Monograph Series | 2024-11

ON HIGHER EDUCATION REGULATION AND TUITION

From Pixels to Policies

GIS Analysis of Educational Pipeline Access Points and Disparities

Feliece I. Yeban, Ph.D.

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UP PRESIDENT
EDGARDO J. ANGARA
FELLOWSHIP

The **UP President Edgardo J. Angara (UPPEJA) Fellowship** is a grant for pioneering policy research. It aims to promote high-level policy discussions and research on a wide range of topics that address national development goals and imperatives, such as science and technology, economic development, environment and climate change, good governance, and communications.

The Fellowship was established by the University of the Philippines Board of Regents on September 29, 2008 in honor of the late Senator Edgardo J. Angara, who served as UP President from 1981 to 1987 and concurrent UP Diliman Chancellor from 1982 to 1983.

Angara, also a former Senate President, is known for his contributions to Philippine education, serving as the Chairperson of the First Congressional Commission on Education in 1990, which was credited with a number of pioneering reforms in the education sector, including its “trifocalization” and the Free Higher Education Act.

In addition to his notable contributions as a legislator, Angara’s leadership also gave rise to the **UP Center for Integrative and Development Studies (CIDS)**, which he initiated during his presidency.

Officially established on June 13, 1985, and originally called the University Center for Strategic and Development Studies (UCSDS), CIDS serves as a think tank that leverages the multidisciplinary expertise of UP to address the nation's most pressing challenges. The core objectives of CIDS encompass the development, organization, and management of research on national significance, the promotion of research and study among various university units and individual scholars, the securing of funding from both public and private sources, and the publication and wide dissemination of research outputs and recommendations.

For 2024, the Higher Education Research and Policy Reform Program (HERPRP) served as the UP PEJA Fellowship Awards secretariat in partnership with the Second Congressional Commission on Education (EDCOM II).

From the Executive Director of UP CIDS

It has been a long time in the making, but I am pleased to see the UP PEJA Fellowship finally coming to fruition. After all the forums, meetings, presentations, and threads of communication between and among the PEJA Fellows, UP CIDS' Higher Education Research and Policy Reform Program (HERPRP), and the Second Congressional Committee on Education (EDCOM 2), we now have a series of papers that tackle the various facets of Philippine higher education. The series includes the study you're reading.

For much of its history, the UP PEJA Fellowship has been housed in and implemented through the Center for Integrative and Development Studies (CIDS), the University of the Philippines' policy research unit. Over the years, the Fellowship has funded and published the studies of policy scholars, many of them luminaries in their respective fields.

In 2023, after a few years' hiatus, not least because of the COVID-19 pandemic, the UP PEJA Fellowship resumed and began looking for a new set of Fellows. This time, however, UP CIDS, through its Higher Education Research program, embarked on a historic partnership with the Second Congressional Committee on Education (EDCOM 2).

Linking directly with the government in administering the UP PEJA Fellowship was a first for UP CIDS. And that this was a partnership with a national-level policy-making body made it even more special.

As I have always maintained, this type of linkage is exactly what UP CIDS, as a policy research unit, must do: embedding research within a framework of stakeholder engagement.

Guided by the policy objectives of EDCOM 2, the PEJA papers not only tackle the complex issues in education, but also show stakeholders – the state, civil society, and the teachers themselves – how we can tackle them. For all our efforts in improving education in the Philippines, what else can and should we do?

Many thanks to the PEJA fellows for their valuable contribution, and to the UP CIDS Higher Education Research Program for shepherding this important undertaking. With collaboration, great things do happen.

Rosalie A. Hall, PhD
Executive Director
UP Center for Integrative and Development Studies

From the Convenor of UP CIDS-HERPRP

We at the Higher Education Research and Policy Reform Program serve as a convening body that builds partnerships and networks that pursue a shared research agenda and build an evidence basis for policy. Our activities include fellowships for scholars who publish with us and consultancies for junior researchers who wish to begin a career in higher education studies. We maintain databases, conduct events, and publish various manuscripts on higher education.

For 2024, our full attention was devoted to the UP PEJA Fellowship Program, serving as a secretariat for the researchers who studied higher education as it intersected with government and finance, industry and agriculture, regulation and tuition and technical and vocational education, training and lifelong learning, the UP PEJA Program awards grants for pioneering work on a wide range of topics that address national development concerns. This was the very first time that the program focused on a singular topic. This demonstrates the commitment of the University of the Philippines to higher education.

With the support of the UP Foundation, we have assembled what we have been calling the *Avengers* of Philippine education. They are preeminent scholars whose findings and recommendations directly address key policy concerns. Their papers at once draw from empirical data as well as their professional expertise for which they have been identified as a UP PEJA fellow.

Fernando dlC. Paragas, PhD
Convenor
Higher Education Research and Policy Program
UP Center for Integrative and Development Studies

Letter from the Executive Director of EDCOM II

The **Second Congressional Commission on Education (EDCOM II)** is collaborating with scholars across various institutions to provide valuable insights for the development of evidence-based policies that address the unique challenges and opportunities in the Philippine education landscape.

Our commitment to excellence, integrity, and ethical conduct in advancing research and disseminating knowledge, which we share with our research partners, is defined by the following principles:

The Commission is dedicated to upholding the highest standards of academic rigor in the evaluation, review, and dissemination of research publications. Our pledge is to ensure the integrity and quality of the knowledge we contribute to the scholarly community.

The Commission is committed to fostering transparency and data integrity in all aspects of research. This includes transparent communication, disclosure of methodologies and data sources, and providing clear guidelines to authors, reviewers, and the broader academic community.

The Commission promotes ethical research conduct, emphasizing the responsible and respectful treatment of research participants.

The Commission places a strong emphasis on accessibility. We are committed to facilitating the translation of research findings into accessible formats in order to engage the broader public, taking into account ethical and legal considerations. Our goal is to promote public understanding and awareness of scientific advancements.

In adherence to these principles, the members of the Second Congressional Commission on Education (EDCOM II) pledge to be stewards of good scholarly research for a better, more inclusive educational system for the Filipino people.

Karol Mark R. Yee, PhD
EDCOM II Executive Director

Declaration of Funding

This research was conducted in collaboration with the Second Congressional Commission (EDCOM II).

The funding source played no role in the design of the study, data interpretation, or decision to publish the findings as the author(s) maintained complete autonomy in the research process, ensuring objectivity and impartiality in the presentation of results.

Declaration of Interest

None

Table of Contents

List of Acronyms or Abbreviations

ALS	Alternative Learning Systems
BARMM	Bangsamoro Autonomous Region of Muslim Mindanao
CAR	Cordillera Administrative Region
CCT	Conditional Cash Transfer
CDCs	Child Development Centers
CHED	Commission on Higher Education
CMO	CHED Memorandum Order
COD	Centers of Development
COE	Centers of Excellence
COPC	Certificate of Program Compliance
DepEd	Department of Education
DOST	Department of Science and Technology
ECCD	Early Childhood Care and Development
ECCE	Early Childhood Care Education
EDCOM 2	Second Congressional Commission on Education
HEIs	Higher Education Institutions
JHS	Junior High School
LGUs	Local Government Units
LUCs	Local Universities and Colleges
NCR	National Capital Region
NGO	Non-Governmental Organization
OFWs	Overseas Filipino Workers
OGS	Other Government Schools
PLAR	Prior Learning Assessment and Recognition
PNU	Philippine Normal University
PSA	Philippine Statistics Authority
PSG	Policies, Standards, and Guidelines
PSOs	Philippine Schools Overseas
SHS	Senior High School
SUCs	State Universities and Colleges
UP CIDS	University of the Philippines Center for Integrative and Development Studies

List of Figures

List of Tables

From Pixels to Policies

GIS Analysis of Educational Pipeline Access Points and Disparities

Feliece I. Yeban, Ph.D.[1]

Executive Summary

This research explores the geographical distribution of educational institutions in the Philippines and its impact on access, literacy rates, and overall educational attainment. With nearly 11 million children out of school in the country, the study highlights the critical need for improved educational infrastructure and policy reform to close existing gaps and ensure equal opportunities for all students, particularly in underserved regions.

Despite the existence of comprehensive legal frameworks such as the 1987 Philippine Constitution and the Enhanced Basic Education Act of 2013, the implementation of these policies remains uneven across the country. The geographic distance of schools from students' homes significantly affects attendance, academic engagement, and performance. The research emphasizes that ensuring geographical accessibility to educational institutions is essential to promote equity, especially in remote and rural areas where infrastructure is limited.

The report's primary focus is on understanding how the distribution of schools across various educational levels—from early childhood education to tertiary

1 Feliece Yeban, Philippine Normal University, Yeban.fi@pnu.edu.ph

institutions—affects literacy rates and educational attainment. Data from the Department of Education, Philippine Statistics Authority, and the Commission on Higher Education reveals stark disparities in the availability of educational institutions. For example, while some regions have robust infrastructures, others face significant shortages, particularly at the junior high and senior high school levels.

The research addressed the following questions:

1. How are schools distributed across different educational levels (early childhood care, elementary, secondary, and tertiary) and geographic regions in the Philippines?

2. What is the correlation between the geographic distribution of schools, regional literacy rates, and educational attainment in the Philippines?

3. What is the state of access to higher education in different regions of the Philippines?

Analysis revealed the following key findings:

1. **Uneven Distribution of Schools:** The study found significant disparities in school distribution across different regions, with rural areas facing acute shortages. For instance, many barangays still lack elementary and high schools, despite government mandates to establish at least one public school per barangay. The lack of proximity to schools discourages regular attendance and negatively impacts student performance, especially in remote areas.

2. **Impact on Educational Attainment:** The availability of schools, particularly junior high schools, positively correlates with educational attainment. Regions with more junior high schools tend to have higher literacy rates and higher educational attainment. However, the presence of senior high schools and higher education institutions did not show a strong correlation with improved outcomes, as socio-economic challenges continue to pose barriers to accessing education beyond basic levels.

3. **Geographic Disparities:** The geographic distribution of schools is a major determinant of educational success. In rural areas, where students must travel longer distances to attend school, academic performance suffers.

In urban areas, such as Cotabato City, despite the presence of schools, low literacy rates persist, indicating that access alone is insufficient without addressing the quality of education and socio-economic barriers.

4. **Access to Higher Education:** Access to HEIs is uneven across regions. Many provinces do not have enough institutions to meet the educational demands of the 20-24 age group, with rural provinces particularly underserved.

Given these insights, the study suggests the following policy recommendations:

1. **Expand Junior and Senior High School Programs:** Build more JHS and SHS facilities in underserved areas and ensure they are of high quality to improve literacy rates and educational outcomes.

2. **Infrastructure Investment:** Prioritize building schools in rural and underserved barangays to close the access gap, ensuring each barangay has at least one elementary school.

3. **Collaborative Approach:** Engage local government units (LGUs), non-governmental organizations (NGOs), and communities to address socio-economic barriers to education and improve retention.

4. **Leverage Technology:** Implement distance learning and virtual classrooms in remote areas to ensure education access where building physical schools is not feasible.

5. **Monitoring and Evaluation:** Establish a comprehensive system to monitor the implementation of education policies, school performance, and resource allocation to ensure effective interventions.

Keywords: Educational Access, Geographic Disparities, School Distribution, Higher Education Access, Educational Attainment

Introduction

Ensuring access to education is crucial for fostering social inclusion, economic development, and individual empowerment. In the Philippines, nearly 11 million children and young people are not attending formal school, according to the Philippine Statistics Authority (PSA) (Desiderio 2024). This presents major economic and social concerns, as out-of-school youth contribute to the perpetuation of cycles of poverty and inequality. The global economic cost of these educational disparities is estimated to be around $10,000 billion annually (UNESCO 2023a).

