

Galang, Ivory Myka R.

**Working Paper**

## Boosting agricultural productivity through parcelization of collective certificate of land ownership awards

PIDS Discussion Paper Series, No. 2020-26

**Provided in Cooperation with:**

Philippine Institute for Development Studies (PIDS), Philippines

*Suggested Citation:* Galang, Ivory Myka R. (2020) : Boosting agricultural productivity through parcelization of collective certificate of land ownership awards, PIDS Discussion Paper Series, No. 2020-26, Philippine Institute for Development Studies (PIDS), Quezon City

This Version is available at:

<https://hdl.handle.net/10419/241015>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

DISCUSSION PAPER SERIES NO. 2020-26

# Boosting Agricultural Productivity through Parcelization of Collective Certificate of Land Ownership Awards

*Ivory Myka R. Galang*



The PIDS Discussion Paper Series constitutes studies that are preliminary and subject to further revisions. They are being circulated in a limited number of copies only for purposes of soliciting comments and suggestions for further refinements. The studies under the Series are unedited and unreviewed. The views and opinions expressed are those of the author(s) and do not necessarily reflect those of the Institute. Not for quotation without permission from the author(s) and the Institute.

---

## CONTACT US:

RESEARCH INFORMATION DEPARTMENT  
Philippine Institute for Development Studies

18th Floor, Three Cyberpod Centris - North Tower  
EDSA corner Quezon Avenue, Quezon City, Philippines

publications@mail.pids.gov.ph  
(+632) 8877-4000

<https://www.pids.gov.ph>

Boosting Agricultural Productivity through Parcelization  
of Collective Certificate of Land Ownership Awards

Ivory Myka R. Galang

PHILIPPINE INSTITUTE FOR DEVELOPMENT STUDIES

December 2020

## Abstract

Farmers awarded with lands under a collective CLOA (CCLOA) have been experiencing problems arising from the collective arrangement (e.g. boundary issues, disputes with other collective members). These issues discourage many farmers from making long-term investment decisions on their land, thereby resulting in lower productivity. With a strong directive from President Rodrigo Duterte, currently, the Department of Agrarian Reform is committed to ensure the swift implementation of the Parcelization program, which aims to subdivide collectively-owned CLOAs, whose farmers are not engaged in collective farming. This paper aims to identify benefits and problems in relation to the subdivision of collective land titles. Based on findings of existing studies, individual land ownership has a positive impact on farmers' decisionmaking and on his/her farming outcomes. Although limited in sample observations, the analytical exercise using Project ConVERGE's survey data provided additional evidence favoring the acceleration of the subdivision of CCLOAs. It was also pointed out that while parcelization is being pursued, other rural development strategies, such as farm consolidation, could also be undertaken. For a faster and smoother implementation of parcelization program, it would be helpful to adopt a modern cadaster and record-keeping system and to improve agrarian justice delivery system of DAR.

**Keywords:** Certificate of Land Ownership Award, CLOA, collective CLOA, individual CLOA, ARBO, land reform, agricultural productivity, DAR

## Acknowledgment

This study was funded by ConVERGE, a joint project of the Government of the Philippines led by Department of Agrarian Reform, and of the International Fund for Agricultural Development. All errors and omissions are solely the responsibility of the authors and not of the supporting institutions.



## Table of Contents

Abstract.....	2
1. Introduction .....	5
2. Brief overview of land reform in the Philippines.....	5
3. Comprehensive Agrarian Reform Program (CARP) and Collective CLOAs.....	6
3.1 CARP Extension with Reforms .....	7
3.2 Collective CLOAs .....	11
4. Tenure security and agricultural productivity .....	15
5. Collective farming: Is it a viable strategy? .....	19
6. Collective CLOA: Problems encountered .....	20
7. Parcelization of CCLOAs .....	21
8. Empirical analysis: Individual CLOA farm vs. Collective CLOA farm .....	24
8.1 About Project ConVERGE .....	24
8.2 About the PIDS Baseline Survey.....	25
9. Why pursue a more secure and individualized form of tenure?.....	30
9.1 Perennial crops .....	30
9.2 Plantation crops and contract farming .....	31
9.3 Farm ownership vs. Farm management .....	31
10. Conclusions and Recommendations.....	31
11. Bibliography .....	33

### List of Figures

Figure 1. Accomplishment (%) by region, averaged from 1971-2018.....	9
Figure 2. Pathways leading to increased productivity.....	16
Figure 3. General Process Flow of Parcelization.....	22
Figure 4. Step 4: Firming up the list of collective owners of awarded lands.....	23
Figure 5. Step 5: Parcelization process .....	23

### List of Tables

Table 1. Land registration scope and percentage accomplishment of land distribution and registration by region, Philippines, 2014-2018.....	8
Table 2. Area of distributed and registered lands by region, Philippines, 2014-2018 (ha).....	9
Table 3. Number of agrarian reform beneficiaries of Certificate of Land Ownership Award (CLOA), by sex: 2000 to 2015.....	10
Table 4. Breakdown of Collective CLOAs by mode of acquisition (October 2007).....	12
Table 5. Total area of collective CLOAs issued by mode of acquisition (April 2016).....	12
Table 6. Number of agrarian reform beneficiaries by type of CLOA and by mode of acquisition.....	13
Table 7. Number of agrarian reform beneficiaries by type of CLOA and by region .....	13

Table 8. Average total income by mode of acquisition (in PHP) .....	14
Table 9. Project ConVERGE: Land Tenure Services (2017-2018) .....	24
Table 10. CLOA parcels owned by the sampled households .....	25
Table 11. CLOA parcels owned and still being cultivated by the sampled households.....	25
Table 12. CLOA parcels owned and still being cultivated by the sampled households (after removing households holding both Individual and Collective CLOAs) .....	25
Table 13. CLOA parcels with crop yield and sales information .....	26
Table 14. Demographics (household-level and main primary production operator-level) ....	26
Table 15. Average annual sales per hectare, by type of crop and type of CLOA .....	27
Table 16. Household income (individual-CLOA households vs. collective- CLOA households) .....	27
Table 17. Number of parcels by type of crop planted and type of CLOA .....	28
Table 18. Average yield for the Philippines and regions covered by Project ConVERGE (IX, X, Caraga) .....	28
Table 19. Number of parcels by type of permanent crop planted and type of CLOA.....	29
Table 20. Average yield of copra and banana, by type of CLOA.....	29
Table 21. Number of parcels by type of temporary crop planted and type of CLOA.....	29
Table 22. Average yield of palay and corn, by type of CLOA .....	30
 <b>List of Boxes</b>	
Box 1. Definition: land tenure, rights, security, and ownership .....	15
Box 2. The need for agrarian or land reform .....	18

# **Boosting agricultural productivity through parcelization of collective certificate of land ownership awards**

*Ivory Myka R. Galang<sup>1</sup>*

## **1. Introduction**

Although many Filipino farmers have benefited from land reform programs implemented by previous and present administrations, many farmers continue to call for government action to address landlessness. Even those farmers who have previously been awarded with Collective Certificate of Land Ownership Awards (CCLOAs) are still struggling to overcome poverty. Being a member of a collective entails following decisions of the majority or that of the assigned farm manager. With the lack of individual ownership of land, farmers under a CCLOA arrangement do not feel empowered and incentivized to make long-term investments on the land, thereby affecting their current and future incomes and livelihood opportunities.

In April 2019, President Rodrigo Duterte ordered the Department of Agrarian Reform (DAR) to fast track its implementation of the parcelization<sup>2</sup> program. The aim of parcelization is to subdivide collective land titles into individual land titles mainly to empower farmers in their farm decisionmaking. Based on the latest news, DAR had already issued collective Certificates of Land Ownership Awards (CCLOAs) covering 2.251 million hectares of agricultural land. However, 76 percent of which was awarded to individual agrarian reform beneficiaries (ARBs) under the co-ownership basis who were not actually engaged in collective farming. Around the same period, DAR issued Administrative Order No. 02 Series of 2019, which is “Guidelines and Procedures on the Parcelization of Landholdings with Collective Certificates of Land Ownership Award”. Moreover, to accomplish the directive of the President, DAR also created a separate office called Agrarian Reform Title Stabilization (ARTS) to facilitate the parcelization process.

This Policy Paper discusses benefits and problems in relation to the subdivision of collective land titles. Insights and lessons on land reform, with particular interest on land distribution, from international and local studies are presented. There is also an empirical analysis on the difference in agricultural performance between individual-CLOA and collective-CLOA farms using Project ConVERGE’s baseline survey.

## **2. Brief overview of land reform in the Philippines**

Indigenous land tenure arrangement during the pre-Hispanic period was said to be communal. According to Riedinger (1995), families were given usufruct rights by a datu (chief) in exchange for their domestic and on-farm services (as cited in Vargas 2003 p.3). During the Spanish period, many of the lands were amassed by friars. It was towards the end of the American occupation when the American colonizers first attempted to implement land reform measures, wherein vast tracks of friar lands were purchased and distributed to tenants. However, Adriano (1991) found that bulk of these estates went to the hands of wealthy Americans (e.g. businessmen, firms, and landlords) as the lands were sold at a very high price and also due to the tenants’ ignorance of the law (as cited in Vargas 2003 p.4).

---

<sup>1</sup> Supervising Research Specialist at the Philippines Institute for Development Studies (PIDS). The author would like to acknowledge the technical guidance and advice of Dr. Roehlano Briones (PIDS Senior Research Fellow) for this study.

<sup>2</sup> The term “parcelization” is defined by DAR as the “process of subdividing and determining the exact metes and bounds of the areas, allocation of lots to ARBs in a CCLOA, determination of common use areas, portions with common service facilities and establishment of areas capable of being alienated and disposed of by the government” (DAR AO No. 6 series of 2019).

This “first” attempt was followed by a number of legislations enacted to promote social justice and protection of tenants (e.g. 50-50 sharing terms, 70-30 sharing terms) starting from the Quezon administration up to Macapagal administration (DAR n.d.). In 1971, under the Marcos regime, the Department of Agrarian Reform was established and an Agrarian Reform Special Account Fund was created mainly to carry out land redistribution in a more accelerated and wider coverage (i.e. by including areas exceeding 24 hectares) compared to its predecessor (which was called Land Authority). The following year, the whole country was then proclaimed as a land reform area (by virtue of Presidential Decree [PD] 2). Unfortunately, in less than a month after PD No. 2, another PD was issued to restrict the coverage of land reform to tenanted rice and corn lands (PD 27 of 1972). From 1972 to 1985, around 259,000 hectares had been transferred under Marcos’ Operation Land Transfer program, while final titles transferred were only for 2,000 hectares. An estimate of 3 million farm families out of 5 million farm families did not have their own land in 1980 (Vargas 2003 p. 7).

