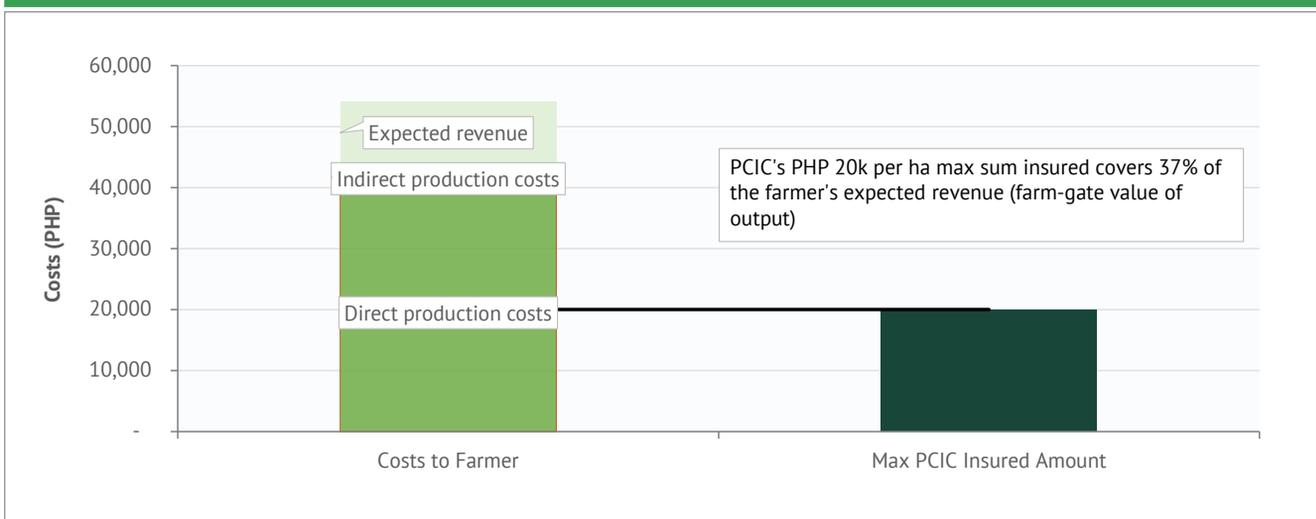
FIGURE 39. CORN: COST OF PRODUCTION NET OF INDIRECT COSTS VERSUS PCIC'S MAXIMUM SUM INSURED (PHP PER HA)



Source: PSA.

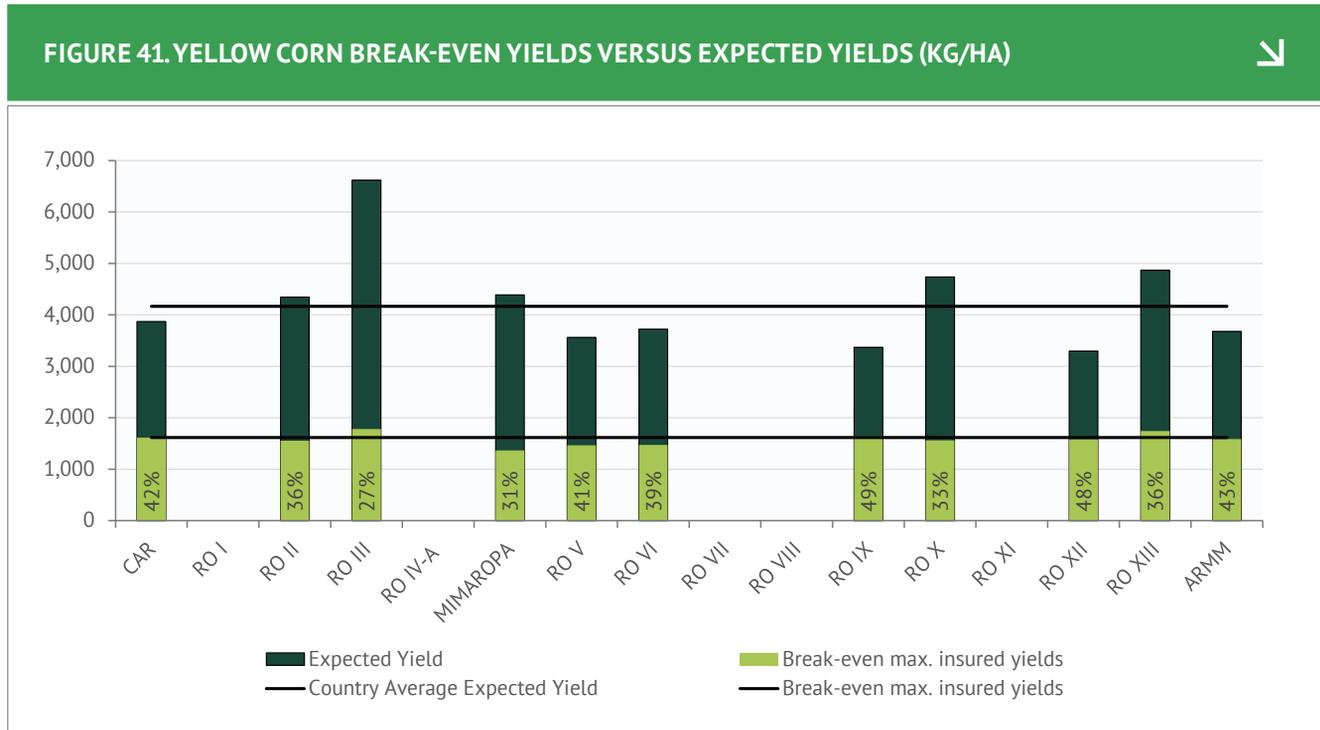
PCIC's maximum coverage for yellow corn is equivalent to 37 percent of the expected revenue to the farmer. As in the analysis for rice, this is calculated using the farm gate price and the expected yield. Figure 40 shows that PCIC's maximum coverage amount is equivalent to 51 percent of the direct production costs and 37 percent of the total revenue expected to the farmer.