Despite the comprehensive legal framework aimed at ensuring educational access, such as the 1987 Philippine Constitution, Republic Act No. 6655 or the Free Public Secondary Education Act of 1998, and the Enhanced Basic Education Act of 2013, the realization of these laws remains uneven. A key issue is the proximity of educational institutions to students' homes, which affects the students' ability to attend regularly, their engagement in school activities, and their overall academic performance. As UNESCO (2023b) states, "Education is a basic human right that works to raise men and women out of poverty and ensure sustainable development."

Geographical access is critical in actualizing legal mandates for education. Ensuring that schools are accessible geographically is essential for promoting educational equity, particularly in underserved areas with limited infrastructure and resources. Addressing these disparities through targeted policies and investments is crucial to providing every student with the opportunity to succeed.

Research Questions and Objectives

This research aimed to provide a comprehensive analysis of the distribution and impact of educational institutions across various levels and regions in the Philippines. Specifically, it sought to answer the following questions:

1. How are schools in the Philippines distributed across different educational levels (early childhood care, elementary, secondary, tertiary) and geographic regions?

2. What is the correlation between the geographic distribution of schools, regional literacy rates, and educational attainment in the Philippines?

3. What is the state of access to higher education in the different regions of the Philippines?

Together, these questions explore how geographical distribution affects literacy and educational attainment, offering valuable insights for improving access to quality education across the country.

The Distribution of Philippine Schools

This research analyzed the distribution of educational institutions in the Philippines using data from the Department of Education's (DepEd) Master list of Basic Education Schools (September 2023), the PSA's 2020 Census data, and the 2023 list of Higher Education Institutions (HEIs) from the Commission on Higher Education (CHED). A total of 1,381 Child Development Centers (CDCs) are spread across 1,381 barangays, with 98.55 percent of these funded by the government. Furthermore, there are 60,137 basic education schools and 2,403 higher education institutions. Of the basic education schools, 60.28 percent offer elementary programs, 19.67 percent offer Junior High School (JHS), and 15.41 percent offer Senior High School (SHS). Only 3 percent of schools provide university-level programs. Notably, 79.28 percent of basic education schools are government-run, with non-sectarian private schools accounting for 14.4 percent.

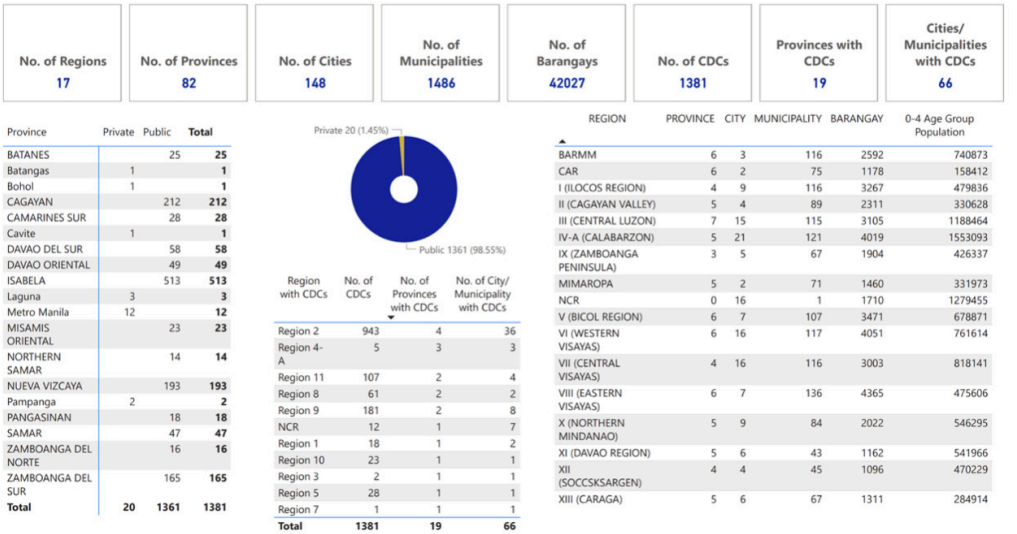
Drill Down Per Program Level

The data highlights disparities across political subdivisions in terms of educational program offerings, revealing robust educational infrastructures in some regions, while others face a shortage of institutions. Understanding these gaps is crucial for addressing the geographical distribution of educational programs across the country.

The Early Childhood Care Development (EECD) Program

UNESCO (2024c) stresses the importance of early childhood education in fostering school readiness and lifelong learning. In the Philippines, about 60 percent of children in low-income areas lack access to Early Childhood Care and Education (ECCE) opportunities. While Republic Act No. 6972, or the Barangay-Level Total Development and Protection of Children Act, mandates the establishment of day care centers in every barangay, there remains a significant shortfall in the number of recognized CDCs, indicating a gap between policy and implementation. The ECCD Council plays a key role in addressing these challenges, overseeing and coordinating efforts to provide high-quality ECCD services nationwide. Figure 1 details the number of recognized CDCs from the regions down to the barangays.

FIGURE 1. RECOGNIZED CHILD DEVELOPMENT CENTERS



No. of Regions	No. of Provinces	No. of Cities	No. of Municipalities	No. of Barangays	No. of CDCs	Provinces with CDCs	Cities/ Municipalities with CDCs
17	82	148	1486	42027	1381	19	66

Province	Private	Public	Total
BATANES		25	25
Batangas	1		1
Bohol	1		1
CAGAYAN		212	212
CAMARINES SUR		28	28
Cavite	1		1
DAVAO DEL SUR		58	58
DAVAO ORIENTAL		49	49
ISABELA		513	513
Laguna	3		3
Metro Manila	12		12
MISAMIS ORIENTAL		23	23
NORTHERN SAMAR		14	14
NUEVA VIZCAYA		193	193
Pampanga	2		2
PANGASINAN		18	18
SAMAR		47	47
ZAMBOANGA DEL NORTE		16	16
ZAMBOANGA DEL SUR		165	165
Total	**20**	**1361**	**1381**

Region with CDCs	No. of CDCs	No. of Provinces with CDCs	No. of City/ Municipality with CDCs
Region 2	943	4	36
Region 4-A	5	3	3
Region 11	107	2	4
Region 8	61	2	2
Region 9	181	2	8
NCR	12	1	7
Region 1	18	1	2
Region 10	23	1	1
Region 3	2	1	1
Region 5	28	1	1
Region 7	1	1	1
Total	**1381**	**19**	**66**

REGION	PROVINCE	CITY	MUNICIPALITY	BARANGAY	0-4 Age Group Population
BARMM	6	3	116	2592	740873
CAR	6	2	75	1178	158412
I (ILOCOS REGION)	4	9	116	3267	479836
II (CAGAYAN VALLEY)	5	4	89	2311	330628
III (CENTRAL LUZON)	7	15	115	3105	1188464
IV-A (CALABARZON)	5	21	121	4019	1553093
IX (ZAMBOANGA PENINSULA)	3	5	67	1904	426337
MIMAROPA	5	2	71	1460	331973
NCR	0	16	1	1710	1279455
V (BICOL REGION)	6	7	107	3471	678871
VI (WESTERN VISAYAS)	6	16	117	4051	761614
VII (CENTRAL VISAYAS)	4	16	116	3003	818141
VIII (EASTERN VISAYAS)	6	7	136	4365	475606
X (NORTHERN MINDANAO)	5	9	84	2022	546295
XI (DAVAO REGION)	5	6	43	1162	541966
XII (SOCCSKSARGEN)	4	4	45	1096	470229
XIII (CARAGA)	5	6	67	1311	284914

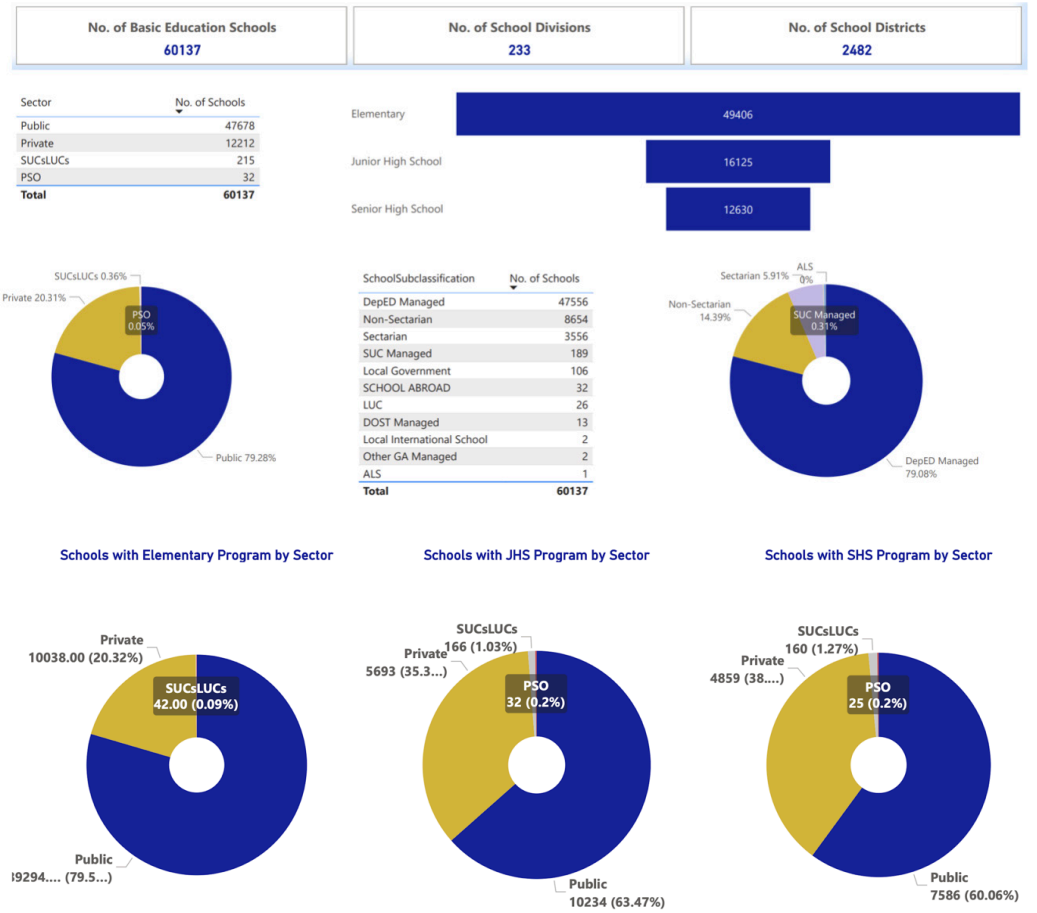
The Basic Education Program

The basic education system in the Philippines aims to equip children and young people with essential skills for personal and professional growth. It includes kindergarten, elementary, junior high, and senior high school, as mandated by key laws.

Republic Act No. 10157 (Kindergarten Education Act) mandates free, compulsory kindergarten education. Republic Act No. 9155 (Governance of Basic Education Act of 2001) outlines the governance structure of the Department of Education. Republic Act No. 10533 (Enhanced Basic Education Act of 2013) structures the K-12 system, aligning it with international standards to enhance the quality of education.

Figure 2 outlines the structure of the Philippine basic education system, which includes 60,137 schools organized into 2,482 districts within 233 School Divisions. Most of these schools are government-run. Some State Universities and Colleges (SUCs) and Local Universities and Colleges (LUCs) operate basic education programs, usually as laboratory schools supporting teacher education programs. Additionally, Philippine Schools Overseas (PSO) cater to children of Overseas Filipino Workers (OFWs). Specialized science schools fall under the Department of Science and Technology (DOST). The system also includes a single Alternative Learning System (ALS) school. In the private sector, schools are primarily non-sectarian, though some are sectarian, and private sector involvement increases at higher education levels.