### 3. Comprehensive Agrarian Reform Program (CARP) and Collective CLOAs

When the 1987 Constitution was ratified, there was a provision articulating that the “The State shall promote comprehensive rural development and agrarian reform” (Article II, Section 21). Thus, the Aquino government enacted Comprehensive Agrarian Reform Law (Republic Act [RA] No. 6657) in 1988. It was an act instituting a more comprehensive agrarian reform that seeks to promote not just social justice, but also rural development and industrialization, which had to be completed within 10 years. The intention was for the State to “...encourage the formation and maintenance of economic-size family farms to be constituted by individual beneficiaries and small landowners.” (RA6657, 1987, Section 2). Each agrarian reform beneficiary (ARB) was allowed to have a maximum of three hectares of land (RA6657, 1987, Section 25).<sup>3</sup>

DAR’s land distribution function focused on private agricultural lands and non-private agricultural lands (i.e. government-owned [GOL], settlements [SETT], and land estates [LE]).<sup>4</sup> DAR has five modes of acquisition of private lands, which are the following:

- 1) **Operation Land Transfer (OLT)**. “This is the mode of acquisition governed by PD 27 which mandates the compulsory distribution of tenanted rice and corn lands.” (De los Reyes 2016, pp.6-7).
- 2) **Compulsory Acquisition (CA)**. “This is a mandatory mode of acquisition governed by R.A. 6657 and applies to private agricultural lands regardless of crop or tenurial arrangement.” (De los Reyes 2016, pp.6-7).
- 3) **Voluntary Offer to Sell (VOS)**. “This is a voluntary mode of acquisition governed by RA 6657 wherein the landowner voluntarily offers to sell the land to the government at government-determined price.” (De los Reyes 2016, pp.6-7).
- 4) **Lands Foreclosed by Government Financial Institutions (GFI)**. “Under EO 407/448, lands foreclosed by government financial institutions were turned over to DAR for distribution.” (De los Reyes, 2016, pp.6-7).
- 5) **Voluntary Land Transfer/Direct Payment Scheme (VLT/DPS)**. “This is a voluntary mode of acquisition governed by RA 6657 wherein landowner and farmer-beneficiaries

---

<sup>3</sup> The law required new owners to settle their annual amortization and they were restricted to sell or transfer the land (except through hereditary succession) for ten years (RA6657, 1987, Section 27).

<sup>4</sup> Aside from DAR, the Department of Environment and Natural Resources (DENR) also has land distribution function. DENR is tasked to distribute alienable and disposal lands suitable for agriculture by issuing Free Patents and Homestead Patents (De los Reyes 2016).



agree on the terms and conditions for the transfer/sale of the land to the farmer-beneficiaries.” (De los Reyes, 2016, pp.6-7).

A number of instruments were used as documentation to certify ownership of land under the CARP, which are emancipation patents (EPs), Transfer Certificate of Title (TCT), and Certificates of Land Ownership Awards (CLOAs).<sup>5</sup>

### 3.1 CARP Extension with Reforms

When CARP ended in 1998, then-President Fidel Ramos signed into law RA 8532 that extended the implementation of CARP for another 10 years and provided additional funds into the program (RA 8532, 1998). Several studies have identified the shortcomings of the program. With the loopholes of the original law and resistance from big landlords, there were around 1.2 million hectares that still needed to be distributed by end of 2008. Then came another extension, which is called the Comprehensive Agrarian Reform Program Extension with Reforms (CARPER) [RA No. 9700, 2009].

#### 3.1.1 On land distribution

According to the End-of-Term Report of former DAR Secretary Virgilio de los Reyes released in June 2016, a total of 2.7 million beneficiaries received land covering 4.72 million hectares from 1972 to 2015. Including DENR’s accomplishments under CARP, a total of 7.26 million hectares out of 14.19 million hectares of alienable and disposable lands in the Philippines have been distributed under CARP. There was a remaining balance of 621,085 hectares that still needs to be distributed by DAR, which is referred to as Land Acquisition and Distribution (LAD) Balance as of 2016. LAD Balance takes into account changes in the database due to exclusion and inclusion of landholding, in addition to the difference between previous year’s gross accomplishment and previous year’s beginning balance (De los Reyes 2016).

In 2019, the Philippine Statistics Authority released a Redistribution of Land Report. One of their tables show the accomplishment of land distribution and registration for the whole country and by region for various years (See Table 1 and Figure 1). A total of 4.80 million hectares had been distributed and registered by DAR throughout the years until 2018 (see Table 2). SOCCSKSARGEN (693,163 hectares), Eastern Visayas (436,466 hectares), and Central Luzon (434,442 hectares) are the top three regions with largest land distribution area.

---

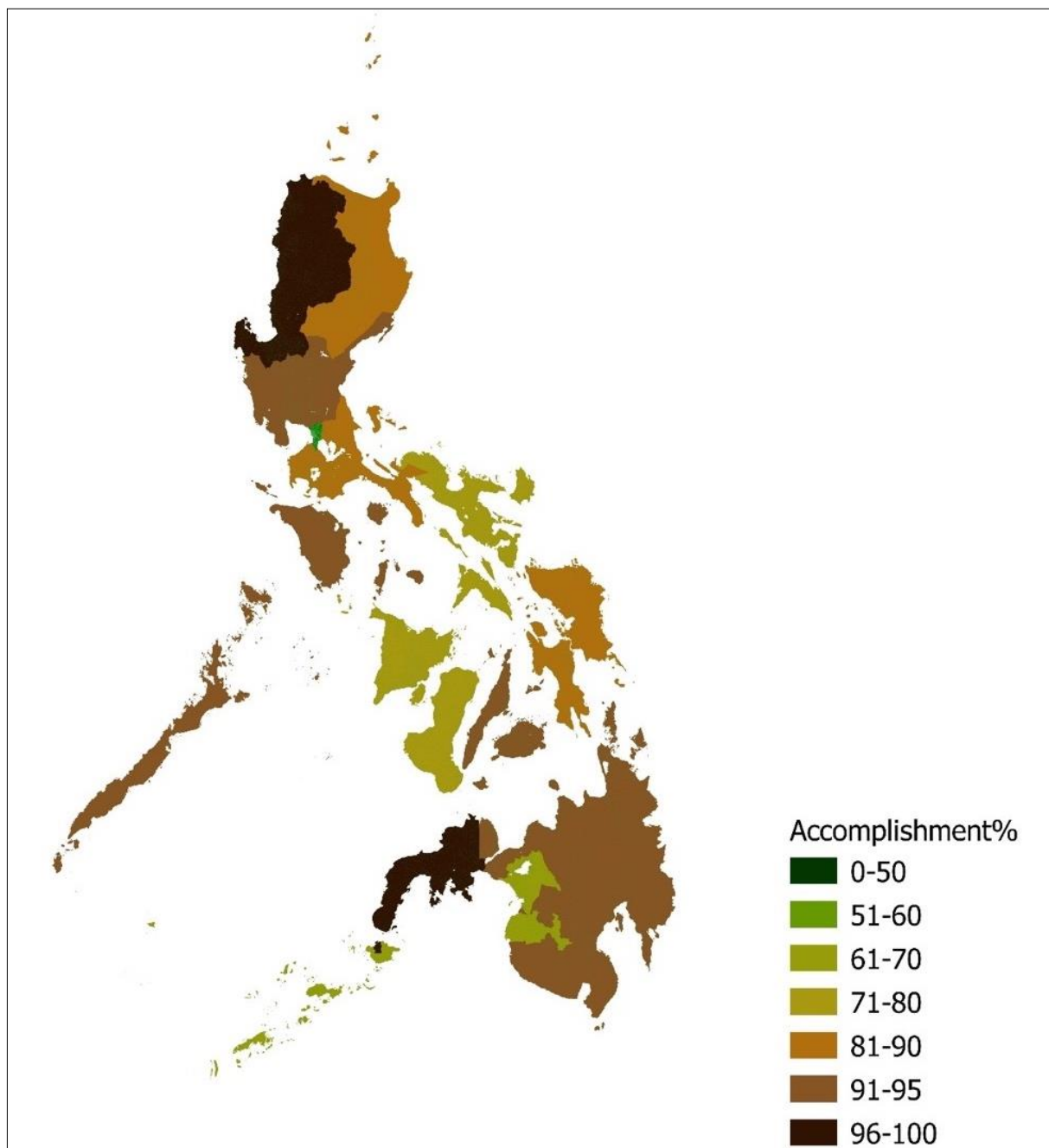
<sup>5</sup> EP are certificates indicating ownership rights over a parcel of land distributed through P.D. No. 27. These EPs are registered at the Land Registration Office and used to obtain a TCT. A TCT certifies that the ownership of land is transferred from the State to the private owner. Those distributed through R.A. No. 6657 are awarded through Certificates of Land Ownership Award (CLOAs). CLOAs are also used as final proof of ownership. These three were maintained by the Register of Deeds (Vargas 2003). A Supreme Court ruling, however, states that CLOAs do not have the same status as TCTs (DAR and Pablo Mendoza Vs. Romeo C. Carriedo, S.C. G.R. No. 176549, (CLOAs as mere CLTs/ DAR Administrative Order No. 5 Series Of 2006 as Null and Void For Being Ultra Vires) (De los Reyes 2016).

**Table 1. Land registration scope and percentage accomplishment of land distribution and registration by region, Philippines, 2014-2018**

Region	Scope (Gross Area, CY 2018, ha)	Accomplishment (%)					
		1971-2018	2014	2015	2016	2017	2018
Philippines	5,418,735	88.55	1.70	0.51	0.42	0.52	0.53
CAR	105,312	97.51	0.63	0.15	0.03	0.15	0.19
Ilocos Region	144,893	99.22	0.21	0.14	0.20	0.32	0.18
Cagayan Valley	417,812	88.10	0.54	0.29	0.22	0.20	0.28
Central Luzon	453,303	95.84	0.66	0.39	0.33	0.48	0.64
CALABARZON	218,769	87.52	2.20	0.85	0.67	0.31	0.69
MIMAROPA	191,360	94.61	0.32	0.32	0.26	0.22	0.33
Bicol Region	408,631	80.12	0.97	0.47	0.43	0.58	0.50
Western Visayas	561,998	74.46	0.93	1.00	0.67	0.89	1.11
Central Visayas	202,791	91.19	0.73	0.56	0.58	0.34	0.29
Eastern Visayas	494,121	88.33	0.08	0.20	0.17	0.29	0.55
Zamboanga Peninsula	237,182	96.81	0.93	0.34	0.28	0.24	0.31
Northern Mindanao	363,779	94.20	2.86	0.41	0.85	0.67	0.38
Davao Region	260,946	95.61	0.59	0.32	0.26	0.30	0.25
SOCCKSARGEN	730,951	94.83	6.19	0.87	0.63	1.32	0.78
Caraga	294,162	92.81	2.95	0.49	0.47	0.23	0.56
ARMM	332,725	66.64	0.49	0.32	0.01	0.00	0.04

Source: DAR (PSA 2019)

**Figure 1. Accomplishment (%) by region, averaged from 1971-2018**



Source: Author's map

**Table 2. Area of distributed and registered lands by region, Philippines, 2014-2018 (ha)**

Region	1971-2018	2014	2015	2016	2017	2018
Philippines	4,798,556	92,199	27,670	22,735	28,403	28,573
CAR	102,693	667	162	36	161	196
Ilocos Region	143,769	309	196	292	465	259
Cagayan Valley	386,084	2,294	1,222	922	831	1,171
Central Luzon	434,442	2,880	1,753	1,502	2,143	2,905

CALABARZON	191,474	4,711	1,854	1,455	681	1,517
MIMAROPA	181,043	600	617	488	423	629
Bicol Region	372,405	4,093	1,924	1,787	2,395	2,032
Western Visayas	418,490	5,227	5,871	3,774	5,070	6,247
Central Visayas	184,935	1,484	1,130	1,176	695	585
Eastern Visayas	436,466	419	966	830	1,430	2,719
Zamboanga Peninsula	229,612	2,221	811	676	572	737
Northern Mindanao	342,686	10,581	1,476	3,090	2,422	1,374
Davao Region	249,490	1,534	833	692	793	661
SOCCSKSARGEN	693,163	44,592	6,341	4,587	9,640	5,674
Caraga	273,004	8,967	1,435	1,395	680	1,662
ARMM	221,728	1,622	1,078	32	1	133

Source: DAR (PSA 2019)

In particular, the cumulative number of CLOA beneficiaries was around two million from years earlier than 2000 up to 2015 (See Table 3). They were mostly males, which accounted for 67 percent if averaged from year 2000 to 2015. These figures are based on a PSA publication called the Statistical Handbook on Women and Men in the Philippines released in 2016.