FIGURE 40. YELLOW CORN: FARMER'S EXPECTED REVENUE VERSUS MAXIMUM PCIC INSURANCE COVERAGE



Source: PSA.

Production costs, expected yield, and farm gate prices vary by region. With this in mind, the maximum coverage provided by the PCIC was compared to the expected revenue for yellow corn at the regional level, as shown in Figure 41. The proportion of expected revenue covered by PCIC's maximum sum insured ranges from 27 percent in RO III to 49 percent in RO IX.



Source: PSA.

A detailed analysis of the sum insured by the PCIC for corn crops indicates that the expected yields are not even across the country's regions. In this regard, the fertile regions situated in the northern portion of the country show lower coverage levels compared to their expected yields than in the regions situated in the South.

Also, although the PCIC defines the same maximum sum insured for both white and yellow corn, production costs and profits for both crops vary significantly by region due to their vastly different expected yields (i.e., yellow corn's yields are generally much higher than white corn's). This means that the average coverage level offered by the PCIC for white corn crops is 76 percent versus 37 percent for yellow corn, which shows that a uniform sum insured amount across both crops may not be suitable.

As a conclusion, based on the maximum amount of coverage provided by the PCIC, it is evident that its corn portfolio is underinsured in many regions. The maximum sum insured per ha offered by the PCIC under its Special Programs for corn (PHP 20,000/ha) compares to an average production cost of PHP 26,452/ha; allowing for indirect costs to the farmer this amount increases to PHP 30,253/ha, and allowing for the farmer's profit this increases again to PHP 40,809/ha.



TABLE 60. ANALYSIS OF DRY SEASON AND WET SEASON RICE COSTS OF PRODUCTION, EXPECTED YIELDS, AND RETURNS, 2019–2021

	Cost of Production-Dry Season	Cost of Production-Wet Season	Cost of Production-Anualized	Cost Average Cost of Production	Max Sum Insured PCIC	Farmate Price	Expected Yields	Direct Cost Break even Yield(Kg/Ha)	Expected Yield(Kg/Ha)	Expected Return(Php/Ha)
PHILIPPINES	31,044	33,144	32,094	32,094	66%	18	3,762	1,795	3,762	67,408
Car	27,878	30,388	29,133	32,094	20,000	18	3,412	1,599	3,412	62,212
RO1	19,869	41,536	40,967	32,094	20,000	19	4,569	2,147	4,569	85,916
RO2	37,493	39,923	38,708	32,094	20,000	18	3,780	2,155	3,780	67,961
RO3	31,683	39,627	35,655	32,094	20,000	18	4,613	2,005	4,613	82,284
RO4-a	29,075	32,259	30,667	32,094	20,000	17	3,365	1,863	3,365	55,574
MIMAROPA	33,524	42,412	37,968	32,094	20,000	19	3,833	2,045	3,833	71,318
RO5	28,398	28,485	28,442	32,094	20,000	16	3,519	1,728	3,519	58,022
RO6	25,462	28,705	27,083	32,094	20,000	18	3,345	1,521	3,345	59,810
RO7	35,113	33,303	34,208	32,094	20,000	20	2,814	1,734	2,814	55,355
RO8	30,437	35,859	33,148	32,094	20,000	18	3,589	1,890	3,589	63,014
RO9	34,577	37,770	36,173	32,094	20,000	18	4,002	2,001	4,002	72,621
RO10	41,572	31,153	36,362	32,094	20,000	19	4,162	1,904	4,162	79,243
RO11	37,167	37,004	37,086	32,094	20,000	19	3,952	2,001	3,952	73,243
RO12	29,714	26,225	27,969	32,094	20,000	17	3,352	1,624	3,352	57,786
RO13	28,532	30,332	29,432	32,094	20,000	17	3,063	1,715	3,063	52,619
ARMM	29,521	25,704	27,612	32,094	20,000	17	3,431	1,646	3,431	57,669

Source: World Bank analysis of PSA data.

TABLE 61. ANALYSIS OF YELLOW MAIZE COSTS OF PRODUCTION, EXPECTED YIELDS, AND RETURNS, 2019–2021



Yellow Corn	Total Direct Production cost PHP/Ha	Farmgate Price PHP/ KG	Direct Cost Break Even Yield(kg/ha)	Expected Yield(kg/ha)	Break even/ Expected	Expected Return(Php/ Ha)
PHILLIPPINES	38,972	13	3,003	4,166	72%	54,056
..Cordillera Administrative Region(CAR)	33,599	12	2,711	3,869	70%	47,950
..Region1(Ilocos Region)	49,909	14	3,608	6,220	58%	86,043
..Region2(Cagayan Valley)	45,295	13	3,518	4,347	81%	55,971
..Region3(Central Luzon)	50,822	11	4,528	6,618	68%	74,361
..Region4-A(CALABRAZON)						-
-MIMAROPA Region	15,238	15	1,039	4,386	24%	64,333
..Region5(Bicol Region)	20,009	14	1,465	3,561	41%	48,627
..Region6(Western Visayas)	37,193	14	2,734	3,723	73%	50,645
..Region7(Central Visayas)						-
..Region8(Eastern Visayas)						-
..Region9(Zamboanga Peninsula)	20,127	12	1,651	3,369	49%	41,083
..Region10(Northern Mindano)	34,612	13	2,701	4,734	57%	60,663
..Region11(Davao Regio)						
..Region12(SOCC SKSARGEN)	27,640	13	2,171	3,297	66%	41,700
..Region13(Caraga)	31,064	11	2,706	4,868	56%	55,888
..Autonomous Region in Muslim Mindanao(ARMM)	30,048	13	2,380	3,677	65%	46,420

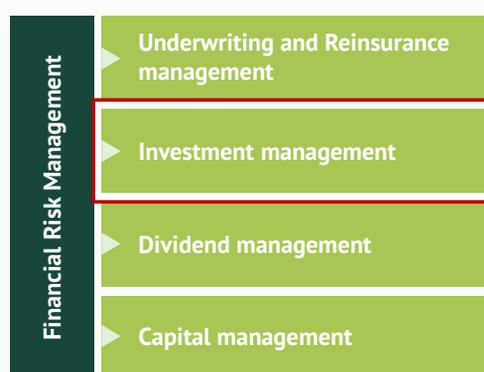
Source: World Bank analysis of PSA data.