FIGURE 2. THE PHILIPPINE BASIC EDUCATION SYSTEM



The Higher Education Program

Higher education in the Philippines is critical for socio-economic development, offering advanced education and training for professional roles. The sector is governed by laws such as Republic Act No. 7722 (Higher Education Act of 1994), which established CHED, and Republic Act No. 8292 (Higher Education Modernization Act of 1997), which modernizes SUCs. CHED Memorandum Order No. 46, Series of 2012, promotes an outcomes-based framework for quality assurance. Institutions are classified as autonomous, deregulated, or regulated based on their performance. Autonomous status grants the most curricular freedom, while regulated institutions are under closer CHED supervision. Table 1 provides an overview of the Philippine higher education sector. The country has 2,403 HEIs across all regions and 727 cities/municipalities. Notably, 71 percent of these HEIs are private, reflecting a shift toward privatization in higher education. Of these, 1,639 HEIs operate

under regulated status, while only a few hold deregulated (16) or autonomous (74) status. Public HEIs are typically governed by specific charters, and the sector is dominated by baccalaureate programs.

TABLE 1. HIGHER EDUCATION INSTITUTIONS BY REGION, SECTOR, AND INSTITUTIONAL TYPE: 2022-2023

REGION	PUBLIC						PRIVATE	GRAND TOTAL	
	SUCs		LUCs	Other Government Schools, CHED Supervised Institutions, Special Schools	Total (Public)		Private HEIs	Excluding Satellite Campus	Including Satellite Campus
	Main	Satellite Campus*			Excluding Satellite Campus	Including Satellite Campus			
01 – Ilocos Region	5	22	5		10	32	78	88	110
02 – Cagayan Valley	5	20			5	25	45	50	70
03 – Central Luzon	12	45	16		28	73	177	205	250
04 – CALABARZON	5	58	18	1	24	82	281	305	363
05 – Bicol Region	9	24	23		32	56	118	150	174
06 – Western Visayas	11	53	11		22	75	81	103	156
07 – Central Visayas	5	25	13		18	43	121	139	164
08 – Eastern Visayas	10	28	3		13	41	46	59	87
09 – Zamboanga	6	21	5		11	32	56	67	88
10 – Northern Mindanao	6	26	11		17	43	64	81	107
11 – Davao Region	6	9	7		13	22	82	95	104
12 – Soccsksargen	4	11	2		6	17	80	86	97
13 – Nat. Capital Region	8	8	18	4	30	38	289	319	327
14 – Cordillera Adm. Region	6	14		1	7	21	31	38	52
15 – Bangsamoro Autonomous Region in Muslim Mindanao	5	14		7	12	26	85	97	111
16 – Caraga	4	11	1		5	16	40	45	56
17 – MIMAROPA	6	44	4		10	54	40	50	94
Total	**113**	**433**	**137**	**13**	**263**	**696**	**1714**	**1977**	**2410**

*Figures include SUCs, Satellite, Extension Campus, and External Study Center
*Include Other Government School, CHED Supervised Institution, Special School
*Based on the submission of higher education institutions, as compiled by OPRKM-Knowledge Management Division
*as of January 04, 2024

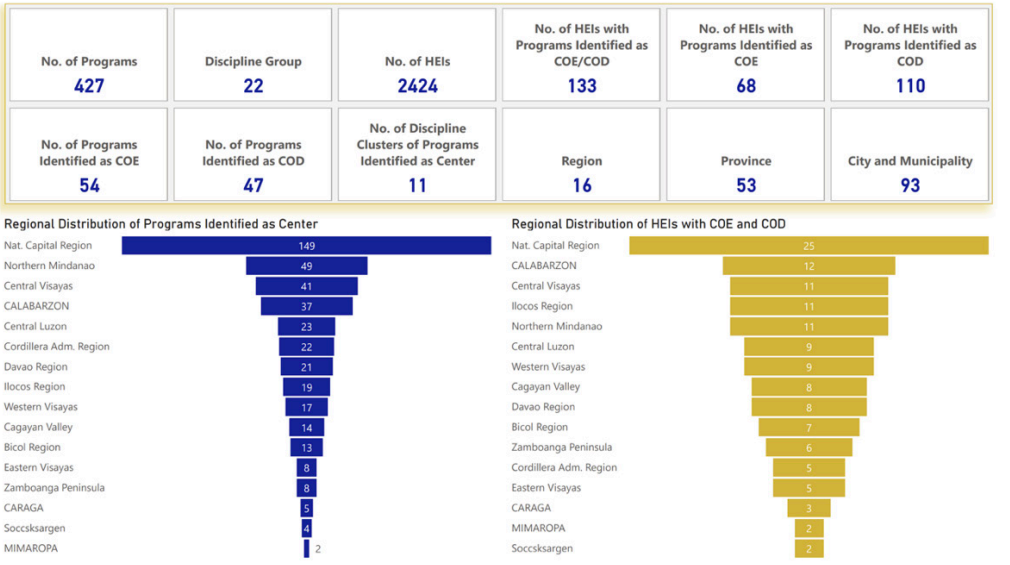
Source: CHED website

Figure 3 analyzes higher education program offerings, with baccalaureate degrees being the most common. Business Administration and related fields dominate, followed by Education Science and Teacher Training. Other prominent fields include Agriculture, Forestry, and Fisheries, as well as Natural Sciences and Engineering and Technology.

FIGURE 3. HIGHER EDUCATION PROGRAM OFFERINGS

Figure 4 highlights the programs designated as Centers of Excellence (COE) and Centers of Development (COD) by CHED. COEs are recognized for exceptional quality in education, research, and service, while CODs are acknowledged for their potential to achieve excellence. These designations aim to foster a culture of excellence within Philippine HEIs, enhancing educational quality and national development. However, the distribution of COEs and CODs is uneven, with the National Capital Region (NCR) having the highest concentration, highlighting regional disparities.

FIGURE 4. PROGRAMS DESIGNATED AS CENTERS OF EXCELLENCE



The discussion focused on mapping the educational landscape in the Philippines, highlighting the availability of schools and the diversity of program offerings. Access to education is a multifaceted challenge, involving not only the physical presence of institutions but also a variety of programs that meet the diverse aspirations of Filipino students. This context is key to understanding educational access and equity in the country.

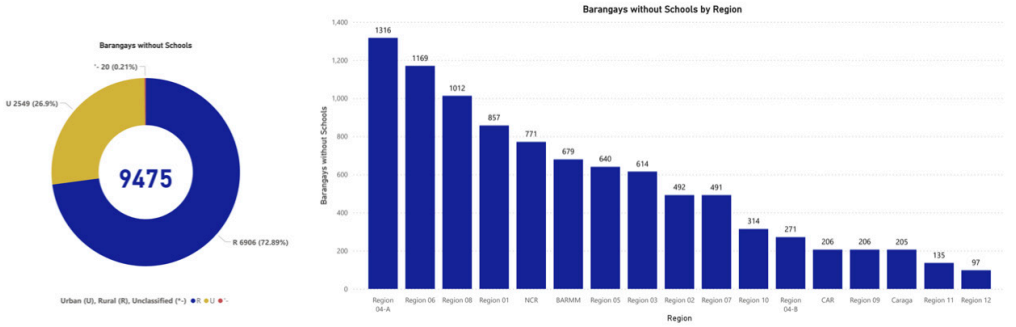
Access to Education and Geographic Disparities

DepEd Order No. 24, s. 2022, through the Basic Education Development Plan 2030 (BEDP 2030), aims to establish one public elementary school per barangay, addressing geographic disparities in education. This initiative is part of a strategy to ensure equitable access, mitigate learning losses from the pandemic, and foster resilience in the education system.

Geographic disparities significantly affect educational access in the Philippines, particularly in rural and urban areas. The study examines how school distribution influences accessibility and proposes strategies to mitigate these inequities, such as positioning new schools or deploying remote learning solutions.

Figure 5 highlights a gap in infrastructure, with 9,475 of 42,027 barangays (23 percent) lacking an elementary school, including 27 percent of urban barangays. Region IV-A, despite having the highest population and number of schools, also has the most barangays without schools, revealing a misalignment in resource distribution.

FIGURE 5. BARANGAYS WITHOUT SCHOOLS BY REGION



Availability of Schools by Geographic Location: The 3-Kilometer Radius

Research consistently shows that longer commutes negatively affect student performance. In Cebu, students living farther from school showed poorer performance in Mathematics due to physical and mental exhaustion (Peteros et al. 2022). Similarly, in Tanzania, longer distances reduced contact time between students and teachers, leading to physical fatigue and lower academic achievement (Oneya and Onyango 2021). In Nepal, students traveling farther to school scored lower in major subjects like Mathematics and English (Sherpa 2022), a trend also observed in Eswatini.

In the Philippines, a catchment area of 1 to 3 kilometers is used before building a senior high school, with the vision that every barangay will have an elementary school. However, geographic and demographic diversity makes setting a universal benchmark challenging. Policymakers need to consider regional variations when addressing school distances to improve educational access and outcomes. Table 2 shows the calculated distances in the selected regions of schools across levels. In regions with above average literacy rate the average distance between elementary schools is 4.6 kilometers.

TABLE 2. DISTANCE OF SCHOOLS IN SELECTED REGIONS

REGION	PROVINCE	MUNICIPALITY/ CITY	2020 POPULATION	LITERACY LEVEL	POPULATION DENSITY	ELEMENTARY SCHOOLS	JUNIOR HIGH SCHOOLS	SENIOR HIGH SCHOOLS	HEIS
CAR	Ifugao	Alfonso Lista	31,454	Average	114.00	28	6	5	1
CAR	Ifugao	Hungduan	14,976	Average	68.00	14	2	2	1
NCR	Metro Manila	Caloocan	1,583,978	Above Average	29,694.00	238	117	109	28
NCR	Metro Manila	Makati	582,602	Above Average	27,019.00	95	95	95	19
NCR	Metro Manila	Manila	1,846,513	Above Average	29,777.49	246	133	121	20
NCR	Metro Manila	Taguig	886,722	Above Average	19,613.40	152	98	59	11
Region 07	Cebu	Pilar	24,116	Average	258.00	11	4	4	0
Region 07	Cebu	Talisay	227,645	Average	5,710.00	58	38	22	5

REGION	PROVINCE	MUNICIPALITY/ CITY	DISTANCE BETWEEN ELEMENTARY SCHOOLS (METERS)	DISTANCE ELEM. TO JHS (METERS)	DISTANCE BETWEEN JHS (METERS)	DISTANCE JHS TO SHS (METERS)	DISTANCE BETWEEN SHS (METERS)	DISTANCE SHS TO HEI (METERS)	DISTANCE BETWEEN HEI (METERS)
CAR	Ifugao	Alfonso Lista	8,151.08	8,412.83	10,147.60	9,615.79	11,222.01	10,878.12	0.00
CAR	Ifugao	Hungduan	2,382.43	3,308.66	10,408.61	10,408.61	10,408.61	8,342.80	0.00
NCR	Metro Manila	Caloocan	8,252.53	8,097.57	7,762.79	7,939.57	8,116.45	8,207.23	8,004.90
NCR	Metro Manila	Makati	3,281.62	3,199.56	3,142.35	3,195.21	3,276.44	3,160.69	2,967.70
NCR	Metro Manila	Manila	3,499.85	3,409.80	3,315.87	3,368.47	3,462.85	3,140.32	2,731.34
NCR	Metro Manila	Taguig	3,705.74	3,538.04	3,400.84	3,361.32	3,382.20	3,525.29	3,556.68
Region 07	Cebu	Pilar	4,828.95	4,696.40	5,352.72	5,352.72	5,352.72	0.00	0.00
Region 07	Cebu	Talisay	3,413.45	3,106.82	2,666.56	2,694.70	2,854.86	2,971.92	3,703.43

The catchment area in the Philippine school system refers to the geographical zone from which a school draws its students, typically defined by a radius around the school to ensure easy access. According to DepEd Order 51 s. 2015, public elementary schools have a catchment area of two kilometers, while public high schools in urban areas have a one-kilometer radius. This strategy aims to provide equitable access, reduce travel burdens, and promote higher attendance and participation rate.