**Table 3. Number of agrarian reform beneficiaries of Certificate of Land Ownership Award (CLOA), by sex: 2000 to 2015**

Year	Women		Men		Total Number
	Number	% Share	Number	% Share	
2000 <sup>1/</sup>	358,255	30.1	831,343	69.9	1,189,598
2001	18,575	30.6	42,128	69.4	60,703
2002	20,846	31.8	44,709	68.2	65,555
2003	19,931	32.3	41,714	67.7	61,645
2004	20,163	34.3	38,660	65.7	58,823
2005	22,847	37.4	38,221	62.6	61,068
2006	28,724	37.8	47,222	62.2	75,946
2007	33,565	38.5	53,622	61.5	87,187
2008	33,306	39.6	50,815	60.4	84,121
2009	14,028	40.2	20,832	59.8	34,860
2010	22,349	41.2	31,917	58.8	54,266
2011	15,145	38.1	24,573	61.9	39,718
2012	12,997	40.4	19,198	59.6	32,195
2013	16,795	38.1	27,268	61.9	44,063
2014	10,429	36.1	18,470	63.9	28,899
2015	5,990	33.6	11,817	66.4	17,807
Total	653,945	32.8	1,342,509	67.2	1,996,454

Source: Department of Agrarian Reform (PSA 2016)

Note: 1/ Data for 2000 is the cumulative result of the previous years up to 2000.

### 3.1.2 On poverty alleviation

Based on a World Bank study (2009), which used the provincial-level poverty data from Family Income and Expenditure Survey (FIES) covering the period 1988 to 2006, there was no correlation between the poverty incidence in 1988 and CARP implementation. When the first decade and second decade of CARP implementation were taken separately, they found evidence that the second decade targeted poorer provinces (World Bank 2009).

Moreover, the study found that CARP was poorly related to land inequality as 1) the ratio of landless farmers and 2) the provincial agricultural landholding Gini coefficient are both negatively correlated with the scope of Land Acquisition and Distribution (LAD) program (World Bank 2009).

In terms of household- and village-level data, CARP's impact on poverty appeared to be positive albeit modest. The estimated average per capita consumption was 15 percent higher among those who benefitted from CARP's Land Tenure Improvement (LTI) by having access to land than those non-beneficiaries (World Bank 2009).

Among the different modes of acquisition, lands under CA was significantly associated with poverty reduction. A 10-percent increase in private land redistribution is significantly associated with a 3-percentage-point increase in the annual rate of poverty reduction. With regard to CA accomplishment rate, in particular, the associated increase in annual rate of poverty reduction is 8-percentage-point (World Bank 2009).

### 3.2 Collective CLOAs

Distributed CLOAs could be in the form of either individual CLOA or collective CLOA. In case it was "not economically feasible and sound to divide the land," qualified beneficiaries may opt to collectively own land through a cooperative, association, or other type of organization.<sup>6</sup> They shall be issued a Collective CLOA (CCLOA). The award ceiling of three hectares per ARB still stands (RA6657, 1987, Sections 25 and 29).

Based on DAR AO No. 3 Series of 1993, there are three types of collective CLOAs: 1) co-ownership basis; 2) farmers' cooperatives; and 3) some other forms of farmers' collective organization. Co-ownership is the case wherein the CLOA is under the name of all beneficiaries. Idle lands or not tenanted lands are usually distributed under the co-ownership type of collective CLOA because potential beneficiaries are not organized and are not yet tilling specific land parcels. On the other hand, those lands that are currently tenanted or worked on by farmworkers will more likely be distributed via individual CLOAs (World Bank 2009).

Cooperative or Farmer's Organizations CLOA is the case wherein the CLOA is issued under the organization's name with annotation of all names of the beneficiaries. Commercial and agribusiness farms of multinational companies are usually distributed under this type of collective CLOA (World Bank 2009).

The issuance of collective land title was a pragmatic approach for DAR at that time since it "[did] away with subdivision surveys and individual titling, which would take a much longer time at very high costs" (Eularia 2015). For example, the estimated DAR's administrative cost

---

<sup>6</sup> Based on DAR AO No. 3 Series of 1993, there are three types of collective CLOAs: 1) co-ownership basis; 2) farmers' cooperatives; and 3) some other forms of farmers' collective organization.

per hectare for transferring land was PHP36,000 for the period 2003 to 2007.<sup>7</sup> Zooming in on the cost of transferring just private land (e.g. CA), which is the most expensive, the cost would range from PHP86,076 and PHP101,857 (World Bank 2009). There was an intent to subdivide the collective CLOAs shortly thereafter, but DAR field offices were not as inclined to achieve this goal (de los Reyes 2016). They were more incentivized to distribute new lands, rather than subdivide already distributed CCLOAs because their performance is assessed based on the number of hectares covered and number of CLOAs distributed (Eularia 2015).

The share of collective CLOA in total hectares distributed in 2007 was around 70 percent (see Table 4). The share varied by mode of acquisition. GOL (86%) and GFI (83%) were the modes with very high percentage of collective CLOAs compared to individual CLOAs (World Bank 2009).

**Table 4. Breakdown of Collective CLOAs by mode of acquisition (October 2007)**

Mode of acquisition	Collective CLOA (ha)		Individual CLOA (ha)		Total in hectares
	in hectares	% share	in hectares	% share	
GFI	117,418	83	23,807	17	141,225
VOS	371,092	69	163,366	31	534,458
CA	141,430	58	101,280	42	242,710
VLT	362,971	65	194,979	35	557,950
SETT	380,175	63	226,795	37	606,970
LE	35,897	54	30,880	46	66,777
GOL	673,779	86	109,096	14	782,875
Total	2,082,762	71	850,203	29	2,932,965

Source: DAR Management Information Service (World Bank 2009)

After cleansing the database, in April 2016, CCLOAs constituted 46 percent of the 4.71 million hectares of land distributed during the past four decades (refer to Table 5). Regions 12 and 8 were the regions that had the highest area of CCLOAs issued. In terms of provinces, Negros Occidental, North Cotabato, and Bukidnon were among the top. These CCLOAs were mostly from government-owned lands and VLT and VOS acquisitions (De los Reyes, 2016).

**Table 5. Total area of collective CLOAs issued by mode of acquisition (April 2016)**

Mode of acquisition	Total Accomplish ment (in ha)	Collective CLOA Issued (in ha)	% of Collective CLOA Issued	% of Collective CLOA in Total accomplishment
CA	357,106	143,513	6.62	40.19
VOS	650,537	405,893	18.72	62.39
OLT/PD 27	594,175	546	0.03	0.09
GFI	171,391	125,446	5.79	73.19
VLT/DPS	835,561	432,829	19.96	51.80
Landed Estate	81,494	12,287	0.57	15.08
Settlement	811,242	339,036	15.64	41.79

<sup>7</sup> This estimate included all lands under various modes of acquisition.

KKK/GOL	1,217,339	708,565	32.68	58.21
<b>TOTAL</b>	<b>4,718,845</b>	<b>2,168,115</b>	<b>100</b>	<b>45.95</b>

Note: KKK means to Kilusang Kabuhayan at Kaunlaran

Source: Field Operations Office, Department of Agrarian Reform (De Los Reyes 2016)

Based on the ARBs survey done by Philippine Statistical Research and Training Institute (PSRTI) in 2016<sup>8</sup>, the number of beneficiaries issued with collective CLOAs was 53 percent. The total number of unique names in the database was around 2.5 million ARBs. CCLOA beneficiaries obtained land through the GOL (29%), VLT (26%), and VOS (19%) modes (see Table 6). On the other hand, individual-CLOA beneficiaries acquired land via the OLT (36%) and VLT (17%) modes (PSRTI 2016).

**Table 6. Number of agrarian reform beneficiaries by type of CLOA and by mode of acquisition**

Mode of acquisition	Individual	Collective	Total
CA	95,792	102,520	198,312
GFI	20,209	61,412	81,621
GOL	138,769	385,393	524,162
LE	39,383	19,848	59,231
SETT	98,799	151,214	250,013
VLT	192,649	340,531	533,180
VOS	147,369	252,123	399,492
OLT	408,202		408,202
<b>Grand Total</b>	<b>1,141,172</b>	<b>1,313,041</b>	<b>2,454,213</b>

Source: PSRTI (2016)

The distribution of CLOA beneficiaries in 2015 across regions is described in Table 7. Most of CCLOA beneficiaries were in Region 6 (13%) and Region 12 (13%). Meanwhile, individual CLOA beneficiaries are concentrated in Luzon Island, specifically in Region 3 (20%), Region 4 (13%), and Region 2 (12%) (PSRTI 2016).

**Table 7. Number of agrarian reform beneficiaries by type of CLOA and by region**

Region	Individual	Collective	Total
1	72,192	50,529	122,721
2	135,867	54,634	190,501
3	224,018	41,664	265,682
4	142,724	95,558	238,282
5	87,928	96,886	184,814
6	89,383	171,440	260,823
7	44,426	90,535	134,961
8	57,861	131,149	189,010
9	23,052	86,399	109,451

<sup>8</sup> This survey was commissioned by DAR in 2015. Data collection period was from January to May 2016. Reference period was either last cropping or the last 12 months depending on the crop planted.

10	63,730	98,751	162,481
11	39,915	115,857	155,772
12	89,742	167,164	256,906
CARAGA	46,275	77,164	123,439
CAR	24,059	35,311	59,370
<b>Grand Total</b>	<b>1,141,172</b>	<b>1,313,041</b>	<b>2,454,213</b>

Source: PSRTI (2016)

Interestingly, based on the PSRTI survey, the average farm income of collective ARBs amounting to PHP142,869 was higher than that of individual ARBs, which was PHP101,475 (PSRTI 2016). The same pattern was observed for the average total household annual income. Collective ARBs' total annual income was PHP195,150 on average, which was higher than PHP155,113 of the individual ARBs (refer to Table 8). The contribution of farm income to total income among collective ARBs was 65 percent, while it was 67 percent for individual ARBs. More specifically, of the total income, collective ARBs derived 55 percent from crop production, while it was 59 percent among individual ARBs. According to the study, collective ARBs were able to pool the size of their land, which facilitated a more efficient production and provided other income opportunities for them (PSRTI 2016).

**Table 8. Average total income by mode of acquisition (in PHP)**

<b>Mode of acquisition</b>	<b>Collective ARBs</b>	<b>Individual ARBs</b>
CA	148,244	150,168
GFI	133,092	149,113
GOL	163,436	134,776
LES	147,575	215,643
OLT		194,445
SETT	132,831	135,927
VLT	408,576	130,573
VOS	229,065	127,729
<b>Average for all types</b>	<b>195,150</b>	<b>155,113</b>

Source: PSRTI (2016)

Currently, the subdivision of collective CLOAs (also called parcelization) is now being pursued and prioritized by DAR. There were a number of issues arising from CCLOAs, especially of those co-owned by individual farmers but are not collectively engaged in farming. Many of the ARBs are involved in conflicts with other ARBs due to boundary conflicts. Some ARBs are excluded and/or included in the official Master List. Consequently, boundary problems of CCLOA holders discourages them to pay their share in the land amortization. This has adversely affected the collection of land amortization of Land Bank of the Philippines (LBP). To address these issues, one of the amendments under CARPER is the immediate parcelization of CCLOA-issued lands that are not collectively-farmed or operated in an integrated manner (DAR AO 2019).