H. REVIEW OF PCIC'S INVESTMENT MANAGEMENT FRAMEWORK

An asset management or investment strategy (these terms are used interchangeably) is a key part of an insurer's risk management framework. Active risk management ensures that insurers understand what risks they are exposed to so they can make the best use of the tools at their disposal in order to mitigate such risks and achieve their objectives (maximize profits, ability to pay claims, long-term sustainability, etc.).

An efficient asset management strategy is only one of the 4 pillars of an overall risk management framework and should therefore be designed considering the other 3 pillars and how they interact with each other. For example, the investment policy should be structured to ensure funds are available to pay claims when they fall due.

FIGURE 42. RISK MANAGEMENT FRAMEWORK



Source: World Bank.

Because the PCIC is a publicly owned company, it is in the government's interest that it has a solid risk management framework. In a worst-case scenario, if the PCIC were to exhaust its capital and reserve levels, the additional financing required could become a contingent liability to the government. Additionally, because the PCIC is also funded by the taxpayers, it is important to ensure that its resources are used efficiently and, hence, that its funds earn a suitable rate of return. High returns on investment can be used to further increase the efficiency of the PCIC by building up additional reserves or investing in improved products and processes.

To improve PCIC's investment management, Secretary of Finance Dominguez issued a directive in 2021 to the GSIS and the LBP asking them to help the PCIC to strengthen its financial state (News and Views 2021a).

At the time of writing, information is not available on PCIC's investment processes and governance, i.e., whether there is a formal investment strategy.

PCIC's asset allocation portfolio

The PCIC holds a large proportion of its assets in low-risk, liquid assets, including cash and cash equivalents. Outside of cash, the PCIC holds the majority of its assets in term deposits or bonds. Table 62 shows the amount of cash that is held as a proportion of premiums received. From 2016 to 2020, the PCIC held, on average, above 50 percent of its gross premium income in cash or cash equivalents.

TABLE 62. PERCENTAGE OF CASH TO GROSS PREMIUM INCOME (PHP MILLION)


	2020	2019	2018	2017	2016
cash and Cash Equivalents*	2,341.8	2,536.1	2,519.6	2,973.5	1,175.6
Premium Income**	5,086.4	5,725.5	4,881.3	3,365.0	2,687.7
% of Cash	46%	44%	52%	88%	44%
* from balance sheets					
** from annual reports					

Source: PCIC annual reports 2016-2020

Balanced against the benefit of liquidity, the returns offered by these investments are below those of other non-life insurers globally. As shown below in Table 63, the PCIC has PHP 6.4 billion in investable assets, which could be getting higher returns to support the company's operations. Performing a deep dive analysis of PCIC's investments was not possible for this review; but given the information available, such an analysis should be conducted as part of a risk-informed investment management strategy.

TABLE 63. BALANCE SHEET ASSETS FOR 2019 AND 2020 (PHP)


Assets	2020	2019
Current Assests		
Cash & Cah Equivalent	2,341,815,527	2,536,086,770
Short-Term Investments	1,810,619,256	1,101,091,689
Receivables	1,137,955,428	805,091,000
Other Current Assests	12,804,437	11,879,875
Total Current Assests	5,303,194,648	4,454,149,334
Non-Current Assests		
Receivables,net	472,493,126	472,688,355
Investments	500,934,309	2,587,906,888
Property,Plant&Equipment	117,519,606	88,976,225
Other Assests	389,997,006	4,567,134
Total Non-Current Assests	1,094,846,747	3,154,138,602
Total Assests	6,398,041,395	7,608,287,936
Considered for Investment Holdings	4,653,369,092	6,225,085,347
	73%	82%

Source: PCIC annual reports 2016-2020

TABLE 64. CASH AND INVESTMENTS FROM BALANCE SHEET, 2020 AND 2019 (PHP)


	2020	2019
Cash & Cash Equivalents	2,341,815,527	2,536,086,770
Cash On Hand	1,213,280	892,443
Cash in bank-Local currency	1,039,890,936	1,784,412,494
Cash Equivalents	1,300,711,311	750,781,833
Short Term Investments	1,810,619,256	1,101,091,689
Trust account with LBP		501,978,245
Time deposits,special revolving trust	309,925,703	308,453,694
Time deposits,local currency	600,693,553	290,659,750
Bonds-LBP	800,000,000	
Bonds-BTr	100,000,000	
Investment Non Current	500,934,309	2,587,906,888
Bonds-LBP	148,792,709	1,935,765,288
Bonds-BTr	350,000,000	450,000,000
Time Deposits		200,000,000
Other	2,141,600	2,141,600
Total Cash Investments	4,653,369,092	6,225,085,347

Source: PCIC annual reports 2016-2020

In 2020, the PCIC had 70 percent of its assets invested in cash and term deposits and the remaining 30 percent invested in bonds and other holdings. The comparable figures for 2019 were 62 percent and 38 percent. Given such percentages, the expected investment income generated would be low compared to other non-life insurers. The PCIC could improve its underwriting results by leveraging its underwriting capacity to achieve higher investment returns.

PCIC's asset allocation should be based on its risk appetite, which can be influenced by many factors, including the capitalization of the company, the nature of its written business, and the company's ability to raise additional capital.

The requirement to pay dividends to the government puts an additional restriction on the PCIC regarding its investment strategy. In order to pay these remittances, the PCIC must hold more cash, meaning that its cash requirements are much higher than they might be if it had only to consider meeting its operating expenses and potential claims.