A 3-kilometer radius is used strategically to map the service area of schools, particularly in rural and underserved regions. This approach helps minimize travel time, increase school attendance, reduce dropout rates, and enhance educational outcomes by ensuring schools are accessible to students' homes. Policymakers use this framework to plan new school locations and optimize resource distribution, fostering inclusivity and accessibility in the education system.

Maps based on the 2020 Census data illustrate the distribution of educational institutions across regions with varying literacy rates. These maps identify barangays without schools within the 3-kilometer radius, highlighting areas that lack reasonable access to education. Shaded circles represent accessible zones, while unshaded areas indicate regions needing additional schools. Overlapping circles show barangays with access to multiple schools, offering more educational options.

By analyzing these maps, policymakers and educators can strategically establish new schools to address geographic disparities, ensuring that all communities have equitable access to quality education. This informed allocation of resources aims to improve literacy rates and overall educational outcomes across the Philippines.

FIGURE 6. SCHOOLS OFFERING ELEMENTARY IN DATU UNSAY, MAGUINDANAO DEL SUR (CLASSIFIED AS RURAL WITH BELOW AVERAGE LITERACY RATE)

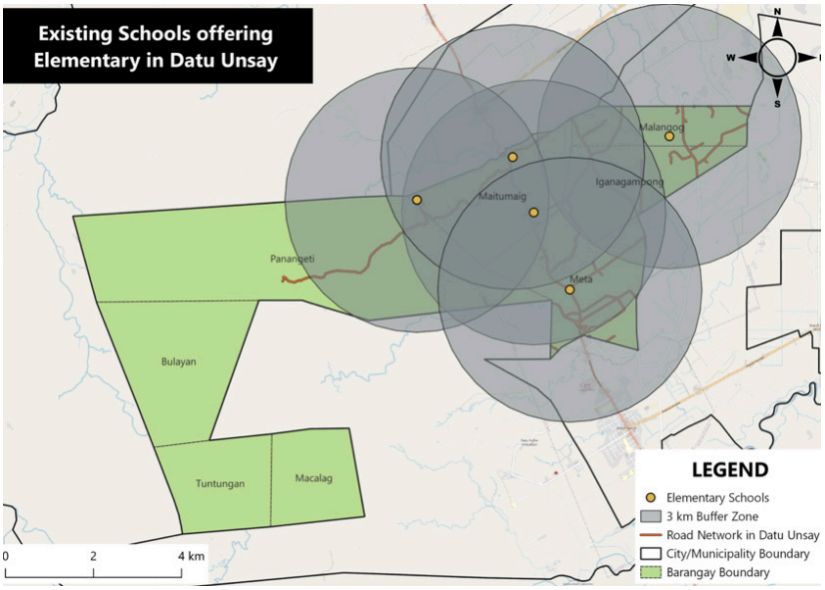


FIGURE 7. SCHOOLS OFFERING ELEMENTARY IN COTABATO CITY (CLASSIFIED AS URBAN WITH BELOW AVERAGE LITERACY)

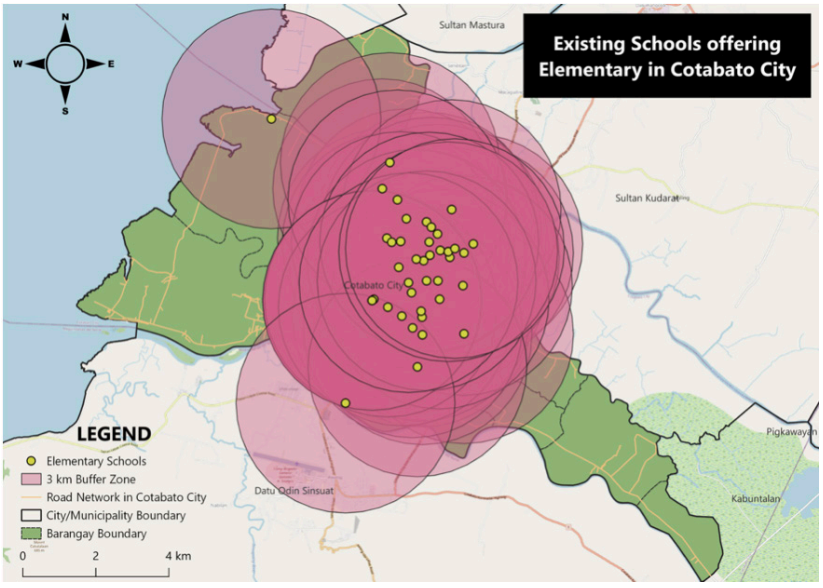


FIGURE 8. SCHOOLS OFFERING ELEMENTARY IN HUNGDUAN, PROVINCE OF IFUGAO (CLASSIFIED AS RURAL WITH AVERAGE LITERACY RATE)

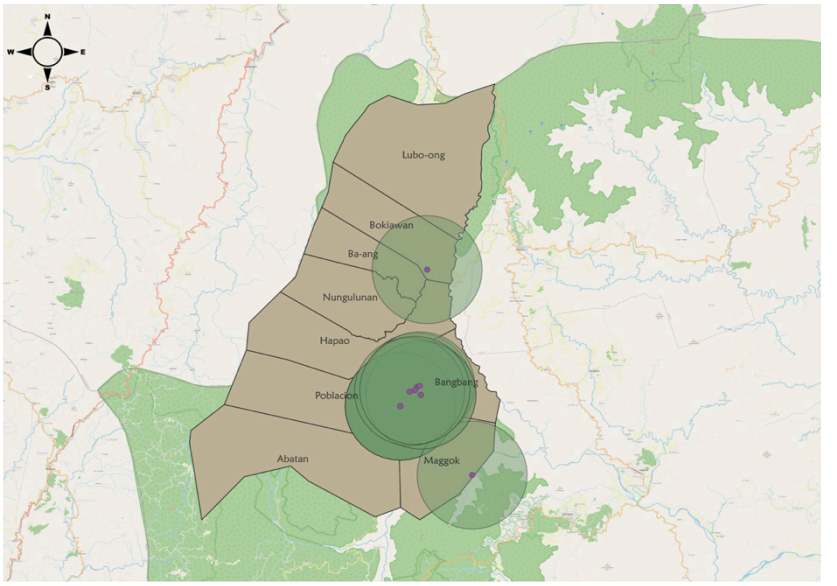


FIGURE 9. SCHOOLS OFFERING ELEMENTARY IN ALFONSO LISTA, PROVINCE OF IFUGAO (CLASSIFIED AS URBAN WITH AVERAGE LITERACY)

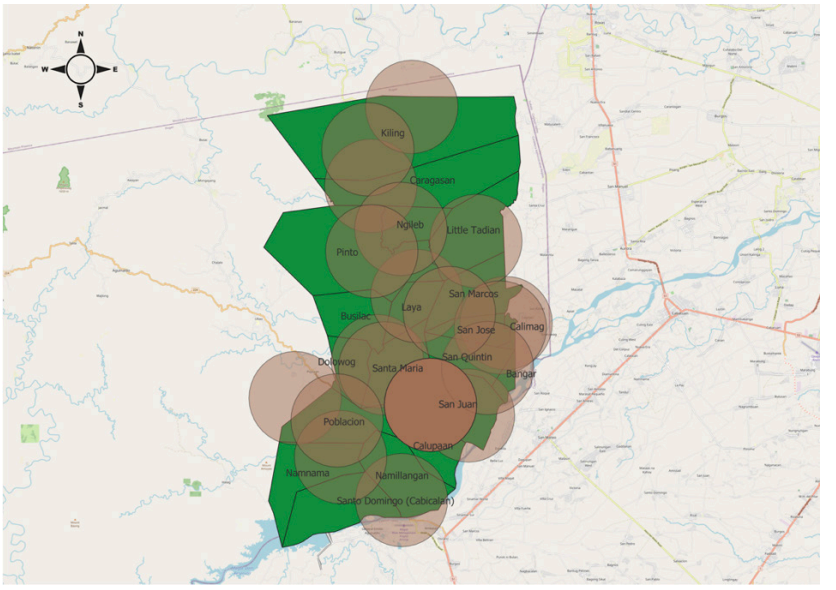
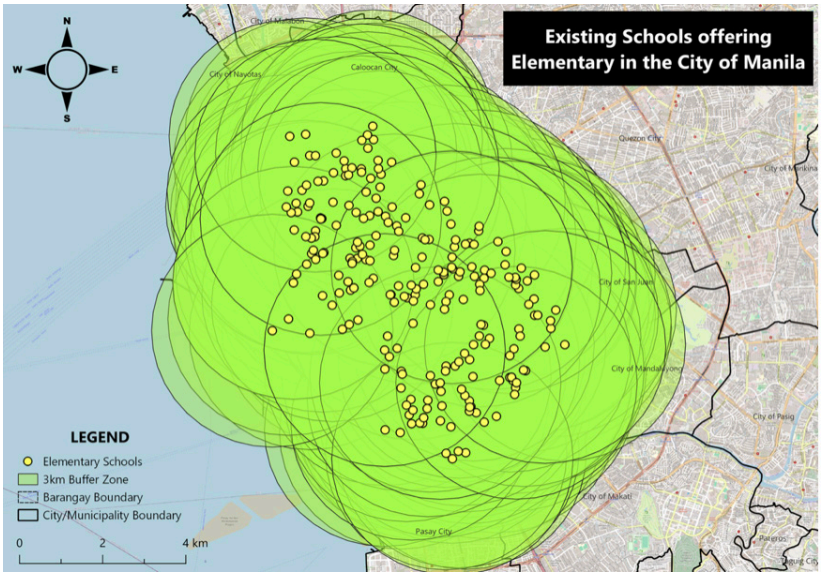


FIGURE 10. SCHOOLS OFFERING ELEMENTARY IN MANILA (CLASSIFIED AS URBAN WITH ABOVE AVERAGE LITERACY)



Maps showing the location of elementary schools in areas categorized by literacy rates reveal significant disparities in access. In rural regions, many areas fall outside the 3-kilometer radius, indicating limited access to schools. In contrast, in Manila, overlapping school radii extend beyond city boundaries, allowing students from nearby communities to access schools within the city. However, this extensive coverage is lacking in urban areas like Cotabato City and Alfonso Lista, where large sections remain underserved. These findings underscore the need for strategic school placement and resource allocation, especially in underserved urban and rural areas, to ensure equitable educational access.