### Box 1. Definition: land tenure, rights, security, and ownership

Before delving into the parcelization issue directly, it is important to clearly understand the concept of land ownership as opposed to land tenure and other related concepts.

Food and Agriculture Organization (FAO) (n.d.a) broadly defines **land tenure** as the “relationship, whether legally or customarily defined, among people, as individuals or groups, with respect to land.” With this, land tenure systems identify who are allowed to use the land, up to when, and under what conditions (FAO n.d.a).

A person or group of people may hold a “bundle of **rights**” to a parcel of land. Example of such rights are use rights, control rights, and transfer rights, among others. These land tenure rights may be classified as formal or informal. Formal property rights are those that are recognized and protected by the state and the legal system. On the other hand, informal property rights lack recognition and protection and, in some cases, may be regarded as illegal (FAO n.d.a).

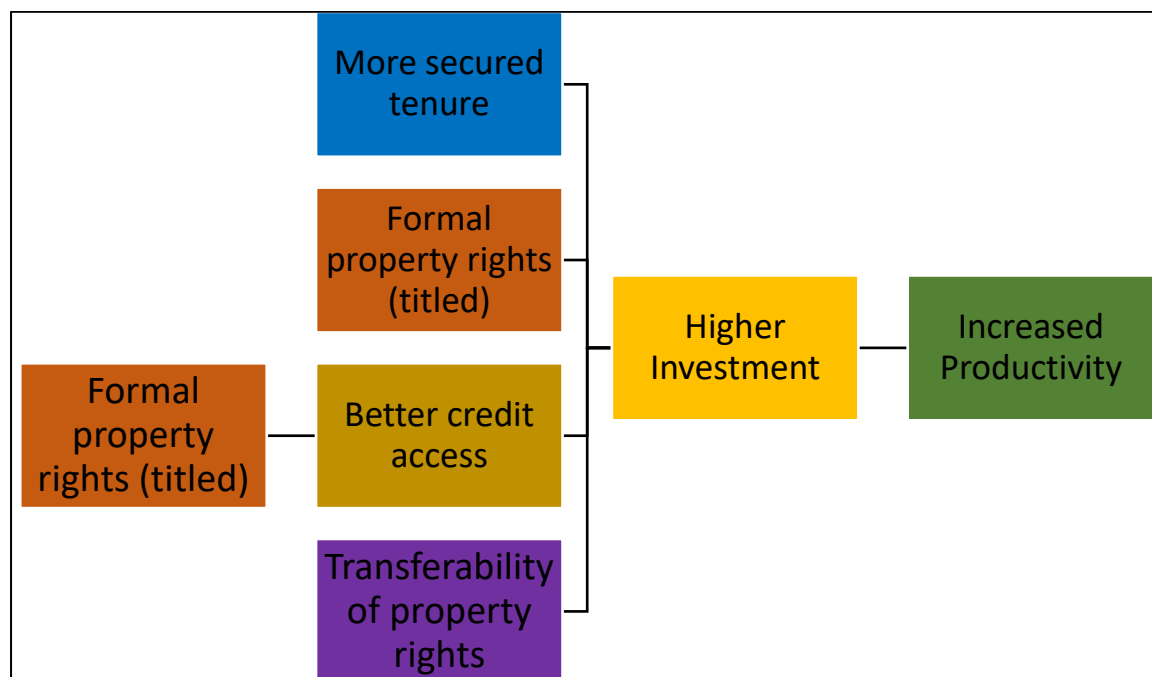
**Access** to land may be gained through various strategies. First, it can be gained based on custom. Especially in indigenous societies, customary rights to land are developed by ancestral occupation. Other strategies are through purchase, inheritance, leasing (i.e. by paying rent), sharecropping (i.e. by paying the owner a part of the production), illegal occupation, or by adverse possession or prescription. Another strategy is a state-led intervention (for example, land redistribution program) (FAO n.d.a).

**Tenure security** refers to the “certainty that a person’s rights to land will be recognized by others and protected in cases of specific challenges” (FAO n.d.a). People with tenure security do not have to face threats of possible eviction or competing claims. **Full private ownership** gives a person long-term and full tenure security. Owners have transfer rights to sell and mortgage. Community-based tenure regimes may give tenure security, but may only allow limited transfer rights (FAO n.d.a).

### 4. Tenure security and agricultural productivity

Many studies have concluded that a more secure tenure leads to greater incentives for farmers to undertake more and longer-term investment on his/her farm plot. However, it is not clear which element of security (e.g. transferability of property rights, formal or informal regime) is the most effective one in increasing the farm productivity. The findings of various studies on land reform (and its impact on farming outcomes of farmers) are presented in Figure 2 and categorized based on their suggested pathway to improve productivity. There are four pathways leading to increased productivity: 1) through a more secured tenure (either formal or informal); 2) through formal tenure such as land titling or registration; 3) through land titling, which serves as a pre-requisite for better credit access; and 4) through transferable property rights. All pathways will lead to higher investments (on current inputs, and on modern technologies) first, and then it will eventually lead to increased productivity.

**Figure 2. Pathways leading to increased productivity**



Source: Author's compilation

**A more secure tenure can lead to increased investment and productivity under a formal or informal property rights regime.**

***Pathway No. 1: Tenure security → higher investment → increased productivity***

Tenaw et al (2009) found that the presence of property rights removes the anxiety of sudden expropriation or eviction from the land. This in turn increases farmers' confidence in making long-term investment decisions and adopt the best cropping system that he/she deems appropriate.

Under both formal and informal regime, owners with greater tenure security have increased their investments (Deininger 2003). Jacoby, Li, and Rozelle (2002) observed that farmers in rural China applied greater quantity of manure and labor on their privately-owned plot than on their other plots that had a different tenure regime, while controlling for the type of crop. This in turn led to significantly higher yield (as cited in Deininger 2003, p. 45).

A study in China by Yao (1996) attributed tenure security to the higher level of application of green manure (as cited in Deininger 2003, p.45). In Niger, Gavian and Fafchamps (1996) wrote that the amount of manure applied by farmers was significantly lower on rented plots than on owned plots, but there was no difference between parcels under private ownership and those held under traditional usufruct that had a shorter timeframe. This is because they are able to reap the benefits in the near-term (as cited in Deininger 2003, p.46). Another study in India saw the same pattern. According to the study of Pender and Kerr (1998), there were lower investments on leased plots than on secure land rights in India (as cited in Deininger 2003, p. 46).

**Formal property rights regime such as land registration and titling are important in increasing investment and productivity.**

***Pathway No. 2: Land registration/Titling → higher investment → increased productivity***

A study by Feder (1988) found that land ownership titles in Thailand prompted more investments in farming capital which led to higher productivity per unit. The output was said to be 14 to 25 percent higher on lands with title than without title while controlling for the quality of the plot of land (as cited in Deininger 2003, p.45). In a study in Vietnam, Do and Iyer (2002) observed an increase in the levels of perennial crop cultivation and in irrigation in lands that had been registered (as cited in Deininger 2003, p.45). In addition, Do and Iyer (2008) noted that poor households also had more opportunity to spend more of their time in non-agricultural activities (as cited in Deininger and Goyal 2010, p. 5)

***Pathway No. 3: Land registration/Titling → increased access to credit → greater agricultural investment and adoption of modern technology → increased productivity***

Having a title for a parcel of land makes it easier for farmers to access credit as they can use the land title as collateral (Tenaw et al. 2009). Platteau (1993) find that greater access to credit allowed farmers to invest in durables and apply inputs more intensively, which resulted in higher agricultural productivity in Sub-Saharan Africa (as cited in Tenaw et al. p.8). However, this result should be taken with caution as Tenaw et al. (2009) pointed out that results in Sub-Saharan Africa countries were inconclusive.<sup>9</sup>

In the case of Thailand, Feder et al. (1988) observed that there was a surge in demand for land improvements and also supply of credit when property rights was secured and that land could be used as collateral (as cited in Tenaw et al. p.9).

In the Philippines, it was found that ownership of titled land has a positive effect on access to formal lending. For every additional hectare of titled land, the probability of accessing credit is increased by 1.4 percent. Thus, a three-hectare farm would increase a beneficiary's probability of accessing formal credit by 4.2 percent. (World Bank, 2009). Moreover, those ARBs that have not yet secured full ownership of their land are less inclined to invest in land improvements (World Bank, 2009).

**Transferability of property rights is an important factor in increasing investment and productivity.**

***Pathway No. 4: Transferability of property rights → higher investment → increased productivity***

A more secure tenure may mean that the property right to a land is transferable. Carter's study (2002) involving a panel data from China found that transfer rights can boost agricultural investment, while controlling for other possible factors (as cited in Deininger 2003, p.45). The same is observed in Ghana by Besley (1995), wherein individual farmers had a higher tendency to plant trees and make investments when they are tilling plots with greater transferability (as cited in Deininger 2003, p.46). From this, it can be inferred that tenure security does not require

---

<sup>9</sup> Migot-Adholla et al (1991) did not find significant relationship between land rights and productivity in Ghana, Kenya, and Rwanda after running a regression analysis (as cited in Tenaw et al. p.9).

fully individualized rights or titles to be able to change farmers' behavior related to investing (Deininger 2003).

In the Philippines, CARP was supposed to transfer individual land ownership titles to small farmers and landless farmworkers ultimately to improve their farm household welfare. The titles were expected to incentivize these beneficiary-farmers to make short- and long-term investments in their agricultural land (World Bank, 2009). With the issuance of collective CLOAs, asset redistribution cannot be considered complete, since there was lack of proper assignment of individual property rights. In addition, CCLOA beneficiaries' ability to access to credit and modern farming technologies was hampered (World Bank, 2009).

## Box 2. The need for agrarian or land reform

To promote social justice amidst worsening poverty and inequality, many governments had implemented agrarian reform in the past. But how is agrarian reform different from land reform? Hirtz (1998) defines agrarian reform as "the sum total of agrarian policies that aims at a fundamental transformation of the agrarian structures of a nation state" (p. 248). It involves the establishment of new property relationships to land and water, through a mix of policies directed at achieving interlinked and independent goals, namely, policy goals, agrarian policy goals, national economic goals, and social and psychological goals. The main argument for pursuing agrarian reform is the assumption that people (e.g. tenant, leaseholder, producer without legal title) who do not own the land they are tilling are dependent and insecure. Due to dependence, indecisiveness, and insecurity, agricultural producers are hindered from making long-term investments that could improve their productivity (Hirtz 1998).

A narrower concept is land reform, which is "the effort to rearrange, reconfigure, or redefine tenure relationships to allow land to become a marketable means of production" (p. 249). Thiesenhusen (1995) identified outcomes that may arise from land reform are food security, reduction in social polarity, increased investment, transparent production incentives, poverty reduction, increased employment, and greater equity (as cited in Tenaw et al. 2009, p. 6).