Examples of asset management strategies for the general insurance market

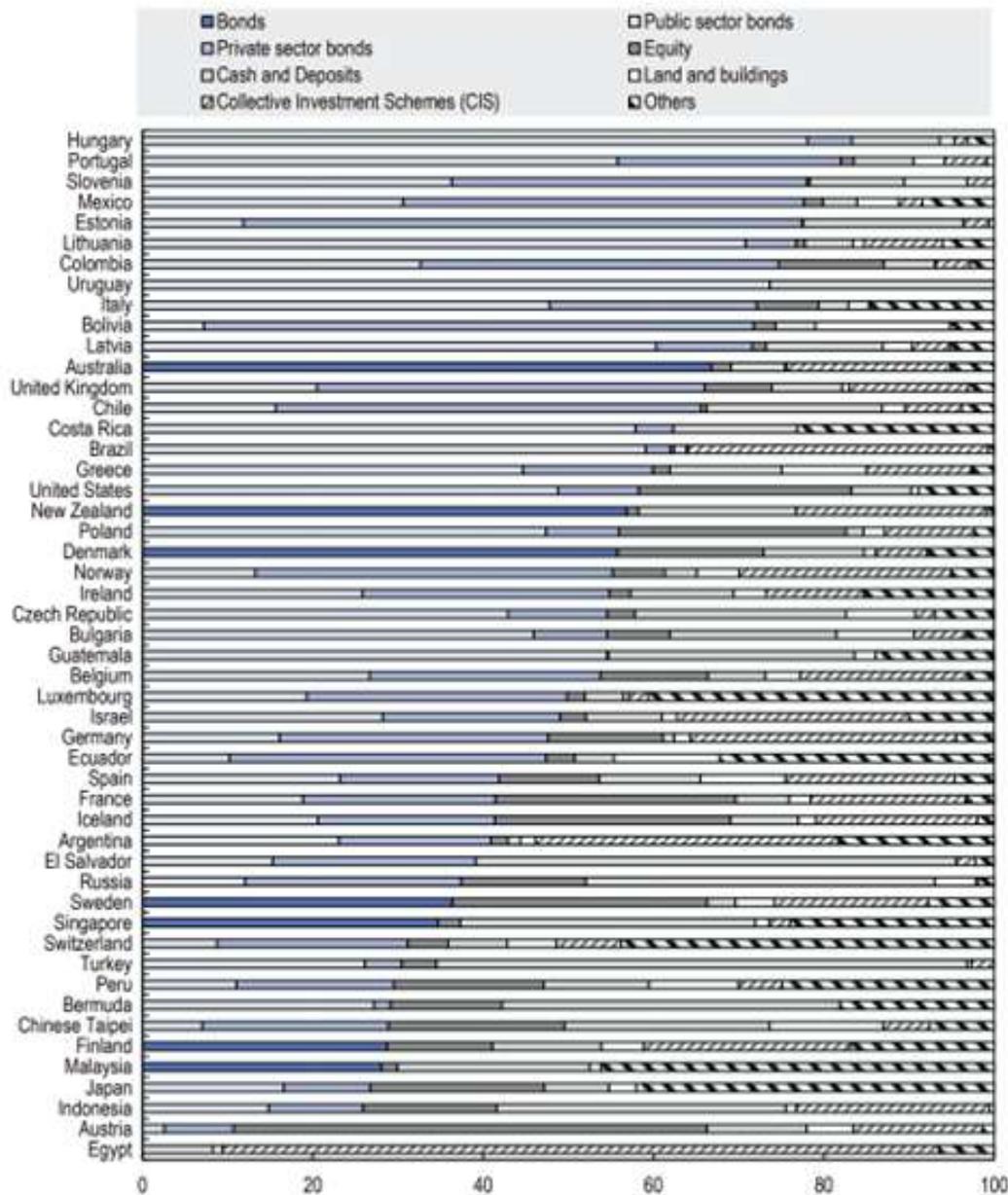
Shown below are benchmarks of investment strategies of other global non-life insurance companies. These demonstrate the potential room for the PCIC to expand its return-seeking investments starting from a very risk averse initial position. Note that each insurer faces its own constraints, has its own risk appetite, and has its own liabilities. Likewise, PCIC's investment strategy should be developed based on its own situation.

Figure 43 below shows how non-life insurance companies in OECD countries split their investments.

FIGURE 43. ASSET ALLOCATION OF DOMESTIC NON-LIFE INSURANCE COMPANIES IN MAIN INSTRUMENTS, 2019



As a percentage of total investment



Note: The "Others" category includes investments in loans, private equity funds, hedge funds, structured products and other investments. Negative values in some categories for some countries were excluded from the calculation of the asset allocation.
Source: OECD Global Insurance Statistics.

Non-life insurers hold around 14.7 percent of their total assets in cash and deposits (OECD 2021). This compares to the 70 percent held in cash and deposits by the PCIC in 2020. The proportion of cash and deposits held by non-life insurers exceeded this average only in 12 jurisdictions, mainly from Asia (e.g., Indonesia, Malaysia, Singapore, Taiwan, China) and Latin America (e.g., Chile, El Salvador, Guatemala, Uruguay). Malaysian authorities explained that non-life insurers largely held liquid financial instruments such as cash, deposits, and short- to medium-term corporate bonds to match their liability structure, which has a shorter term compared to other life insurers. Of the 55 reporting jurisdictions, 46 held more than 50 percent of their assets in bonds, making this the most invested asset class among non-life insurers (OECD 2021).

I. UNDERWRITING AND REINSURANCE MANAGEMENT

Scope of the analysis

To assess PCIC's experience, sets of data for the 1999–2020 period were collected for each line of business (e.g., rice, corn, etc.), including the number of insured farmers, sums insured, number of policies, premium amounts, and claims paid. In order to compare the loss experience in different moments of history, it is important to adjust the historical experience, allowing for any changes to the portfolio over time, and estimate what the experience would have been had historical events occurred today. This process is called “on-leveling” the claims. When considering PCIC's claims experience, it is essential to conduct this process so that an assessment of its portfolio's profitability is not skewed by changes in the mix or the conditions. Once on-leveled claims have been calculated, a loss distribution can be fit to loss experience to build a full distribution of claims. This can be used to demonstrate the severity and likelihood of potential losses, which can also inform the design and costing of a reinsurance strategy.

In order to correctly on-level PCIC's claims, data on historical exposures and claims by region and crop type at a minimum are required, including details about any changes in coverage or premium rates, as well as any significant changes in the underwriting or claims adjusting procedures that may impact the loss experience. These data were requested by the World Bank Group team but were not received in time for this report; however, a comprehensive analysis should be carried out as a priority.