FIGURE 11. SCHOOLS OFFERING JUNIOR AND SENIOR HIGH SCHOOLS IN COTABATO CITY (CLASSIFIED AS URBAN WITH BELOW AVERAGE LITERACY RATE)

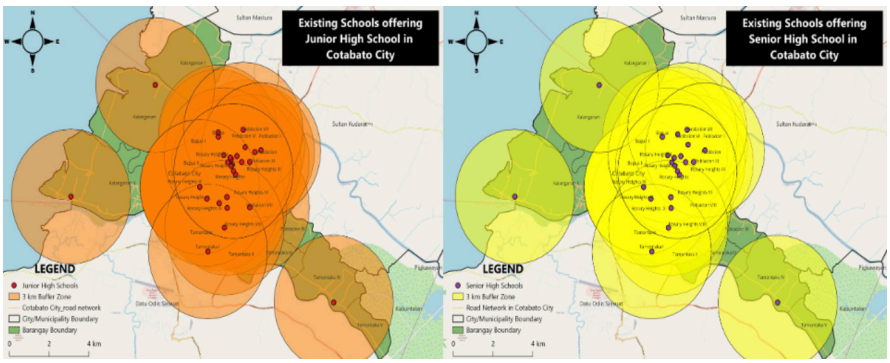


FIGURE 12. SCHOOLS OFFERING JUNIOR AND SENIOR HIGH SCHOOLS IN PILAR, CEBU (CLASSIFIED AS RURAL WITH AVERAGE LITERACY RATE)

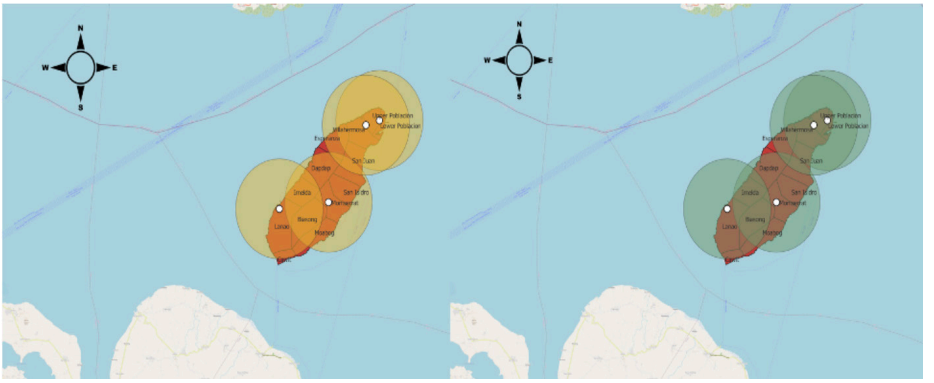
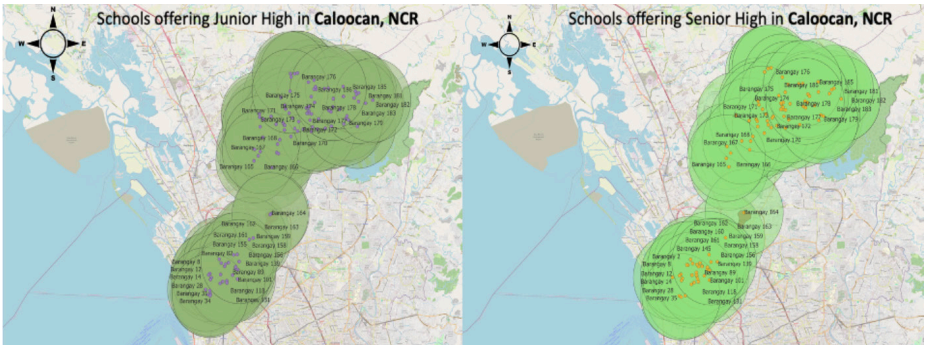


FIGURE 13. SCHOOLS OFFERING JUNIOR AND SENIOR HIGH SCHOOLS IN CALOOCAN (CLASSIFIED AS URBAN WITH ABOVE AVERAGE LITERACY)



The maps reveal that the presence of schools does not necessarily result in high literacy rates. For example, Cotabato City, an urban area, has a below-average literacy rate despite having schools. This suggests that access alone is insufficient; factors like education quality, socio-economic conditions, and barriers to learning also impact outcomes. To improve literacy rates, these factors must be addressed alongside school availability.

Availability of Schools and Literacy

Regression analysis was conducted to investigate potential associations between age, sex, and the type of school (elementary, junior high, and senior high) with literacy levels. The key findings are as follows:

Junior High Schools Positively Impact Literacy. The number of junior high schools has a strong and consistent positive effect on literacy levels across both regression models (B =

216.1, p < .001 and B = 337.3, p < .001), indicating that increasing the number of junior high schools is associated with improved literacy outcomes, especially in regions like Region IV-A or CALABARZON.

Age Negatively Affects Literacy. Age demonstrates a significant negative relationship with literacy in the first model (B = -21,432.3, p < .001), suggesting that as the population ages, literacy levels tend to decline. However, in the second model focused on younger age brackets, this effect is not significant (B = -839.2, p = 0.865).

Elementary Schools Have a Negative or Marginal Effect on Literacy. The number of elementary schools shows a negative relationship with literacy in the first model (B = -20.8, p < .001) and a marginal effect in the second model (B = -20, p = 0.057), suggesting that factors beyond elementary education may be more critical for improving literacy levels in the Philippines.

Employing linear regression analysis, the research explored these relationships. Results indicate a collective impact of 78.1 percent variance in literacy explained by the three independent variables (F(5,522) = 372, p<.001). Specifically, age (B=-21432.3, p<.001) and number of elementary schools (B=-20.8, p<.001) exhibit significant negative effects on literacy. Conversely, the number of junior high schools correlates positively with literacy (B=216.1, p<.001), particularly notable in CALABARZON (n=2,082) (Table 4). However, sex (B=-7368.4, p=.269) and number of senior high schools (B=91.7, p=.035) showed no significant relationship with literacy.

TABLE 3. LINEAR REGRESSION TABLE ON NUMBER OF SCHOOLS AND LITERACY (MODEL 1)

TABLE 3.1. MODEL FIT MEASURE

			OVERALL MODEL TEST			
Model	**R**	**R^2**	**F**	**df1**	**df2**	**p**
1	0.884	0.781	372	5	522	<.001

Note: Included all the age brackets ranging from 5-9 to 80 and over (years)

TABLE 3.2. MODEL COEFFICIENTS - LITERACY

Predictor	Estimate	SE	t	p
Age	-21432.3	721.58	-29.70	<.001*
Sex	-7368.4	6664.53	-1.11	0.269
Senior High Schools	91.7	43.50	2.11	0.035
Junior High Schools	216.1	32.66	6.62	<.001*
Elementary Schools	-20.8	6.10	-3.40	<.001*

TABLE 4. DISTRIBUTION OF SCHOOLS BY REGION

REGION	LEVEL OF EDUCATION		
	Elementary	Junior High School	Senior High School
Philippines	50,244	15,756	12,316
NCR	2,466	1,215	1,004
CAR	1,722	469	341
Ilocos Region	2,864	889	796
Cagayan Valley	2,560	619	484
Central Luzon	4,342	1,554	1,240
CALABARZON	5,164	2,082	1,443
MIMAROPA	2,125	595	395
Bicol Region	3,597	956	936
Western Visayas	4,318	1,156	920
Central Visayas	3,691	1,423	1,135
Eastern Visayas	3,855	725	561
Zamboanga Peninsula	2,336	545	491
Northern Mindanao	2,612	860	606
Davao Region	2,180	817	595
SOCCSKSARGEN	2,148	823	582
Caraga	1,940	570	486
BARMM	2,324	458	301

Note: Data include State and Local Universities and Colleges (SUCs/LUCs)

TABLE 5. REGRESSION ANALYSIS TABLE ON NUMBER OF SCHOOLS AND LITERACY (MODEL 2)

TABLE 5.1. MODEL FIT MEASURE

			OVERALL MODEL TEST			
Model	R	R^2	F	df1	df2	p
2	0.934	0.873	175	5	128	< .001

Note: Included only school age brackets ranging from 5-9 to 20-24 (years)

TABLE 5.2. MODEL COEFFICIENTS - LITERACY

Predictor	Estimate	SE	t	p
Age	-839.2	4911.2	-0.1709	0.865
Sex	-27290.9	11306	-2.4139	0.017
Senior High Schools	116.1	73.3	1.5832	0.116
Junior High Schools	337.3	54.8	6.1547	< .001
Elementary Schools	-20	10.4	-1.9183	0.057

Employing linear regression analysis, the research found that collectively, these variables accounted for 87.3 percent of the variance in literacy ($F(5,128) = 175$, $p<.001$). Notably, junior high schools had a significant positive impact on literacy ($B=337.3$, $p<.001$), particularly evident in CALABARZON ($n=2,082$) (Table 4). However, age ($B=-839.2$, $p=.865$), sex ($B=-27290.9$, $p=0.17$), senior high schools ($B=116.1$, $p=.116$), and elementary schools ($B=-20$, $p=.057$) showed no significant relationship with literacy, indicating the need for further investigation into the determinants of literacy outcomes in Philippine education.

The study shows that JHS availability improves educational outcomes, while elementary and SHS education had limited influence. Other factors, such as educational quality, accessibility, and socio-economic conditions, are likely more crucial.

To ensure that learners remain in school and succeed, the responsibility cannot rest solely with DepEd. A shift to an ecosystem approach is required, where multiple stakeholders—educational institutions, government, businesses, parents, and community leaders—collaborate to support learning. This KeepKidsLearning Ecosystem fosters innovation, addresses educational barriers, and ensures equitable access to quality education for all learners.

The envisioned ecosystem emphasizes building a dynamic network of various stakeholders:

- **Primary Stakeholders:** Students are at the heart of the ecosystem. The primary focus is on providing a conducive learning environment, access to quality education, and necessary support for personal and academic growth.

- **Supportive Stakeholders:** Educators, administrators, and families must actively support learners. Investing in teacher training and involving parents in educational activities is critical for enhancing student performance.

- **Administrative Stakeholders:** Local Government Units (LGUs) should take on greater responsibility for school performance, with DepEd focusing on monitoring and quality assurance. LGUs must be empowered with resources and flexibility to develop locally tailored programs, supported by performance-based incentives.

- **Development and Training Stakeholders:** Teacher education institutions and NGOs should focus on literacy and offer support for at-risk learners through extension programs and the National Training Service Program.

- **Community and External Stakeholders:** Non-Governmental Organizations (NGOs) and businesses can provide funding, resources, and partnerships to enhance

educational access. Industry partnerships, particularly in SHS , can offer students practical skills and career guidance.

- **Health and Welfare Stakeholders:** School-based health and nutrition programs ensure student well-being, improving attendance and academic outcomes. Expanding Conditional Cash Transfer (CCT) programs tied to school attendance and responsible parenting can further reduce dropout rates.

- **Early Education Stakeholders:** Strengthening early childhood education ensures that students are well-prepared for elementary school, reducing dropout rates in the early grades.

The analysis reveals a significant shortfall in JHS programs, particularly in rural and underserved urban areas. JHS availability is positively correlated with higher educational attainment and literacy rates, making it essential to expand access to these programs through the construction of new facilities and enhancement of existing ones.

For SHS, the availability of institutions does not strongly correlate with improved outcomes. This is probably due to socio-economic challenges and issues with curriculum relevance. Expanding industry immersion programs and aligning SHS curricula with labor market needs are crucial steps to improve employability and student engagement. Partnerships with businesses can provide internships and career opportunities, fostering real-world skills.

The future of education in the Philippines depends on creating a resilient and agile ecosystem that can adapt to changing needs. By addressing critical areas—school availability, educational quality, and socio-economic barriers—the Philippines can create a more inclusive and effective education system.

A collaborative, whole-of-society approach is vital for achieving educational success. Tailored policy options for each educational level, combined with flexible curricula, expanded access to technology, and strong community engagement, will help create an education ecosystem that supports every learner in reaching their full potential.

The State of Higher Education Access in the Philippines

Higher education is crucial for the economic, social, and technological development of a country. As highlighted by UNESCO (2017), "Higher education enhances people's quality of life, provides broad social benefits to individuals and society, and develops a highly skilled workforce." The advanced knowledge and skills fostered through higher education allow

individuals to adapt to the evolving demands of the global economy, promoting innovation and problem-solving. Moreover, HEIs are centers for research and development, driving technological advancements that address complex societal issues.

Access to higher education is essential in promoting social equity and mobility. According to the World Bank (2018a), "Access to quality higher education can transform the lives of individuals and promote social inclusion." By offering opportunities for individuals from various backgrounds, higher education reduces poverty and inequality. It enables individuals to improve their socio-economic standing and participate more actively in the democratic process, fostering a more informed and engaged citizenry. Investing in higher education, therefore, not only enhances economic progress but also promotes inclusive development.

The state of higher education access in the Philippines remains complex. Despite legislative measures like the Higher Education Act of 1994 and the Universal Access to Quality Tertiary Education Act of 2017, which aim to increase access and improve the quality of higher education, challenges related to accessibility, equity, and quality persist. These issues are particularly pronounced between urban and rural areas and among various socioeconomic groups (UNESCO 2017; World Bank 2019).

The 1987 Philippine Constitution emphasizes the importance of education, including higher education, as a right for all citizens. It mandates the state to provide quality education at all levels, making it accessible to all. This legal foundation establishes the importance of equitable higher education, ensuring that it contributes to the country's holistic development. Article XIV of the Constitution lays out several provisions to maintain an inclusive and equitable education system, from budget prioritization for education to supporting a teaching workforce that attracts talented individuals.