An example of a form of land reform is **land redistribution**. Under this type, rural poor are given better access to land by the State by taking land from large landholders and then transferring the ownership to smallholder and landless farmers (FAO n.d.). The previous owners are given ample compensation in some cases, while in others they are not. The increase in autonomy provides farmers the security and legitimacy to undertake land reform (Hirtz 1998). Recognizing that land reform alone is not enough to improve agricultural performance of farmers, some governments have also provided agricultural services and infrastructure, such as access to credit and extension services.

By allowing producers to become more active, the economic, political, and social conditions of not just the individual, but also the rural community as a whole improves. For instance, greater access to land is expected to encourage higher investments to the agriculture sector. Other examples of positive outcomes are "increase in agriculture-based off-farm activities, a more equitable distribution of assets, an increased political independence for the operators and a greater interdependence amongst members of the economically active population" (Hirtz 1998, p. 250). In a study by Deininger (2003) for World Bank, he discussed that initial land distribution can affect the nature of economic growth. There was a graph illustrating that, based on a 1960-2000 data, countries that implemented a more egalitarian land redistribution have achieved a much higher levels of economic growth.

## 5. Collective farming: Is it a viable strategy?

Farmers in a collective system pool together their resources, such as land, labor, other inputs, and harvests. The following are some of the benefits of collective farming:

**Economies of scale.** Under a collective system, co-owners are able to 1) break seasonal labor shortage (Mearns 1996); and 2) invest in infrastructures (Boserup 1965; Dong 1996) (as cited in Deininger 2003, p.29). They are able to improve efficiency and internalize harm. If individual titling is enforced, it would be extremely costly to establish and maintain infrastructures by themselves. In China, former Soviet Union, and Vietnam, the landlord estates converted into family farms were reconsolidated into collectives (Deininger 2003).

**Food security.** Kay (1998) described that, like in the case of the Philippines, the agrarian structure in many Latin American countries (i.e. Mexico, Cuba, Chile, Nicaragua, and El Salvador) was more like plantations. Thus, their governments preferred the expropriation of land to collectives rather than individual family farms during 1930s up to 1970s, as they were concerned with economies of scale and food security (Casidsid-Abelinde, 2017, p.18).

**Serves as local insurance** when the area is high-risk and lacks well-developed insurance market. Ellickson (1993) suggested that local communities usually have a better access to private information than formal institutions, thus they can provide some form of insurance against idiosyncratic and covariate shocks (as cited in Deininger 2003, p.29).

**Property rights enforcement** against nonmembers or outsiders is much easier and faster, especially if resources are scarce. Also, when the area is too remote and government institutions have limited capacity to enforce property rights, collective effort to administer security measures costs lower (Deininger 2003).

**Bargaining power.** Farmers engaged in collectives do not only pool their resources, but also their collective voice to obtain a stronger bargaining power. Organizing the smallholder farmer and/or farmworkers enables them to gain some leverage and pursue their common interests (Leder et al. 2019).

Despite the abovementioned benefits, there are problems associated with collective farming. Below are some examples of these problems.

**A self-governing group is hard to create or cultivate.** This entails that there should be a management person or group of persons that are able to solve conflicts, deal with internal and external problems, as well as to handle financial resources efficiently and with integrity (Deininger 2003). These characteristics cannot be learned overnight or just by attending seminars, but by actually doing the tasks, making mistakes, and dealing with those mistakes. Learning how to manage people and resources takes time and resources. Apart from requiring accountability from the management people, educating the members about their responsibilities and rights also matter a lot in building cohesion of the group. Without cohesion, members lose confidence in the decisions of the management, which could in turn lead to actual break-up of the group.

**Authority of “new managers” over collective members is weak.** The human behavior dimension was not considered when collectivization was taking place. The change in agrarian

relations from landlord-worker to farm managers-collective member greatly affected the way workers behaved. According to Kay (1998), with less authority and probably experience in actual farm management, “new managers” were unable to incentivize workers to do productive farm-related work, while attracting free riders (as cited in Casidsid-Abelinde 2017, p.18).

**Inexperienced “new managers” are unable to make good business decisions.** Kay (1998) also pointed out that redistribution of profits is being done more often than investing the profits (as cited in Casidsid-Abelinde 2017, p.18).

**Collective farming becomes less attractive with increasing economic development.** Deininger (2003) described examples of desirable situations under a well-developed economy: 1) mechanisms to manage risk are available; 2) markets for output, capital, and insurance are well-developed; 3) technical progress that allows for greater diversification and yield improvements is present; 4) institutional environment and access to economic activities outside of agriculture are improved; 5) benefits of exchanging property rights among cultivators are increased with higher land values; and 6) off-farm migration led to the emergence of long-term use rights and land rental markets that give the land to farmers with the highest ability (p. 31).

## **6. Collective CLOA: Problems encountered**

Farmers who have been awarded with CCLOA titles have experienced various problems. Most of these problems have resulted in actual splitting of groups into sub-groups or co-owners opted for individual ownership of land. The following are some of the issues encountered by ARBs under the CCLOA scheme:

### **Identification of beneficiaries (inclusion/exclusion of ARBs).**

- Since it has been decades ago since the CCLOAs were issued, many of the original ARBs have already died. In the absence of a proper succession policy, disputes in the inclusion and exclusion of ARBs have worsened (DAR AO 2019, Casidsid-Abelinde 2017 and Ballesteros 2003).
- Some ARBs are not tilling anymore and opted to transfer their rights to another (de los Reyes 2016).
- Those who are current tillers are not in the original list of ARBs (de los Reyes 2016).

**Membership in the organization takes precedence.** There are cases wherein a farmer decides to leave the organization, however, since the CCLOA is under the organization’s name and annotation of names of individual beneficiaries is lacking, according to Batt et al. (2016), the farmer essentially surrenders his/her right to the awarded land (as cited in Casidsid-Abelinde 2017, p.20).

**Disputes regarding land management.** Most of the CCLOA holders did not come from organized farmer associations and so they did not have experience in collective land management (Casidsid-Abelinde 2017).

**Boundary conflict.** There were no subdivision surveys conducted, thus farmers do not know which parcel of land actually belong to them (Casidsid-Abelinde 2017, Ballesteros 2003).

**Land taxation.** Payment rates of real property tax among CCLOA holders are low. Eleazar et al. (2016) found that aside from the lack of proper land valuation, some of the ARBs are not

paying their taxes because they have not yet been installed in the area and have not been tilling the land (as cited in Casidsid-Abelinde 2017, p.20).

**Titling problem due to unpaid amortization.** Land amortizations are supposed to be paid by ARBs to LANDBANK to facilitate the processing of their formal title. However, with the abovementioned issues, ARBs do not feel incentivized to pay their amortization that could result in further land insecurity (Casidsid-Abelinde 2017 and Ballesteros 2003).

**Agribusiness venture arrangements (AVA) with the organization.** Batt et al. (2016) found that some of the ARBs engaged in AVA were forced to enter into such agreement with large corporations and that they are not fully aware of the stipulations in the contract. There was a lack of adequate technical and legal assistance to these ARBs (as cited in Casidsid-Abelinde 2017, p.20).

## 7. Parcelization of CCLOAs

Under CARPER, one of the amendments involving CCLOA is the immediate parcelization of CCLOA-issued lands that are not collectively-farmed or operated in an integrated manner (DAR AO 2019). Per DAR AO 2019, collective ownership will remain if any of following circumstances is applicable:

- 1) the farm management system is not appropriate for individual farming of farm parcels;
- 2) when farmworkers do specialized labor activities (e.g. spraying, packing), not by specific parcel;
- 3) farming is done collectively and on large contiguous area; or
- 4) multiple crops are being planted and there are non-crop production facilities or areas (e.g. storage area, packing plants) which are impossible to subdivide among individual farmers.

Around 1.1 million hectares of the 2.1 million hectares of CCLOAs had been subdivided into individual CLOAs. Excluding those co-owners who opted not to subdivide, the remaining area for subdivision is 848,420 hectares as of 2016 (de los Reyes 2016).

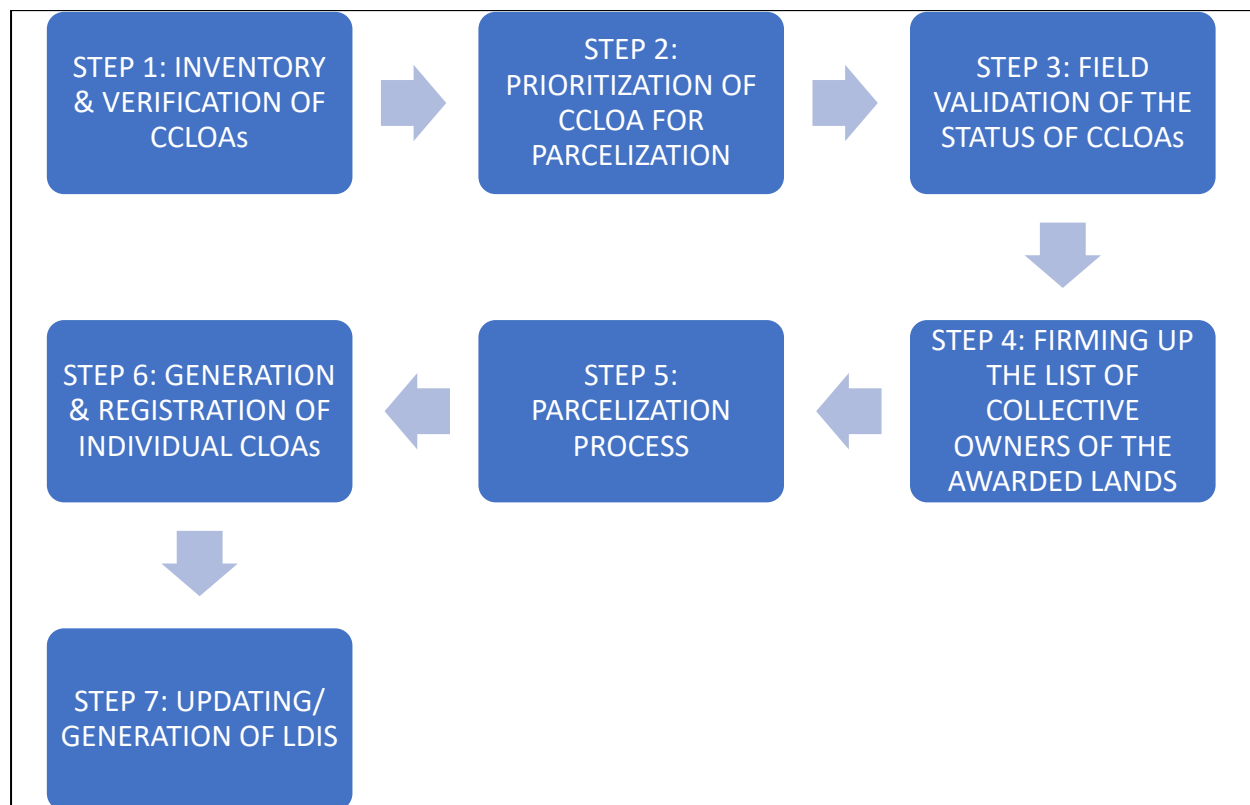
In 2016, DAR issued Administrative Order No. 03, which is the “Guidelines and Procedures to Stabilize Ownership and Tenureship of Agrarian Reform Beneficiaries with Collective Certificates of Land Ownership Award (CLOA).” The aim of this AO was to perform stabilization process by ensuring that ownership of parcels of land under CCLOA are clear and well-defined. The AO also set guidelines on settlement of disputes and on transfer of rights resulting from the stabilization of ownership of CCLOAs.