In addition to on-leveling historical claims, when estimating the downside impact to an insurer, it is important to consider the full range of possible losses instead of only those that have been observed in years for which data are available. The possible distribution of losses will depend on a variety of factors, for example, probability/likelihood of a catastrophe, coverage offered by the policy, loss adjusting procedures, mix of business by area, inflationary impacts, etc. This is where using data outside of PCIC's own data can be useful. Doing so will introduce an additional element of claim volatility, especially because the PCIC has not dealt with any severe catastrophes since 1999.

The analysis contained in Phase 1 of this report uses a simple, high-level method to on-level PCIC's historical experience for rice, corn, and HVCs (which includes experience from 2009–2020) and the historical industry experience for corn and rice obtained from the PSA. Using historical market experience allows the analysis to factor in more information than if it used only years where the PCIC has data available.

Limitations of data, assumptions, and methodology

The analysis conducted in this report provides an indication of the type of analysis that should be carried out routinely to inform PCIC's pricing, risk management, and strategic decisions. This analysis should be prioritized once a complete set of historical data is made available. The results from this report should be considered indicative, to be developed further with additional data; thus final and detailed decisions should be taken only based on the complete analysis in due course.

For PCIC data:

- Analysis is carried out for rice, corn, and HVCs separately.
- Linear on-leveling is performed.
- Restatement of historical experience uses 2020 business mix.
- Historical loss ratios prior to 2009 have not been used, as the coverage offered prior to 2009 is significantly different to current terms.

For historical rice and (yellow) corn data using PSA data:

- Historical yield was detrended by region, season, and crop (irrigated palay, non-irrigated palay, and yellow corn).
- A regression analysis was performed using the portfolio yields for the 2009–2020 period by region, season, and crop (irrigated palay, non-irrigated palay, and yellow corn).
- The regression was fit using a beta distribution.
- The crop exposures under the beta yield portfolio were equalized to keep the same proportion of palay and corn as for the on-leveled PCIC portfolio.
- The sum insured per ha in the analysis was equalized with the average sum insured in PCIC's portfolio. It was not possible to do this by region, as this level of disaggregation is not available from PCIC data.
- Expected damages are determined from simulated yields (using the beta distribution), where they are lower than the break-even yields.

Limitations of the data used:

- Using PSA market data to proxy PCIC results assumes that the mix of business written by PCIC is represented by the market.
- PSA information does not contain loss information; losses have therefore been estimated based on historical shortfalls from yield data.
- Where a segment in the PSA data does not have sufficient yield information, this segment is excluded from the overall analysis.
- There is a possibility that the shortfalls on yield information from PSA data may not exactly align with the claims paid by the PCIC because PCIC's policies cover only production costs and have maximum levels of sums insured covered (though it would be expected that the losses in the market due to yield shortfalls would correlate to the losses in PCIC's portfolio on the same crops).
- The on-leveling of PCIC's claim history is performed on a simple linear basis, which does not take into account true changes in the underlying mix. Where changes in exposure are significant, this type of on-leveling may not account for changes in the underlying experience.

J. DIVIDEND STRATEGY

Since 2014, the PCIC has paid 50 percent of its net income back to the GoP, although at the time of this review, the World Bank Group team had no access to the official mandate for doing so. These payments began in 2014, after the corporation started reporting a net profit in 2012.

Table 65 shows the dividends that have been paid back to the government by the PCIC in profitable years. They add up to PHP 1.4 billion over 7 years, including the paying back of additional dividends in 2020. There are other ways that profits could be used by the PCIC instead of paying dividends back to the government, including building up its reserves, increasing its capital capacity, or purchasing reinsurance for catastrophic events.

TABLE 65. PCIC'S DIVIDENDS PAID BY YEAR (PHP MILLION)



Year	Dividends	Net Income
2014	100.1	200.2
2015	36.6	73.1
2016	22.6	45.1
2017	170.8	337.0
2018	160.9	321.6
2019	453.8	958.8
2020*	317.1	637.1

*In 2020 PCIC paid additional p1/6383 million representing adjustments of dividends for the years 2014 to 2018 as recommended by the Commission on Audit

Source: PCIC annual reports 2016-2020

The dividend strategy of the PCIC should be developed in line with the broader risk management framework. A review of whether the dividend payment structure is appropriate should be conducted.

K. RISK MANAGEMENT AND AUDIT COMMITTEE REMIT

The Board has established a Risk Management and Audit Committee (RMAC) that is responsible for developing and monitoring the corporation's risk management policies.

The committee is responsible for the following:

1. Oversee, monitor and evaluate the adequacy and effectiveness of the corporation's internal control systems, engage and provide oversight of PCIC's internal and external auditors, and coordinate with the COA
2. Perform oversight risk management functions specifically in the areas of managing credit, market, liquidity, operational, legal, reputational, and other risks of the PCIC, as well as crisis management, which shall include receiving from senior management periodic information on risk exposures and risk management activities
3. Develop the risk management policy of the PCIC, ensuring that the risk management processes and compliance are embedded throughout the operations of the PCIC, especially at the Board and management level, providing quarterly reporting and updating to the Board on key risk management issues as well as ad hoc information about, and evaluation of, investment proposals.

The RMAC may conduct meetings as may be deemed appropriate by the committee chair.