However, challenges remain in ensuring that higher education institutions, particularly in remote and underserved regions, meet the needs of their populations. The gaps in accessibility, affordability, and quality are most evident in rural regions, where socio-economic disparities create significant barriers to higher education. These disparities also highlight the need for regional institutions, like SUCs and LUCs, to bridge the gap between metropolitan centers and the provinces.

Addressing Educational Access through Institutional Vision and Mission

Vision and mission statements of SUCs and LUCs play a crucial role in addressing these challenges by outlining institutional priorities and strategies that align with the unique

needs of their regions. As UNESCO (2017) states, "A well-articulated mission statement helps focus the institution's efforts on key areas and ensures that all stakeholders are aligned with the institution's goals and objectives." The alignment of institutional efforts with national and local development goals is essential for addressing disparities in access to higher education across different regions in the Philippines.

Mission statements serve as public declarations of an institution's commitment to its students and community, guiding decision-making processes and establishing institutional priorities (Morphew and Hartley 2006). These statements enable SUCs and LUCs to focus their efforts on expanding access to higher education, especially in underserved communities. Kabanoff and Daly (2002) argue that mission statements provide a framework for institutional identity and purpose, which helps differentiate institutions and communicate their unique value propositions. This differentiation is critical in the Philippines, where SUCs and LUCs serve distinct but complementary roles in promoting regional development and educational equity.

SUCs and LUCs: Distinct Roles in Promoting Higher Education Access

State and local universities and colleges play vital roles in promoting higher education access in the Philippines. SUCs, which are established by national legislation and receive funding from the national government, tend to have broader regional and national impacts. Their focus on institutional excellence, economic and technological contributions, and national development goals positions them as drivers of regional progress and research innovation (CHED 2020). In contrast, LUCs, which are established and funded by local government units, often emphasize community-centric approaches, with a focus on local integration and the specific educational needs of their local communities (CHED 2020).

The thematic analysis of the vision and mission statements of SUCs and LUCs reveals both common and unique aspirations. For instance, both types of institutions highlight the importance of quality education, community development, and global competitiveness. However, LUCs tend to focus more on local priorities, emphasizing terms such as "neighboring communities," "civic," and "government," which reflect their commitment to local development. On the other hand, SUCs emphasize terms like "state," "premier," and "various," reflecting their broader regional and national responsibilities (Ahmad and Masroor 2020).

By emphasizing their unique strengths, SUCs and LUCs complement each other in addressing educational disparities in the Philippines. SUCs often lead efforts in research and technological advancement, contributing to the development of knowledge economies

and national competitiveness, while LUCs focus on providing accessible and relevant education to underserved communities. This division of labor ensures that both local and national needs are met, helping bridge the educational gap between urban and rural areas.

A Unified Approach to Improving Higher Education Access

For the Philippines to achieve equitable access to higher education, it is essential that the efforts of SUCs and LUCs are aligned with national goals while remaining responsive to regional and local needs. McCowan (2015) argues that achieving equity in higher education involves ensuring availability, accessibility, and horizontality across regions. Policies must remove barriers related to socioeconomic status, gender, and ethnicity to create a higher education system where all students can reach their full potential. Achieving genuine equity requires addressing social inequalities that accumulate over time, offering ongoing support throughout students' academic careers (Duru-Bellat and Gajdos 2012).

In addition to expanding institutional availability, equitable access requires creating an inclusive and supportive educational environment. Ensuring access to higher education means addressing barriers that disproportionately affect marginalized groups, such as economic disparities and geographical isolation (UNESCO 2017). The vision and mission statements of SUCs and LUCs are instrumental in defining institutional strategies that foster inclusive access and academic success. Through targeted efforts like financial aid programs, community engagement initiatives, and inclusive campus environments, these institutions help ensure that higher education is not only accessible but also meaningful and transformative for all students.

The vision and mission statements of SUCs and LUCs are not mere formalities; they are strategic tools that shape institutional priorities and efforts to address the complex challenges of higher education access in the Philippines. By aligning their goals with the unique needs of their regions, these institutions play a pivotal role in expanding access to higher education, promoting regional development, and contributing to national progress. Addressing the state of higher education access in the Philippines requires a comprehensive approach that involves both SUCs and LUCs in their distinct but complementary roles. Together, they can create a more inclusive, equitable, and accessible higher education system that meets the diverse needs of Filipino students and contributes to the country's overall development.

The following tables compare the vision and mission statements of SUCs and LUCs by examining the frequent occurrence of specific themes within their vision and mission statements.

TABLE 6. TABLE OF COMPARISON: VISION STATEMENTS

ASPIRATION	SUCs	LUCs
Global Competitiveness	Frequently mention "globally competitive" (98 occurrences)	Mention "globally competitive" (24 occurrences)
Quality Education	Emphasize "excellence" (103 occurrences), "quality," and "leading" (131 occurrences)	Emphasize "quality" (40 occurrences) and "competitive" (29 occurrences)
Research and Technology	Significant focus on "research" (110 occurrences) and "technology" (101 occurrences)	Minimal emphasis on research and technology
Sustainable Development	Frequently mention "sustainable development" (135 occurrences)	Minimal mention of sustainable development
Community and Accessibility	Some mention of community service	Strong emphasis on serving the local community (38 occurrences of "community")
Leadership and Excellence	Aspirations to become "leading" (131 occurrences) or "premier" (100 occurrences) institutions	Focus on being competitive and providing quality education
Institutional Identity	Frequently use the term "university" (404 occurrences)	Often refer to themselves as "college" (49 occurrences)

The comparative analysis of vision statements between SUCs and LUCs in the Philippines highlights their distinct roles. SUCs focus on global competitiveness, quality education, leadership, research, and sustainable development, aiming for national and international impact. In contrast, LUCs emphasize community service and accessibility, prioritizing local needs. This differentiation shows that SUCs drive national progress, while LUCs foster local development, complementing each other in promoting educational and socio-economic growth.

TABLE 7. TABLE OF COMPARISON: MISSION STATEMENTS

ROLE	SUCs FREQUENCY	LUCs FREQUENCY
Provider of Quality Education	"Quality" (216 occurrences), "education" (249 occurrences)	"Quality" (62 occurrences), "education" (62 occurrences)
Contributor to Development	"Development" (317 occurrences)	"Development" (42 occurrences)
Research and Innovation Hub	"Research" (352 occurrences)	"Research" (34 occurrences)

ROLE	SUCs FREQUENCY	LUCs FREQUENCY
Community Service Provider	"Extension" (239 occurrences), "services" (186 occurrences)	"Community" (51 occurrences)
Student Development Facilitator	"Provide" (266 occurrences), "instruction" (231 occurrences)	"Provide" (55 occurrences), "students" (30 occurrences)
Promoter of Sustainable Development	"Sustainable" (198 occurrences)	Less emphasis
University-Level Education Provider	"University" (206 occurrences)	"College" (47 occurrences)

The comparison of mission statements between the State and Local Universities and Colleges in the Philippines shows distinct emphases aligned with their roles. SUCs frequently stress "quality" and "education," demonstrating their commitment to high-caliber education. They also highlight "development" and "research," emphasizing their contribution to national progress and innovation. The term "sustainable" is commonly used in SUCs' mission statements, reflecting their focus on sustainable development.

In contrast, LUCs also emphasize "quality" and "education," but to a lesser extent. Their focus is more on "community," indicating a strong alignment with local needs and their role in providing community service. LUCs tend to use the term "college" more often, reflecting a localized and specialized approach. These differences suggest that while SUCs aim for broader national development and innovation, LUCs are more focused on addressing local community needs and offering accessible education at the grassroots level.

Furthermore, an analysis of their mission statements shows how SUCs and LUCs conceptualize local, regional, national, and global development. Local development involves initiatives that improve community infrastructure and quality of life. Regional development focuses on socio-economic growth and fostering regional identity through collaboration with industry and government. National development refers to broad policies that drive national progress, improve infrastructure, and promote economic stability. Lastly, global competitiveness is about excelling internationally through innovation and adherence to global standards. These insights illustrate how institutions align their missions with development goals, ranging from local to global excellence.

Table 8 shows that LUCs focus mainly on local development, with 113 out of 136 institutions emphasizing it in their vision and mission statements. Additionally, 96 LUCs also highlight global competitiveness, while regional development is mentioned by only 16 institutions.

On the other hand, Table 9 indicates that SUCs prioritize global competitiveness, with 110 out of 156 institutions mentioning it, followed closely by national and local development, which are nearly tied in focus.

A regional comparison shows that LUCs in regions like NCR, the Cordillera Administrative Region (CAR), Region I, and Region IV-A emphasize local development, while SUCs in Region VIII and XIII also prioritize this. LUCs place less emphasis on regional development, with only a few regions like Region I (13 percent) and IV-B (18 percent) showing notable mentions. SUCs, however, exhibit more engagement in regional development, especially in Regions IX and XI (80 percent). National development sees modest emphasis among LUCs, but SUCs in Regions III, IV-A, and XII show stronger focus. Both LUCs and SUCs place considerable importance on global competitiveness, with regions IV-B and VI (LUCs) and Regions VIII and CARAGA (SUCs) leading. In summary, LUCs prioritize local development with significant attention to global competitiveness in some regions, while SUCs balance local, national, and global goals. Regional development is less emphasized across both institution types, showing gaps in focus. This overlapping and lack of clear delineation in roles may lead to inefficiencies in development efforts. A more strategic positioning of SUCs and LUCs—allocating certain institutions to focus on global, national, regional, or local goals—could ensure a more balanced and effective approach to development.

TABLE 8. DEVELOPMENT THEMES OF LUCs

REGION	NUMBER OF LUCs	LUCs WITH LOCAL THEME	% LUCS WITH LOCAL THEME	LUCs WITH REGIONAL THEME	% LUCs WITH NATIONAL THEME	LUCs WITH GLOBAL THEME	% LUCs WITH NATIONAL THEME	LUCs WITH GLOBAL THEME	% LUCS WITH GLOBAL THEME
CARAGA	1	1	100.00	0	0.00	0	0.00	0	0.00
NCR	18	18	100.00	0	0.00	9	50.00	17	94.44
Region 01	4	3	75.00	0	0.00	4	100.00	1	25.00
Region 03	16	15	93.75	5	31.25	7	43.75	14	87.50
Region 04-A	18	18	100.00	5	27.78	9	50.00	16	88.89
Region 04-B	3	1	33.33	0	0.00	0	0.00	1	33.33
Region 05	25	24	96.00	5	20.00	13	52.00	24	96.00
Region 06	11	8	72.73	0	0.00	1	9.09	4	36.36
Region 07	13	10	76.92	0	0.00	4	30-.77	7	53.85
Region 08	3	2	66.67	0	0.00	0	0.00	2	66.67
Region 09	4	1	25.00	1	25.00	0	0.00	1	25.00
Region 10	11	7	63.64	0	0.00	0	0.00	5	45.45
Region 11	7	5	71.43	0	0.00	1	14.29	4	57.14
Region 12	2	0	0.00		0.00	0	0.00	0	0.00
National Status	**136***	**113***	**83.09****	**16***	**11.76****	**53***	**25.00****	**96***	**70.59****

TABLE 9. DEVELOPMENT THEMES OF SUCs

REGION	NUMBER OF SUCs	LOCAL DEVELOPMENT	% WITH LOCAL DEVELOPMENT	REGIONAL DEVELOPMENT	% WITH REGIONAL DEVELOPMENT	NATIONAL DEVELOPMENT	% WITH NATIONAL DEVELOPMENT	GLOBAL COMPETITIVENESS	% WITH GLOBAL COMPETITIVENESS
BARMM	14	5	35.71	9	64.29	5	35.71	6	42.86
CAR	2	2	25.00	3	37.50	5	62.50	8	100.00
CARAGA	5	2	40.00	2	40.00	1	20.00	4	80.00
NCR	10	2	20.00	1	10.00	8	80.00	6	60.00
Region 01	18	10	55.56	10	55.56	1	5.56	17	94.44
Region 02	5	2	40.00	1	20.00	0	0.00	4	80.00
Region 03	12	4	33.33	2	16.67	6	50.00	11	91.67
Region 04-A	10	6	60.00	3	30.00	5	50.00	5	50.00
Region 04-B	6	2	33.33	0	0.00	3	50.00	4	66.67
Region 05	9	2	22.22	2	22.22	4	44.44	7	77.78
Region 06	13	4	30.77	2	15.38	1	7.69	7	53.85
Region 07	7	2	28.57	2	28.57	3	42.86	3	42.86
Region 08	12	6	50.00	2	16.67	5	41.67	11	91.67
Region 09	7	2	28.57	1	14.29	1	14.29	4	57.14
Region 10	10	4	40.00	1	10.00	4	40.00	7	70.00
Region 11	6	1	16.67	3	50.00	3	50.00	4	66.67
Region 12	4	0	0.00	3	75.00	2	50.00	2	50.00
National Status	**156***	**56***	**35.90****	**47***	**30.13****	**57***	**36.54****	**110***	**70.51****

Is Higher Education Accessible?