A study by Casidsid-Abelinde (2017) identified a number of issues regarding the implementation of the subdivision of CCLOAs. First, coordination among various government institutions involved in this process is a major concern. According to Olano (1996) as cited in Hirtz (1998, 251-252), the following are the government institutions that DAR has to coordinate with: Geodetic Engineers of the Philippines (GEP) for the survey of the land; Land Management Services of the DENR for survey approval; Land Bank of the Philippines for land valuation, claims processing and payment; Register of Deeds for registration; and Assessor’s Office for preliminary documentation. Another issue was that the subdivision of collective CLOA was a low priority for DAR administration at that time. This was even worsened by the lack of sufficient funding for land survey activities (Casidsid-Abelinde 2017).

In April 2019, President Rodrigo Duterte ordered DAR to fast track the implementation of the parcelization program. According to Agrarian Reform Secretary John Castriciones, DAR had issued 2.251 million hectares covered by collective CLOAs in agricultural land, 76% of which was awarded to agrarian reform beneficiaries “who were not actually engaged in collective farming” (Balinbin 2019). Around the same period, DAR issued Administrative Order No. 02, Series of 2019, which is the “Guidelines and Procedures on the Parcelization of Landholdings with Collective Certificates of Land Ownership Award.” DAR AO No. 2, Series of 2019 repealed AO No. 3, Series of 1993, “Rules and Procedures Governing the Issuance of Collective CLOAs and Subsequent Issuance of Individual Titles to Co-owners,” and AO No. 3, Series of 2016.

Figure 3 demonstrates the general process flow of Parcelization. There are seven main steps, which starts from inventory and verification of CCLOAs and ends with updating/generation of Land Distribution Information Schedule (LDIS). The next figure, Figure 4, shows the detailed process from Step 4 to 5. Under Step 4, the process may take longer time if there is no annotation of names of ARBS in the CCLOA. It will be much longer if there are protests for inclusion or exclusion of ARBs. In Figure 5, a detailed process flow from Steps 5 to 6 is shown. A meeting will be called by Municipal Agrarian Reform Program Officer to discuss the parcelization process with all ARBs. If there is a Lot Allocation Agreement already, then it will be executed. This will be followed by the conduct of parcelization survey. The Deed of Parcelization will then be executed.

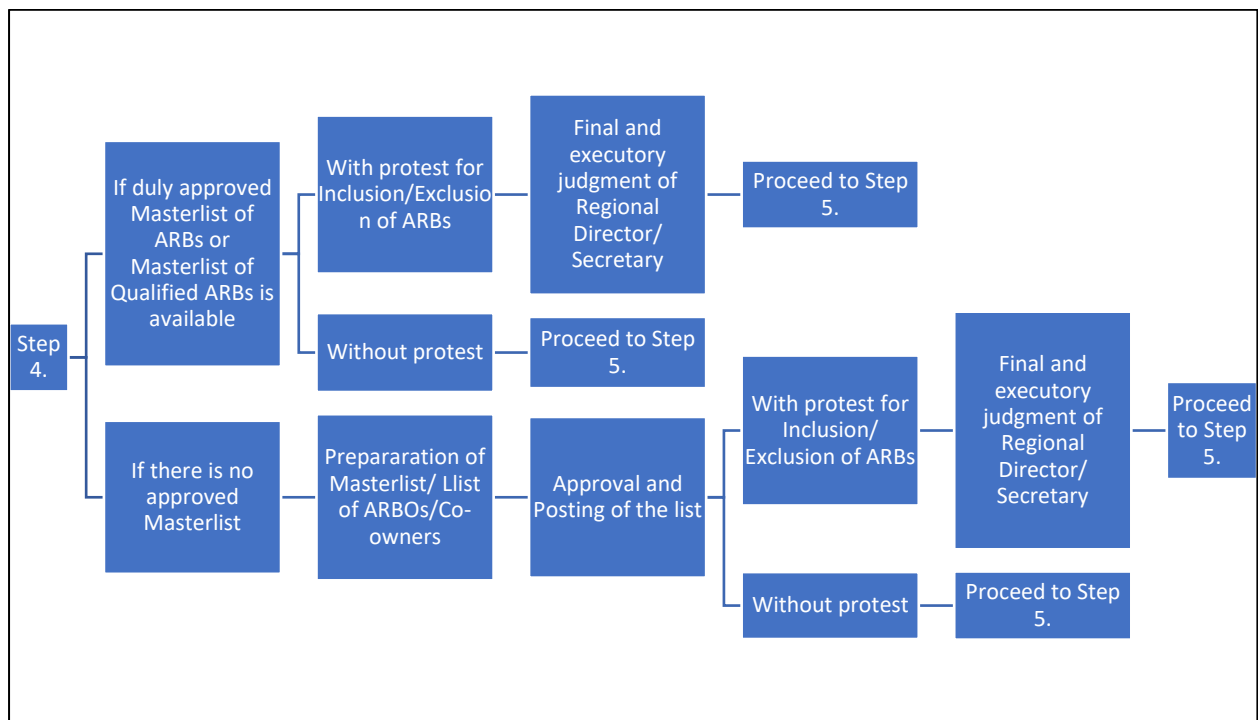
**Figure 3. General Process Flow of Parcelization**



Source: DAR AO 2019

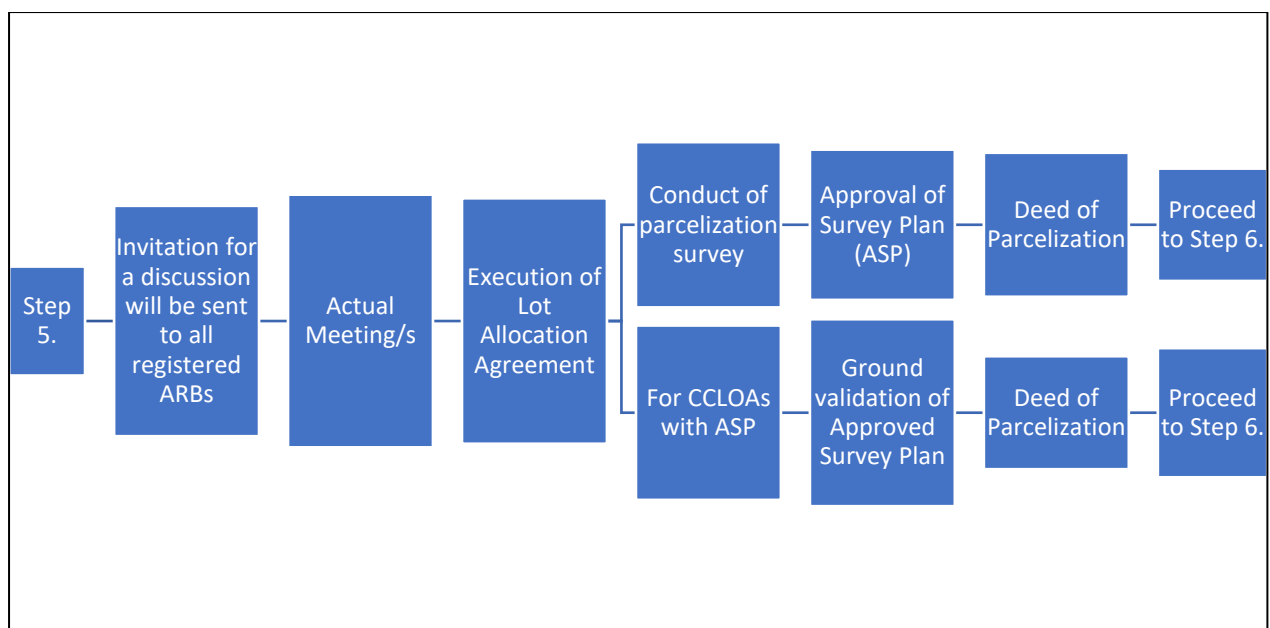


**Figure 4. Step 4: Firming up the list of collective owners of awarded lands**



Source: DAR AO 2019

**Figure 5. Step 5: Parcelization process**



Source: DAR AO 2019

In addition to the new AO, to accomplish the directive of the President, DAR also created a separate office called Agrarian Reform Title Stabilization (ARTS) to facilitate the parcelization process (DAR 2019c). There was also a pronouncement that additional funds will be poured into this program to finance the purchase of survey equipment and hiring of surveyors.

## 8. Empirical analysis: Individual CLOA farm vs. Collective CLOA farm

To analyze the difference in agricultural performance between farms under collective CLOAs and farms under individual CLOAs, the available data from a baseline survey under Project ConVERGE (or Convergence on Value Chain Enhancement for Rural Growth and Empowerment Project) was utilized. Project ConVERGE and the baseline study done by PIDS are briefly discussed below.

### 8.1 About Project ConVERGE

Project ConVERGE is a joint project of DAR and the International Fund for Agricultural Development (IFAD) that aims to reduce poverty in ten (10) provinces across Regions IX, X, and Caraga by implementing programs that promote sustainable livelihood activities based on key commodities that are competitive in the selected areas. The development objective of the project is to reduce economic vulnerability of the target population through 1) crop diversification and 2) increased farm income. The following are the expected impact and outcome indicators of the project:

- 1) average annual income increased;
- 2) increased farm income derived from new farming activities;
- 3) increased ownership of household assets;
- 4) reduced prevalence of child malnutrition

The project consists of four (4) components:

1. Participatory Value-Chain Analysis and Planning;
2. Integrated Smallholders Agricultural and Rural Enterprise Development;
3. Subdivision of Collective Certificates of Landownership Award (CLOA) and Facilitation of Land Transfer Program; and
4. Project Management, Monitoring and Evaluation and Knowledge Management.

The component on Subdivision of Collective CLOA and Facilitation of Land Transfer is focused on addressing tenure and other land-related issues that prohibit the beneficiaries from accessing credit, achieving improvements in productivity and fostering agribusiness partnerships with private sector. It is important to note that all subdivisions of CCLOAs undertaken were based on written requests from the ARBs. Moreover, only those landholdings that are non-problematic are being pursued in this project. Due to limited budget, the project excludes landholdings that have legal problems owing to multiple claims and fake documents.

In 2018, the project was able to facilitate the approval of survey plans for 655 ha of land and re-document land as collective CLOA within the ARC Clusters, which was 2,012 ha in size (refer to Table 9). Moreover, there were 1,200 ARBs that had been issued with individual CLOA.

**Table 9. Project ConVERGE: Land Tenure Services (2017-2018)**

Outputs	Target		Actual	
	2017	2018	2017	2018
Output 3: Collective CLOA subdivided				
Output 3.1 Approved survey plans (in ha)	1,136	655	1,136	655
Output 3.2 Re-documented individual or collective CLOAs/titles (in ha)	4,192	2,012	4,192	2,012

## 8.2 About the PIDS Baseline Survey

DAR, together with IFAD, engaged PIDS to conduct an evaluation of Project ConVERGE utilizing a baseline-endline impact evaluation method. The baseline survey was completed in 2019. The baseline survey covers a random sample of Agrarian Reform Beneficiary Organization (ARBO) members, wherein data on farmer's demographic characteristics (e.g. age, sex), farm-level information (e.g. number of parcels, type of harvested crop, yield per hectare, gross income per ha, total farm income), and household-level information were gathered. The reference period of the survey data is from June 2018 to May 2019.