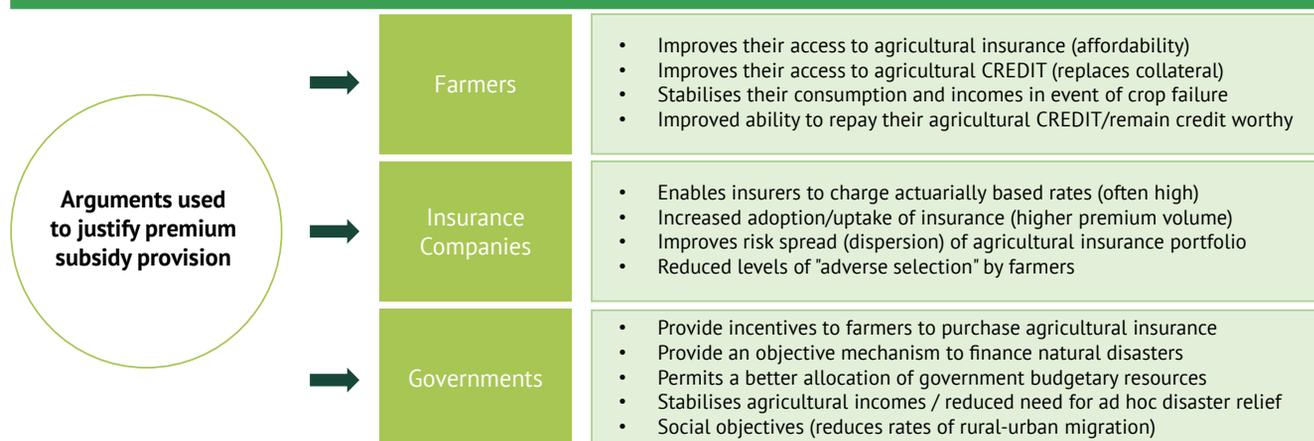
L. RATIONALE FOR PREMIUM SUBSIDIES AND 100 PERCENT-SUBSIDIZED PREMIUMS FOR PCIC'S SPECIAL PROGRAM CLIENTS

Rationale for premium subsidies

Premium subsidies are the most widely practiced form of government support in the (mainly) individual-farmer micro-level agricultural insurance programs operating in both developed and developing countries. In a study of agricultural insurance provision in over 65 countries, Mahul and Stutley (2010) reported that premium subsidies were the most common form of government support in nearly two-thirds (63 percent) of countries.

Governments often argue that premium subsidies are required to make agricultural insurance policies more affordable and accessible to small-scale farmers, who are usually their primary target. Financial institutions (banks and insurers) also benefit where premium subsidy provision leads to increased uptake and penetration by farmers: where a farmer has a crop insurance policy, banks can improve their loan recovery rates in the event of severe crop failure, while increased adoption of insurance usually means that insurance companies achieve a better spread of risk and experience reduced adverse selection. Finally, governments can use premium subsidies to promote private sector agricultural insurance as a means of replacing ad hoc disaster relief (Figure 44).

FIGURE 44. RATIONALE FOR PREMIUM SUBSIDIES IN AGRICULTURAL INSURANCE



Source: World Bank.

It is notable that there are no large-scale multi-peril crop insurance (MPCI) programs in the world today that do NOT attract government premium subsidies: private insurers have attempted to offer such unsubsidized MPCI programs in South Africa and in Argentina in the past, but have experienced major anti-selection by farmers in the face of very high premium rates (typically between 7.5 and 10.0 percent or more) for such covers, and they have incurred high underwriting losses. Thus where MPCI is offered, it is nearly always under a solely public (e.g., the Philippines) or PPP arrangement (United States, China, Brazil, Mexico) attracting high levels of premium subsidy.

Issues related to premium subsidies

The provision of nondiscriminatory premium subsidies is, however, regressive because it disproportionately benefits the larger farmers to the detriment of small and marginal farmers. Also, subsidies that cover a large part of the overall premium can promote moral hazard, encouraging farmers to grow high-risk crops in regions that are not technically suited to the crop. Once premium subsidies have been introduced by governments, it is politically very difficult to reduce or to withdraw them. In many of the countries that operate nondiscriminatory premium subsidies, the fiscal costs to the government are extremely high; and as insurance penetration increases, subsidies place an increasing burden on the national budget (Mahul and Stutley 2010).

There is growing consensus in development circles that “smart” subsidies that reduce the cost of premiums are required to make micro-level index insurance more widely accessible and affordable to the rural poor (e.g., Hill et al. 2014; World Bank Group 2017).

Smart subsidies are designed and implemented in ways that provide maximum social benefits while minimizing distortions in the market and mistargeting of clients. Poorly designed subsidies can undermine efficiencies and incentives within the insurance industry; for example, they can encourage overuse of health care by beneficiaries and overinvestment in risky, sometimes environmentally damaging agricultural activities. A subsidy should be designed with a clearly stated and well-documented purpose. It should address a market failure or equity concern and should successfully target those in need with minimum inefficiency. Smart subsidies are designed with a clear exit strategy or a long-term financing strategy in mind, as well as a good monitoring and evaluation system that tracks subsidies’ performance; this is paramount for the success of any subsidized insurance scheme (Hill et al. 2014).

The rationale for providing direct and indirect subsidies for insurance include: (i) direct premium subsidies can be used to improve equity of coverage by extending insurance access to previously excluded groups, such as low-income individuals; and (ii) indirect subsidies can be used to correct market failures that may have hindered the development of the insurance sector. Hill et al. (2014) recommend, however, that before governments consider premium subsidy support, they first implement alternative subsidy measures to correct market imperfections, such as investing in information systems and supporting start-up costs and reinsurance, which can encourage the development of the microinsurance markets.

The PCIC and the trend toward fully subsidized insurance for Special Program subsistence farmers

The PCIC began operations in 1981 when it was authorized to offer partial premium subsidies to rice growers, and partial premium subsidy support was then extended to corn: over time the premium subsidy level for these two crops has been in the order of 50–55 percent on PCIC’s Regular Programs.