Access to higher education in the Philippines is essential for national development, providing critical skills and fostering socio-economic growth. The adequacy of HEIs is evaluated across provinces, focusing on whether current institutions meet the educational needs of the 20-24 age group, a primary demographic for higher education. Population data from 2020 and projections for 2025 and 2030 are used to assess the capacity of HEIs to accommodate this group.

Ensuring equitable access to education requires sufficient HEIs to support youth populations in every province. The analysis identifies the number of additional institutions needed to address future gaps, recommending policies for strategic expansion and distribution. As the Philippines grows, expanding HEIs will be critical for young Filipinos to pursue education and contribute to national progress.

Data from CHED includes counts of Private HEIs, LUCs, SUCs Main Campuses, and SUC Satellite Campuses by province. Population data from the 2020 Census and projections for the 20-24 age group were used.

A national ratio of 4,188.21 individuals per HEI in 2020 serves as a benchmark to estimate the ideal number of HEIs for each province in 2025 and 2030. The adequacy of current HEIs was evaluated on a three-level scale:

1. **Adequate:** The actual number of HEIs meets or exceeds the ideal number.

2. **Moderately Adequate:** The number of HEIs is between 75% and 99% of the ideal.

3. **Not Adequate:** The number of HEIs is less than 75% of the ideal.

Appendix A summarizes the findings, including the total HEIs per province, population per HEI for 2020, and the adequacy status for 2025 and 2030, along with additional institutions needed for adequacy.

The analysis reveals that while many provinces currently have an adequate number of HEIs, several provinces fall short of the ideal number, particularly in future years. For example, Agusan del Sur has a significant shortfall and will need approximately 9 additional HEIs by 2025 and nearly 10 additional HEIs by 2030 to meet the needs of its growing 20-24 age group population.

Provinces such as Zamboanga del Norte, while adequate in 2025, will become only moderately adequate by 2030, indicating a need for additional HEIs to maintain adequacy as the population grows.

TABLE 11. SUMMARY OF HEI ADEQUACY BY POPULATION PROJECTION BY PROVINCES, CITIES, AND MUNICIPALITIES

PROVINCE-LEVEL DATA	2020 COUNT	2025 COUNT	2030 COUNT	2020%	2025%	2030%
Adequate	2	1	0	2.41	1.2	
Moderately	70	74	76	84.34	89.16	91.57
Inadequate	11	8	7	13.25	9.64	8.43
CITY/MUNICIPALITY-LEVEL DATA	**2020 COUNT**	**2025 COUNT**	**2030 COUNT**	**2020%**	**2025%**	**2030%**
Adequate	407	387	363	24.79	23.57	22.11
Moderately Adequate	179	185	186	10.9	11.27	11.33
Inadequate	1056	1070	1093	64.31	65.16	66.57

The discrepancy where a higher percentage of cities and municipalities within provinces have an adequate number of Higher Education Institutions (HEIs) compared to the overall provincial adequacy percentage can be attributed to the uneven distribution of HEIs within provinces (Table 11). While certain cities and municipalities may have sufficient HEIs to meet the educational needs of their populations, other areas within the same province may lack adequate facilities, thereby lowering the provincial adequacy rate. This suggests that even if several cities or municipalities within a province are adequately served, the overall provincial adequacy can still be low due to inadequacies in other areas. This highlights the need for a more balanced distribution of HEIs across both urban and rural areas within provinces to ensure equitable access to higher education.

A correlation analysis was conducted to determine if the distribution of HEIs across provinces, categorized by type, correlates with the population of the 20-24 age group (Table 12).

TABLE 12. CORRELATION BETWEEN HEI TYPES AND POPULATION

TYPE OF HEI	CORRELATION WITH 2020 POP	CORRELATION WITH 2025 POP	CORRELATION WITH 2030 POP
No of Private HEI	0.968	0.968	0.968
No of OGS	0.561	0.561	0.561
No of LUC	0.801	0.801	0.801
No of SUC Main	0.720	0.720	0.720
No of SUC Satellite	0.445	0.445	0.445
Total No. of HEI	0.982	0.982	0.982

The correlation coefficient between the number of private HEIs and the 20-24 age group population is 0.968, indicating a very strong positive relationship. This suggests that provinces with larger youth populations tend to have more private HEIs, reflecting a demand-driven nature of private education where institutions are established to cater to the educational needs of a growing demographic.

The correlation between the number of other government schools (OGS) and the youth population is 0.561, representing a moderate positive relationship. While there is an increase in the number of OGS with larger youth populations, this relationship is not as strong compared to private HEIs or LUCs, which have a correlation coefficient of 0.801, indicating a strong positive relationship with the youth population. This underscores the efforts of local governments to address educational demands through locally funded institutions.

For SUCs - main campuses, the correlation is 0.720, suggesting a strong positive relationship with the youth population. This indicates that public higher education infrastructure is generally aligned with demographic needs. However, the correlation between the number of SUC satellite campuses and the youth population is 0.445, indicating a moderate positive relationship. While satellite campuses respond to population sizes, the relationship is weaker compared to main campuses and other types of HEIs, pointing to potential gaps in accessibility for students in certain regions.

HEI Access by Program Levels

Access to higher education programs is a critical issue that involves ensuring the availability of diverse academic offerings, inclusivity of these programs, and the removal of barriers that prevent entry for disadvantaged groups. This aspect of educational equity guarantees that all students, regardless of their background, have the opportunity to pursue their desired fields of study. McCowan (2016) suggests that true accessibility in higher education requires not only sufficient institutions and programs but also removing systemic barriers, such as competitive entrance examinations, that disproportionately impact marginalized students.

The following maps based on data from CHED show the distribution of HEIs and programs by level across provinces in the Philippines. CHED issues a Certificate of Program Compliance (COPC) to both private and public higher education institutions, indicating that programs at the Baccalaureate, Master's, and Doctorate levels have met the minimum quality requirements set by the Commission. Baccalaureate programs, typically completed in four years, with some offered in three years, are regulated by different CHED Memorandum

Circulars (CMO) that set the Policies, Standards, and Guidelines (PSG) for each program. Graduate programs are governed by CMO No. 15 issued in 2019, which outlines the PSG for both Master's and Doctorate programs.