Based on the data, there are 364 parcels of CLOA-covered lands (see Table 10). Of which, 193 parcels are under individual CLOA, while 171 parcels are under collective CLOA. The average size of a parcel under individual CLOA is 1.66 ha, while collective CLOA parcels are 1.74 ha on average. Of the 364 parcels, only 266 are currently being cultivated by the sampled households (see Table 11). It is important to note that it is possible that a household<sup>10</sup> may own more than one CLOA-issued parcel, since ARBO members may live together as a single household. Those households that hold both individual and collective CLOAs were excluded (refer to Table 12).

**Table 10. CLOA parcels owned by the sampled households**

	No. of parcels
Individual CLOA	193
Collective CLOA	171
<b>Total</b>	<b>364</b>

Source: Author's calculation

**Table 11. CLOA parcels owned and still being cultivated by the sampled households**

	No. of parcels	No. of households	Average parcel size (ha)
Individual CLOA	188	140	1.66
Collective CLOA	78	62	1.74
<b>Total</b>	<b>266</b>		

Source: Author's calculation

**Table 12. CLOA parcels owned and still being cultivated by the sampled households (after removing households holding both Individual and Collective CLOAs)**

	No. of parcels	No. of households
Individual CLOA	185	137
Collective CLOA	74	59
<b>Total</b>	<b>259</b>	

Source: Author's calculation

<sup>10</sup> PSA's definition of household membership is based on the usual place of residence of the person (i.e. where he/she sleeps) (See <https://psa.gov.ph/content/members-household>)

The measures of agricultural performance (per type of crop) that were considered for this analysis are **sales per ha** and **yield per ha**. Sales per ha (unit: PHP/ha) refers to the annual revenue earned by the household from selling their crop output on a per hectare basis. On the other hand, yield (unit: tons/ha) refers to the ratio of volume of production to area harvested. The land tenure dataset was merged with crops dataset. Among the 259 parcels, only 138 have a corresponding yield information and sales information. Of which, 110 parcels are owned by individual CLOA holders, while only 28 parcels are owned by collective CLOA holders (see Table 13). One main reason for the lack of yield data is the planting style of permanent crops—some are scattered, while others are compact. Only those that were planted in a compact manner have accurate information on size of the area harvested.

**Table 13. CLOA parcels with crop yield and sales information**

	No. of parcels	No. of households
Individual CLOA	110	91
Collective CLOA	28	23
<b>Total</b>	<b>138</b>	

Source: Author's calculation

### 8.2.1 Household-level analysis: Sales Per Hectare

Before looking at the differences in crop sales of individual- and collective-CLOA households, it is useful to note that these two have almost the same demographic characteristics (see Table 14). Average household size of individual-CLOA households is six, while it is five for collective-CLOA households. Both have four working-age household members. In terms of the characteristics of the main agricultural operator in the household, it appears that they are mostly male, 57-58 years old, and elementary graduate.

**Table 14. Demographics (household-level and main primary production operator-level)**

	Individual-CLOA household	Collective-CLOA household
Number of observations (households)	91	23
Number of household members	6	5
Number of working-age household members	4	4
Maximum years of schooling reached by a household member	11.6	11.2
Number of hh members working as primary production operators	2	2
Sex of main primary production operator		
Female	29	6
Male	62	17
Age of main primary production operator	58	57
Years of schooling of primary production operator	8.0	7.5

Source: Author's calculation

Note: Main primary production operator refers to the household member that works as a farm operator. If there are two farm operators in the household, the household head will be considered as the main one.

The ideal set-up is to use “net farm income” as indicator, if only it were available. Unfortunately, farm-level costs in the survey are not disaggregated by parcel and by type of crop. Given this limitation, the study used **sales per hectare** as a proxy.

It can be observed that the average annual sales per hectare of individual-CLOA households is PHP34,894 accounting for all types of crops planted (see Table 15). The advantage in average annual sales per hectare of individual-CLOA households is greater for permanent crops, which amounts to PHP17,568, than for temporary crops with PHP4,169.

**Table 15. Average annual sales per hectare, by type of crop and type of CLOA**

	Average Annual Sales per Hectare	Obs.
<b>All crops (planted in CLOA-covered land)</b>		
Individual-CLOA HH	34,894	91
Collective-CLOA HH	29,511	23
Difference	5,383	
<b>Permanent crops (planted in CLOA-covered land)</b>		
Individual-CLOA HH	41,005	47
Collective-CLOA HH	23,437	15
Difference	17,568	
<b>Temporary crops (planted in CLOA-covered land)</b>		
Individual-CLOA HH	41,694	54
Collective-CLOA HH	37,525	9
Difference	4,169	

Source: Author’s calculation

Contrary to the results of PSRTI (2016), the results of the analysis using a subset of Project ConVERGE baseline survey dataset show that individual-CLOA households are better off than collective-CLOA households in various measures (see Table 16). Total household income, other sources of income, and net income from all businesses are all greater in amount for individual-CLOA households than for collective-CLOA households. Farm income, in this case, refers to all farm activities done by the household, not just crop farming activities.

However, it is important to note that due to the small sample size used in this analysis (although randomly selected), interpretation of the results need to be taken with caution. Both internal and external validity are undermined due to this limitation. This simply means that this analysis cannot strongly conclude that the higher income enjoyed by individual-CLOA households is due to the fact that they received an individual CLOA rather than a collective CLOA.

**Table 16. Household income (individual-CLOA households vs. collective- CLOA households)**

	Individual-CLOA household	Collective-CLOA household
Total Household income	267,077 (n=91)	215,066 (n=23)
Employment Income	157,316 (n=59)	186,845 (n=19)
Other sources of income	27,434 (n=91)	25,604 (n=23)
Net Income from All Businesses (Farm and Non-farm)	137,648 (n=91)	35,111 (n=23)

Gross Farm Income (crops, livestock, poultry, etc.)	206,695 (n=91)	51,837 (n=23)
Net Farm Income	122,697 (n=91)	22,051 (n=23)
Net Agri-based Business Income	78,094 (n=5)	50,592 (n=2)
Net Non-agri-based Business Income	46,191 (n=21)	33,201 (n=6)

Unit: PHP

Source: Author's calculation

## 8.2.2 Parcel-level analysis: Yield Per Hectare

As mentioned in the earlier text, parcels that do not have yield information were excluded from the analysis, thus only 145 parcels remained useful. Although the number of observations (parcel) is small, especially for CCLOA, the analysis below is still meaningful as it attempts to illustrate the extent of difference between individual CLOA farms and collective CLOA farms.

**Table 17. Number of parcels by type of crop planted and type of CLOA**

Type of crop	Individual CLOA	Collective CLOA	Total
Permanent crops	49	15	64
Temporary crops	123	22	145

Source: Author's calculation

To gauge how accurate the yield figures obtained using the Project ConVERGE survey dataset are, Table 18 shows actual yield data from PSA. The average yield of palay and corn for the regions covered in Project ConVERGE for the period 2016 to 2019 is 3.89 tons/ha and 2.88 tons/ha, respectively. Yield data for banana and coconut are 20.46 tons/ha and 4.58 tons/ha, respectively.

**Table 18. Average yield for the Philippines and regions covered by Project ConVERGE (IX, X, Caraga)**

Average yield (tons/ha)	Philippines	Project ConVERGE regions
Palay	3.97	3.89
Corn	3.07	2.88
Banana	20.51	20.46
Coconut	3.94	4.58

Unit: tons/ha

Note: Average yield was computed using data from 2016 to 2019 for palay and corn, and 2016 to 2018 for banana and coconut

**8.2.2.1 Permanent Crops.** The disaggregation by type of crop is shown in Table 19. The discussion will focus on copra and banana since these two were planted in most of the parcels with CLOA.

**Table 19. Number of parcels by type of permanent crop planted and type of CLOA**

Type of Crop	Individual CLOA	Collective CLOA
Abaca	4	
Banana	7	9
Coconut	9	1
Copra	17	4
Kalamansi	5	
Oil palm	2	
Rambutan	1	
Rubber	4	1
Total	49	15

Source: Author's calculation

For copra, there are 17 out of 21 parcels that are under an individual CLOA ownership, while four (4) parcels are under a collective CLOA (see Table 20). Average yield under an individual CLOA is 1.37 tons per ha, while it is 1.20 tons per ha for collective CLOA. On the other hand, for banana, individual-CLOA parcels have lower yield, which has about 1.81 tons per ha difference from that of collective-CLOA parcels. Yield figures for banana are far too low compared to national average (per PSA data). This may be due to the fact that only one household is engaged in AVA. This is contrary to common knowledge that banana producers are usually engaged in agricultural venture agreements (AVA).

**Table 20. Average yield of copra and banana, by type of CLOA**

	Individual CLOA	Collective CLOA
Copra	1.37 (n=16)	1.20 (n=4)
Banana	1.24 (n=7)	3.05 (n=9)

Unit for yield: tons per ha

Source: Author's calculation

*8.2.2.2 Temporary Crops.* Table 21 shows that palay and corn are crop types with relatively large number of observations (i.e. parcels). Thus, these two will be highlighted in the succeeding discussion.

**Table 21. Number of parcels by type of temporary crop planted and type of CLOA**

Type of crops	Individual CLOA	Collective CLOA
Ampalaya (including leaf)		1
Camote (sweet potato)	2	
Cassava	2	1
Corn (green and white)	39	10
Cucumber (pipino)	1	
Mongo, dry & sprout	1	
Okra	1	
Eggplant (talong)		1

Palay (Rice)	72	5
Squash (kalabasa)	1	
String beans (sitao)		2
Sugarcane	4	2
Total	123	22

Source: Author's calculation

For palay, there are 72 out of 77 parcels that are under an individual CLOA ownership, while five (5) parcels are under a collective CLOA. On a per cropping basis, average palay yield under an individual CLOA is 2.34 tons per ha, while it is 1.95 tons per ha for collective CLOA (refer to Table 22). For corn, individual-CLOA parcels also have higher yield of about 1.24 tons per ha difference from that of collective-CLOA parcel.

**Table 22. Average yield of palay and corn, by type of CLOA**

	Individual CLOA	Collective CLOA
Palay	2.34 (n=72)	1.95 (n=5)
Corn	3.02 (n=39)	1.78 (n=10)

Unit for yield: tons per ha

Source: Author's calculation

## 9. Why pursue a more secure and individualized form of tenure?

Another way of putting this question is “why is individualized form of land ownership more preferred to collective ownership?” Ellickson (1993) argued that **individual land ownership provides the greatest incentive for its efficient use** (as cited in Deininger 2003, p.28).

Latin American countries implemented de-collectivization of landholdings. Janvry, Sadoulet and Wolford (n.d.) noted in their paper that in Peru collectively-owned titles were distributed by the government into smaller-sized parcels of 4 to 6 hectares, and to facilitate faster progress, a modern cadaster was developed. The government also made efforts to ensure that all properties are properly registered (as cited in Casidsid-Abelinde 2017). In addition, farmers in Latin American countries were allowed to sell their land, which essentially enabled the replacement of older farmers and less-skilled with younger and more-skilled ones (Casidsid-Abelinde 2017).

In China, two studies by Lin (1992) and McMillan (1989) both observed that large increases in productivity were associated with the shift from collective to privately-owned farms (as cited in Deininger 2003, p.44). In Thailand, Feder (1988) saw that land titling was proven to increase land value and investments in farming capital. Titled lands were also said to have higher productivity (14 to 25 percent higher output) than untitled lands controlling after for quality of land (as cited in Deininger 2003, p.45).