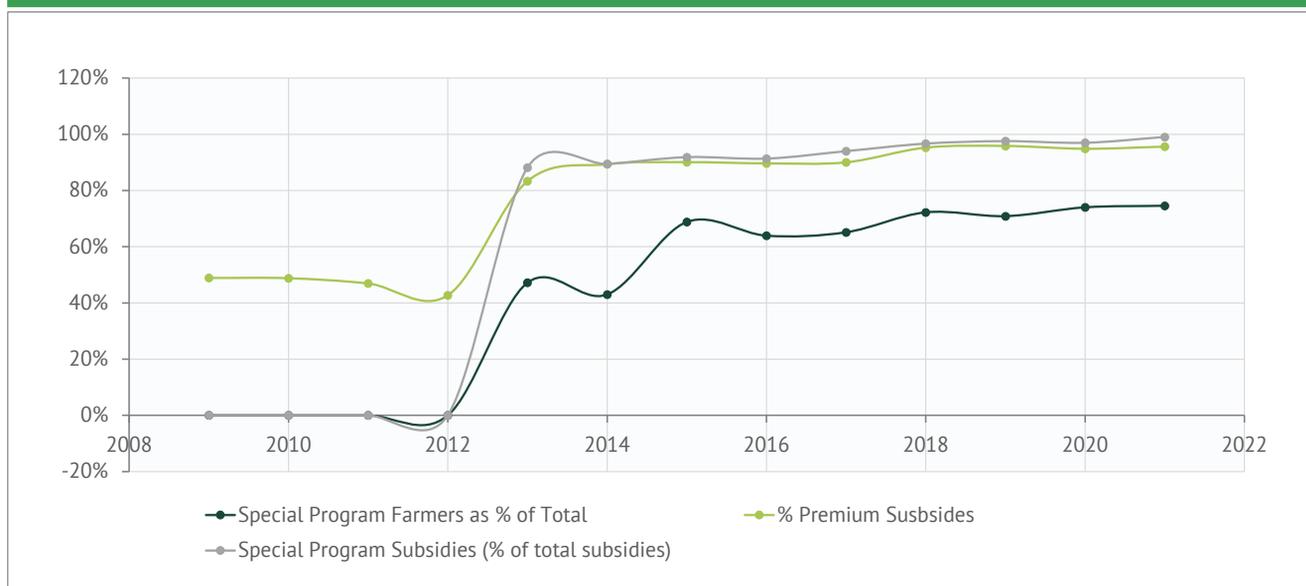
Starting in 2013, the PCIC was granted approval by the government to offer fully subsidized agricultural and nonagricultural insurance to Special Program subsistence farmers and fisherfolk who are included in the RSBSA registry of more than 6.8 million eligible subsistence farmers and fisherfolk. Since 2013, the fully subsidized Special Programs have grown enormously and largely replaced PCIC’s partly subsidized Regular Programs for more commercial farmers. The government is now paying nearly PHP 5 billion (US\$100 million) per year in premium subsidies, and 99 percent of these subsidies are now going to Special Program famers and fisherfolk. These changes in PCIC’s portfolio composition are shown in Table 66 and Figure 45.

TABLE 66. CHANGING COMPOSITION OF PCIC'S PORTFOLIO FROM PARTLY SUBSIDIZED INSURANCE FOR RICE AND CORN FARMERS TO FULLY SUBSIDIZED SPECIAL PROGRAMS FOR SUBSISTENCE FARMERS AND FISHERFOLK

Year	No insured Farmers & Fisherfolk	PCIC Regular Farmers & Fisherfolk	PCIC Special Program Farmers	Special Program Farmers as % of total	Premium(PHP Million)	Total Premium Subsidies(PHP Million)	% Premium Subsidies	Special Program Premium Subsidies(PHP Million)	Regular Program Premium Subsidies(PHP Million)	Special Program Subsidies(% of Total)	Regular Program Subsidies(% of Total)
2009	148,013	148,013	0	0%	376	184	49%	0	184	0%	100%
2010	150,976	150,978	0	0%	387	189	49%	0	189	0%	100%
2011	186,868	186,868	0	0%	488	219	47%	0	219	0%	100%
2012	311,388	311,388	0	0%	581	239	43%	0	239	0%	100%
2013	743,589	392,770	350,819	47%	1,611	1,342	83%	1,183	159	88%	12%
2014	917,814	523,411	394,403	43%	2,727	2,436	89%	2,178	258	89%	11%
2015	1,194,932	373,138	821,794	69%	2,665	2,400	90%	2,204	196	92%	8%
2016	1,095,024	395,259	699,765	64%	2,688	2,410	90%	2,201	209	91%	9%
2017	1,697,577	592,235	1,105,342	65%	3,385	3,029	90%	2,848	182	94%	8%
2018	2,267,493	630,329	1,637,164	72%	4,881	4,649	95%	4,495	155	97%	3%
2019	3,146,866	917,353	2,229,513	71%	5,725	5,487	98%	5,353	134	98%	2%
2020	3,090,251	804,032	2,288,219	74%	5,086	4,824	95%	4,678	146	97%	3%
2021	3,357,540	854,798	2,502,744	75%	5,086	4,862	98%	4,815	47	99%	1%
Total	18,308,331	6,280,568	12,027,763	66%	35,625	32,271	91%	29,953	2,317	93%	7%

Source: World Bank analysis of PCIC annual reports, 2009–2021

FIGURE 45. GROWTH OF PCIC'S FULLY SUBSIDIZED SPECIAL PROGRAMS FOR RSBSA CLIENTS, 2009–2021



Source: World Bank analysis of PCIC annual reports, 2009–2021

M. MAJOR POOL SCHEMES FOR AGRICULTURAL INSURANCE

Argentina (since 2005): The Mendoza Province Fruits and Vineyard Hail Crop Insurance Scheme is led by Sancor and La Segunda, under a pool coinsurance arrangement with several other local private commercial insurance companies. The crop insurance market in Argentina is active and competitive.

Austria (since 1947): The Austrian Hail Insurance Company, a mutual with 17 founding companies, is the sole provider of crop hail insurance.

China (since 2006): Two agricultural insurance/coinsurance pool schemes are led by the People's Insurance Company of China (PICC), one in Zhejiang Province (crops, livestock, forestry, and aquaculture), the other in Hainan Province (crops, forestry, livestock). The PICC acts as the scheme administrator and loss adjuster on behalf of coinsurers.

Malawi (since 2006): A weather-based crop insurance underwritten through a coinsurance agreement by six domestic insurance companies and coordinated by the association of insurers is being piloted.

Mongolia (since 2006): Four private insurers offer livestock index mortality insurance through the Livestock Insurance Indemnity Pool, a public-private coinsurance pool.