### 9.1 Perennial crops

According to Do and Iyer (2002), land registration in Vietnam encouraged planting of perennial crop cultivation (as cited in Deininger 2003, p.45). Time is a factor in the planting of perennial crops. More investments will be poured into perennial crops if tenure is more secured and if rights is transferrable. Given the long lifespan of perennial crops, especially trees, it is



important that farmers have the option to transfer the rights to another farmer or to their heirs. This allows for long-term planning and investments of these type of crops.

## *9.2 Plantation crops and contract farming*

The empirical analysis using Project ConVERGE's survey data supports the argument that the individualized tenure has a positive impact on both yield and gross sales. Only the results for banana are contrary to this. It might be due to the fact that banana is a plantation crop, which means that it is more efficient if it is planted in a larger scale.

In the Philippines, contract farming arrangements are prevalent in the banana and pineapple industries in Mindanao (Digal 2007), as well as in tobacco industry in Northern Luzon (Briones and Galang 2014). Farmers under contract farming are able to access credit, technical assistance, and are provided with guaranteed price (Minot 2007). Agreements of both the buyer and farmer-producer regarding quantity and quality of expected outputs are stipulated in the contract. Depending on the form of contract farming, buying price may be set prior to purchasing.

However, contract farming cannot be promoted to all commodities. Usually, those that are highly perishable and technically difficult to produce are suitable for contract farming. In addition, grades and standards are developed in those commodity markets. Some examples of those commodities are high-quality fruit and vegetables, organic products, and spices (Minot 2007).

## *9.3 Farm ownership vs. Farm management*

It is important to reiterate in this paper the valuable insight of former NEDA Director General Arsenio Balisacan that the issue of farm management and of farm ownership should be taken separately. Farmers have the choice to form or maintain organizations for them to take advantage of economies of scale while having individual ownership over their respective parcels of land. Their individual titles can serve as collateral when accessing credit facilities (Official Gazette 2011). Thus, while parcelization is being pursued, other rural development strategies, such as farm consolidation (e.g. contract farming), should be undertaken concurrently.

Based on the literature as well as on the experiences of ARBs under CCLOAs, it is important to pursue the parcelization program to:

- Incentivize farmers to invest more on their land;
- Enable farmers to access formal credit (since titles may be used as collateral);
- Encourage planting of perennial crops;
- Allow farmers to sell the land to those who are younger and more skillful farmers; or
- Allow farmers to transfer land to heirs without restrictions

## **10. Conclusions and Recommendations**

Although many Filipino farmers have benefited from land reform programs implemented by previous and present administrations, many of them continue to live under poverty. In the case of farmers who are under a collective CLOA, they have experienced a number of problems

associated with a collective arrangement. By being unable to decide on their respective farms as the main manager, their incentive and power to make long-term investments is very low. This thereby continues to limit their current and future incomes and livelihood opportunities.

DAR, which is the lead government agency to implement agrarian reform in the country, had already issued 2.251 million hectares covered by collective Certificates of Land Ownership Awards (CCLOAs) in agricultural land, 76 percent of which was awarded to agrarian reform beneficiaries who are not actually engaged in collective farming. The parcelization of CCLOAs into individual CLOAs is one of the many tasks that current President Duterte urges DAR to prioritize. As a response, DAR promised to undertake measures to fast track the implementation of this program (per AO No. S.2019). Moreover, a new office was created for this purpose called the Agrarian Reform Title Stabilization (ARTS).

This paper discussed how the subdivision of CCLOAs could improve agricultural performance of farmers. Several studies presented in this paper have shown that individually-owned land has a positive impact on farmers' decisionmaking and on his/her farming outcomes. Although limited in sample observations, the analytical exercise using Project ConVERGE's survey data provided additional evidence favoring the acceleration of the subdivision of CCLOAs. It was shown that agricultural performance (i.e. yield and gross sales) between individual-CLOA and collective-CLOA farms differs depending on the type of crop. A more complete picture, however, would have been painted if the data allowed for the comparison of net farm income, rather than gross sales.

It was also highlighted in this paper that farmers will be encouraged to plant more perennial crops if they have a more secure tenure and if they can transfer the rights of the land or trees. These two desirable properties, tenure security and transferability of rights, are both established under individualized land ownership.

Moreover, it was also pointed out that while parcelization is being pursued, other rural development strategies, such as farm consolidation, could also be undertaken. Consolidation in the form of contract farming, for instance, takes advantage of economies of scale.

For an expedient and smoother implementation of the parcelization program, the following recommendations may be considered:

- 1.) **Use a modern cadaster and a record-keeping system that is easily accessible to concerned government agencies.** Cadastral surveys are important in pursuing rural development, as it can help in planning the type of investments appropriate for various areas (e.g. irrigation scheme, farm road construction) (FAO cadastral survey). India, under its Ministry of Rural Development, implemented Digital India Land Records Modernization Programme and has already achieved more than 90 percent of their target for digitization of land records (Sharma 2020). A more advanced design of cadastral system is being pursued in Singapore, which aims to support not only digital cadaster, but also 3D cadastres (Singapore Land Authority 2012).
- 2.) **DAR should continue to improve the agrarian justice delivery system involving land tenure service issues.** In 2004, balance of cases related to Agrarian Law Implementation was 3,871, while it was 38,419 in 2007 (World Bank 2009). During the first semester of 2019, DAR reported to have a resolution rate of 71 percent, which meant that it was able to resolve 17,588 cases out of 24,579 total caseload (DAR 2019a). Disputes in the

validation of beneficiaries list could excessively prolong the parcelization process, thus it is important to resolve cases as soon as possible.

## 11. Bibliography

- Balinbin, A. 2019. Palace orders Agrarian Reform dep't to break up collective land titles. *Business World*. May 21. Accessed on October 1, 2019. <https://www.bworldonline.com/palace-orders-agrarian-reform-dept-to-break-up-collective-land-titles/>.
- Briones, R. and I. Galang. 2014. Linking small farmers to modern markets: The role of contract farming. PIDS Policy Notes No. 2014-09. Makati City: Philippine Institute for Development Studies. Retrieved from <http://dirp3.pids.gov.ph/webportal/CDN/PUBLICATIONS/pidspn1409.pdf>
- Casidsid-Abelinde, J. 2017. Subdividing collective Certificates of Land Ownership Awards: A strategy paper for Center for Agrarian Reform and Rural Development. Center for Agrarian Reform and Rural Development (CARRD). <https://www.carrd.org.ph/uploads/db/research/pdf/1531824682/researchPDF.pdf>
- Deininger, K. and A. Goyal. 2010. "Going Digital: Credit Effects of Land Registry Computerization in India." Policy Research Working Paper 5244, World Bank, Washington, DC.
- Deininger, K. 2003. Land policies for growth and poverty reduction (English). A World Bank policy research report. Washington, DC : World Bank Group. <http://documents.worldbank.org/curated/en/485171468309336484/Land-policies-for-growth-and-poverty-reduction>.
- De los Reyes, V. 2016. End of term report of Secretary Virgilio de los Reyes: for the term from July 2010 - June 2016. Department of Agrarian Report.
- Department of Agrarian Reform (DAR). 2019a. Accomplishment Report, January to June 2019. Prepared by Plan Implementation Monitoring and Evaluation Division Planning Service.
- \_\_\_\_\_. 2019b. Administrative Order No. 02, Series of 2019, "Guidelines and Procedures on the Parcelization of Landholdings with Collective Certificates of Land Ownership Award."
- \_\_\_\_\_. 2019c. Duterte orders DAR: Divide parcels of land to individual titles (DAR news, May 21, 2019).
- \_\_\_\_\_. 2016. Administrative Order No. 03, "Guidelines and Procedures to Stabilize Ownership and Tenureship of Agrarian Reform Beneficiaries with Collective Certificates of Land Ownership Award (CLOA)."
- \_\_\_\_\_. n.d. Agrarian Reform History. <http://www.dar.gov.ph/about-us/agrarian-reform-history/>.
- Digal, L. 2007. Agricultural contracts in Mindanao: The case of banana and pineapple. PIDS Discussion Paper No. 2007-24. Makati City: Philippine Institute for Development Studies. Retrieved from <http://dirp3.pids.gov.ph/ris/dps/pidsdps0724.pdf>
- Eularia, M. 2015. Farm Land Policy and Financing Program for Young Generation in the Philippines. [http://ap.iftc.agnet.org/ap\\_db.php?id=448](http://ap.iftc.agnet.org/ap_db.php?id=448)
- Food and Agriculture Organization (FAO) (n.d.a). What is land tenure? <http://www.fao.org/3/y4307e/y4307e05.htm>.
- \_\_\_\_\_. (n.d.b) The place of cadastral surveys and registration of rights in rural development. <http://www.fao.org/3/V4860E/V4860E09.htm>.
- Hirtz, F. 1998. The Discourse that Silences: Beneficiaries' Ambivalence Towards Redistributive Land Reform in the Philippines

- Jacoby, H. Li, G. and Rozelle, S. 2002. Hazards of Expropriation: Tenure Insecurity and Investment in Rural China. *American Economic Review*, Vol. 92, No. 5, December 2002.
- Leder, S., Sugden, F., Raut, M., Ray, D., & Saikia, P. 2019. Ambivalences of collective farming: Feminist political ecologies from the Eastern Gangetic Plains. *International Journal of the Commons*, 13(1), 105–129. DOI: <http://doi.org/10.18352/ijc.917>.
- Minot, N. 2007. Contract farming in developing countries: Patterns, impact, and policy implications - case study #6-3. In *Food policy for developing countries: Case studies*. Pinstrup-Andersen, Per and Cheng, Fuzh. (Eds.). Cornell, NY: Cornell University Press.
- Official Gazette. 2011. DAR leaves choice to farmers: collective or individual CLOA. DAR press release. <https://www.officialgazette.gov.ph/2011/11/28/fdar-leaves-choice-to-farmers-collective-or-individual-cloa/>
- Philippine Statistics Authority (PSA). 2019. Agricultural Indicators System: Redistribution of Land, 2018. Retrieved from <https://psa.gov.ph/content/agricultural-indicators-system-redistribution-land-0>.
- \_\_\_\_\_. 2016. Statistical Handbook on Women and Men in the Philippines. Retrieved from <https://psa.gov.ph/content/women-and-men-philippines-statistical-handbook-0>.
- Philippine Statistical Research and Training Institute (PSRTI). 2016. 2015 Survey of Agrarian Reform Beneficiaries.
- Sharma, Y. 2020. Finance ministry clears advance funding proposal for Digital Land Records programme. *India Times*. January 20. [https://economictimes.indiatimes.com/https://economictimes.indiatimes.com/news/economy/policy/finance-ministry-clears-advance-funding-proposal-for-digital-land-records-programme/articleshow/73427634.cms?utm\\_source=contentofinterest&utm\\_medium=ext&utm\\_campaign=cppst](https://economictimes.indiatimes.com/https://economictimes.indiatimes.com/news/economy/policy/finance-ministry-clears-advance-funding-proposal-for-digital-land-records-programme/articleshow/73427634.cms?utm_source=contentofinterest&utm_medium=ext&utm_campaign=cppst)
- Singapore Land Authority. 2012. Towards “Smart Cadastre” that supports 3D Parcels.
- Tenaw, S., K. M. Z. Islam, & T. Parviainen. 2009. Effects of land tenure and property rights on agricultural productivity in Ethiopia, Namibia and Bangladesh. Helsinki: University of Helsinki, Department of Economics and Management.
- World Bank. 2009. Land reform, rural development, and poverty in the Philippines: Revisiting the agenda.