Philippines (since 1978, subsequently closed down): This public-private coinsurance pool for livestock insurance was underwritten by the Government Service Insurance System (GSIS) and the Philippine Livestock Management Services Corporation (PLMSC), with 14 participating coinsurers including the PCIC, which left the pool in the 1990s.

Senegal (since 2008): Compagnie Nationale d'Assurance Agricole du Senegal (CNAAS) specializes in agricultural insurance. The company has a share capital of CFA 1.5 billion and the state is the majority shareholder. Other shareholders include non-life insurance companies, farmer organizations, and private companies. It underwrites both traditional indemnity-based crop, livestock, and fisheries products and weather index insurance covers for crops mainly using satellite indices. CNAAS is supported by 50 percent premium subsidies from the government.

Spain (since 1980): Agroseguero, the largest public-private agricultural coinsurance pool in the world, is a specialized agricultural managing underwriting company formed by coinsurers to implement the Spanish national agricultural insurance scheme on their behalf. In 2008, Agroseguero comprised 28 private insurance company shareholders, 6 mutual insurer members, and the national reinsurer, Consorcio de Compensación de Seguros. The largest shareholder and coinsurer is Mapfre Insurance Company, with a 30 percent share in the pool. There are no other agricultural insurance schemes in Spain, although some voluntary forestry and aquaculture insurance is written outside the national pool scheme.

Thailand (since 2011): The Thai National Crop Insurance Scheme (TNCIS) is a pool of about 12 non-life insurance companies led by the Thai General Insurance Association (TGIA). It currently insures 2 crops: rice and corn. The TNCIS is directly linked to the Thai national disaster compensation scheme and provides top-up insurance protection to insured farmers. Tier 1 insurance cover is compulsory for farmers borrowing seasonal loans from the Bank for Agriculture and Agricultural Cooperatives (BAAC). The pool is reinsured by a consortium of international reinsurers.

Turkey (since 2006): The Tarsim Agricultural Insurance Pool is a specialized insurance company formed by 16 private commercial companies, each with a 6.25 percent share in the company. Tarsim underwrites crop and livestock on behalf of the coinsurers. No other companies offer agricultural insurance in Turkey.

Ukraine (since 2000): Two crop coinsurance pool schemes are in operation. A large number of competing companies offer crop and livestock insurance.

Source: Updated from Mahul and Stutley 2010.

N. BENEFITS AND LIMITATIONS OF COINSURANCE POOL ARRANGEMENTS

Benefits

Economies of scale through the operation of a single entity with shared (pooled) administration and operating functions. Costs savings are due to:

- Reduced staffing requirements (fixed costs);
- Shared costs of product research and development, actuarial, and rating;
- Reduced costs of underwriting and claims control and loss adjustment.

Cost advantages in purchasing common account (pooled) reinsurance protection rather than each company trying to place its own reinsurance program. The advantages are due to:

- Stronger negotiating position with reinsurers;
- Larger and more balanced portfolio and better spread of risk;
- Reduced costs of reinsurance due to pooled risk exposure;
- Reduced transaction costs (reinsurance brokerage, etc.).

No competition on rates in a soft market and ability to maintain technically set rates. Most pools operate as the sole insurance provided or as a monopoly (e.g., Austria, Senegal, Spain, Turkey), and there is therefore no competition on pricing.

Ability to maintain underwriting and loss adjustment standards. Under a pool monopoly arrangement, the pool manager can ensure that common and high standards are maintained in the underwriting of crop and livestock insurance, as well as in the adjusting of claims. Where companies are competing against each other for standard crop insurance business, there is often a problem of varying loss adjustment standards between companies.

Advantages of coordinating government support to a pool under a PPP. It is much easier for governments under PPP arrangements to coordinate national agricultural insurance policy and planning and specific support functions (e.g., provision of premium subsidies, research and development, education and training) to a single insurance entity (pool) than it is to try dealing with individual insurance companies, each of which may have very different priorities for agricultural insurance.

Limitations

A pool may act as the sole agricultural insurer, resulting in lack of competition in the market in terms of the:

- Range of products and services offered by the monopoly Pool underwriter;
- Restrictions on the range of perils that are insured;
- Restrictions on the regions where agricultural insurance is offered and/or the type of farmer insured;
- Lack of competitiveness in the premium rates charged by the pool.

Source: Adapted from Mahul & Stutley 2010.

O. COUNTRY EXAMPLES OF GOVERNMENTAL SUPPORT TO REINSURANCE

- **Brazil.** Individual agricultural insurance companies can contract stop-loss reinsurance from the Fundo de Estabilidade Rural, which is managed by the National Institute of Reinsurance of Brazil (IRB), + global reinsurance.
- **China.** Up to 2005, all Chinese insurers were obliged to make compulsory cessions to ChinaRe, the national reinsurance company. Today, ChinaRe continues to be a major provider of reinsurance capacity, but the market is also open to competition by foreign international reinsurers.
- **India.** Under the PMFBY, 18 insurance companies (including 4 state insurance companies) compete for business under a system of state-level annual tenders. PMFBY insurers can purchase reinsurance protection from the national reinsurer, General Insurance Corporation Re (GIC) of India, which is the world's largest agricultural reinsurer, and also from international commercial reinsurers.
- **Portugal.** Private commercial insurers can purchase government stop-loss treaty protection under the government-operated SIPAC system + global reinsurance.
- **Mexico.** A national public reinsurance company, AGROASEMEX, provides voluntary reinsurance to private agricultural insurers. The 5 or 6 active private sector agricultural insurers are also free to reinsure with international reinsurers.
- **Spain.** An agricultural insurance pool (Agroseguro) is protected by the national catastrophe reinsurance company (Consortio de Compensación de Seguros), which reinsures Agroseguro on a stop-loss basis. Agroseguro's coinsurers may also elect to purchase reinsurance from international reinsurers on their retentions.
- **Canada.** Government insurance is shared between the provincial and central governments with some global private sector commercial reinsurance participation.
- **United States.** A special public-private reinsurance agreement (Standard Reinsurance Agreement) with the federal government of the United States involves participation by global private sector commercial reinsurance participation.

Source: Adapted from Mahul and Stutley 2010.