FIGURE 14. DISTRIBUTION OF HEIs

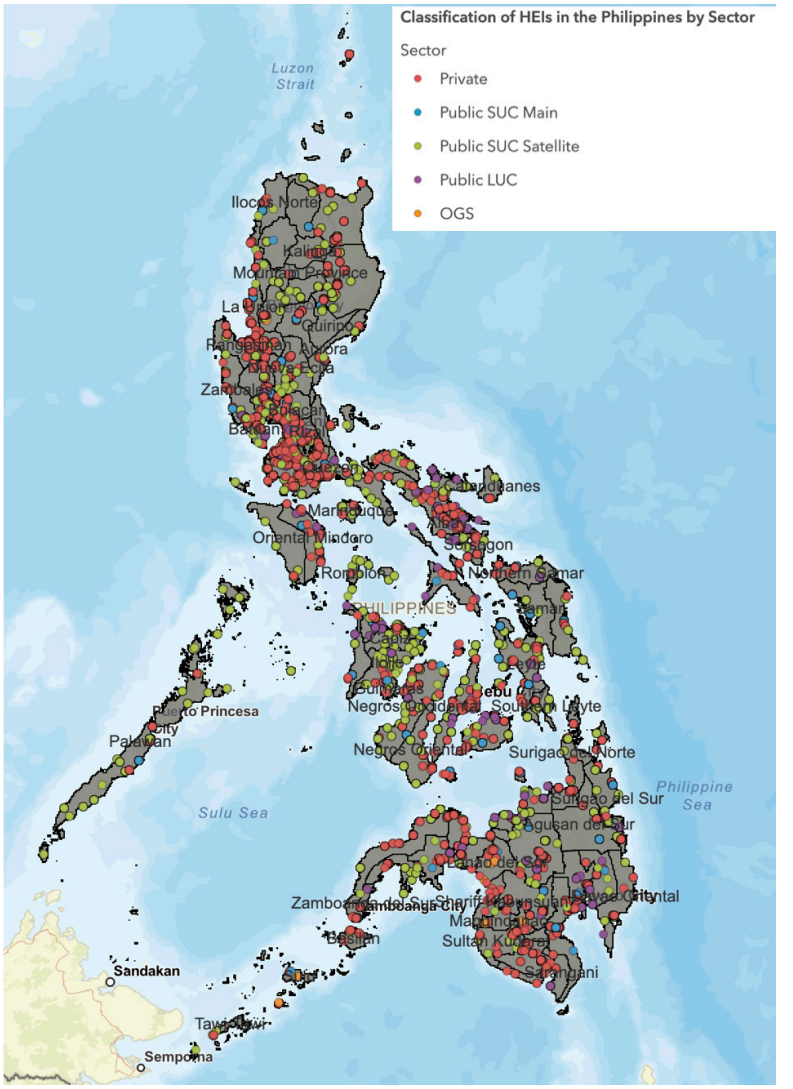


FIGURE 15. AVAILABILITY OF BACCALAUREATE PROGRAMS

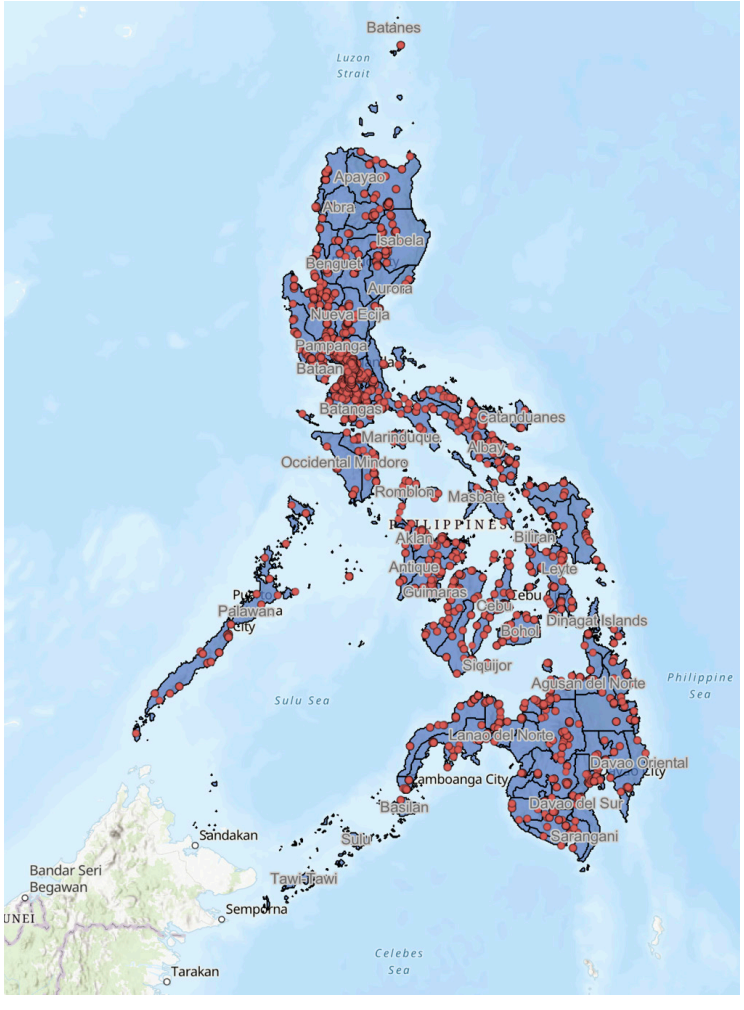


FIGURE 16. AVAILABILITY OF MASTER'S PROGRAMS

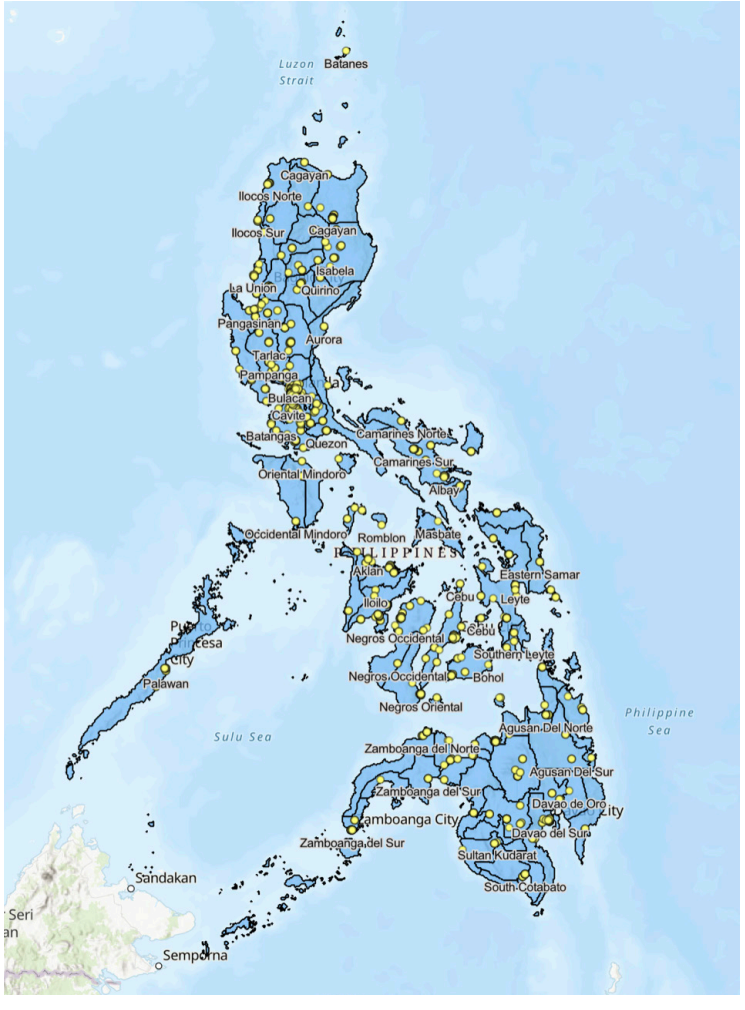
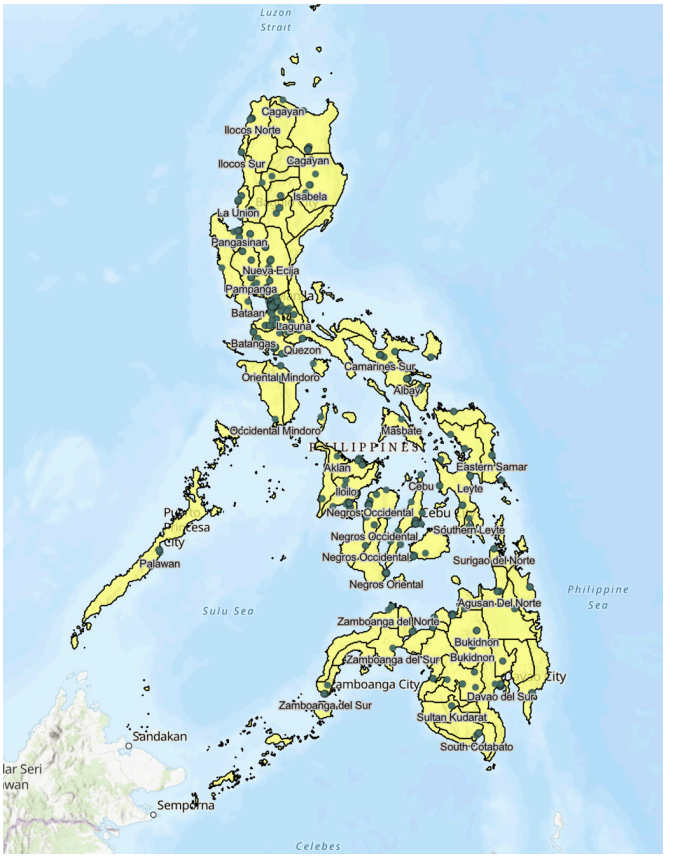
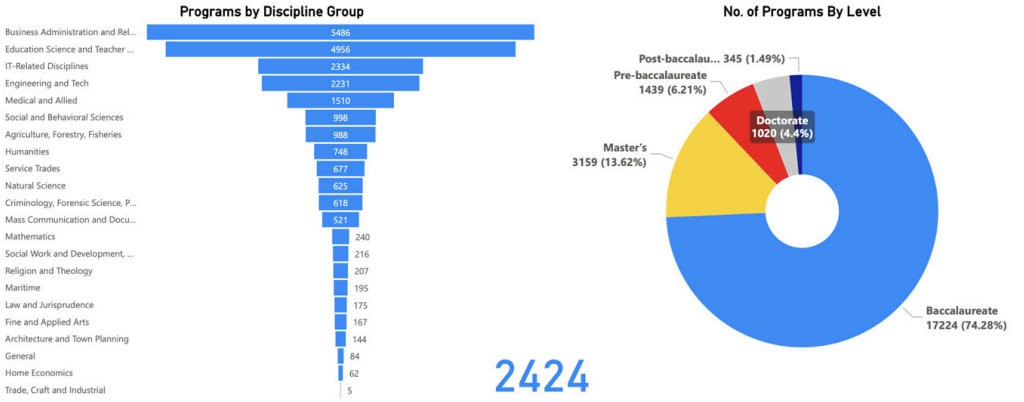


FIGURE 17. AVAILABILITY OF DOCTORATE PROGRAMS



The national summary is displayed in Figure 18 as follows:

FIGURE 18. PROGRAMS BY DISCIPLINE AND PROGRAM LEVEL



Figures 14 to 18 indicate that most higher education programs in the Philippines are at the undergraduate level, with limited availability of graduate programs, particularly at the doctoral level. The 2020 Census reflects this distribution, showing 13,128,017 individuals with a college degree, but only 92,978 with doctoral degrees and 186,835 with master's degrees out of a population of 110 million. This underlines the need for expanding graduate and doctoral programs to ensure comprehensive higher education access.

Educational Attainment and Undergraduate Program Availability

Data from 17 regions (excluding Negros Island Region) covers literacy rates, college graduates, and available college programs (See Figures 19, 20, and 21). The average literacy rate is 96.25 percent, with a low variation (standard deviation of 2.90), showing high consistency. However, the number of college graduates varies widely, with an average of 772,236.29 and a high standard deviation of 689,694.54. College program availability also varies, with an average of 159.53 programs per region and a standard deviation of 53.94.

Correlation analysis reveals a moderate positive correlation (0.498) between literacy rates and college graduates and a strong positive correlation (0.765) between literacy rates and program availability. Likewise, a strong correlation (0.751) exists between the number of college graduates and program availability, highlighting the importance of access to educational programs in boosting higher education attainment. NCR leads across all metrics, while the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM) consistently ranks lowest, showing substantial educational disparities. Other regions exhibit high literacy rates but moderate levels of college graduates and program availability.

FIGURE 19. LITERACY RATES ACROSS REGIONS

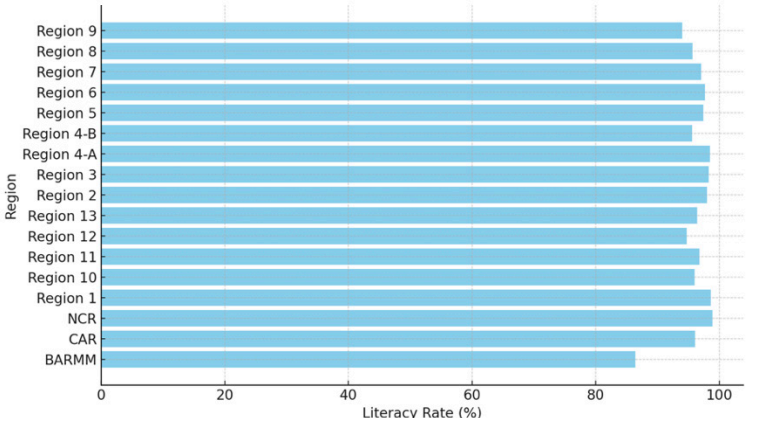


FIGURE 20. COLLEGE COMPLETED ACROSS REGIONS

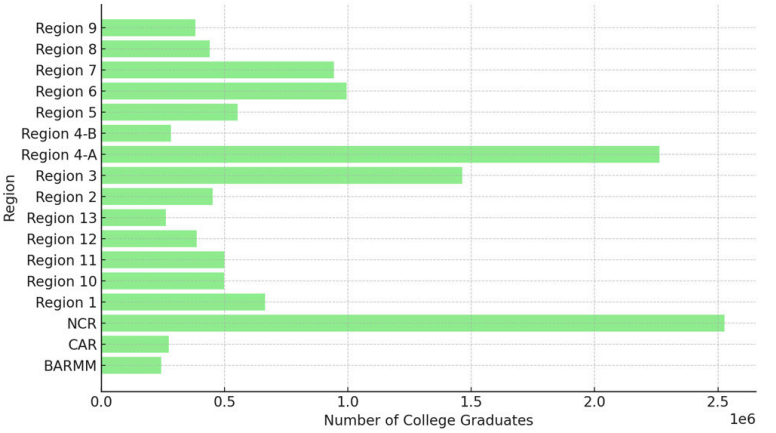
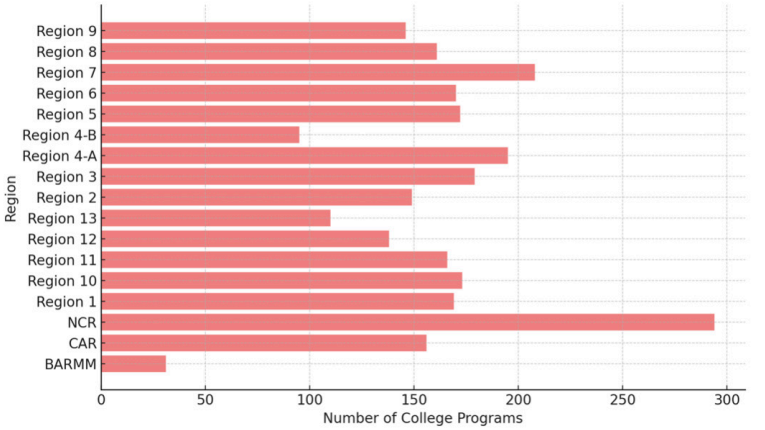


FIGURE 21. COLLEGE-LEVEL PROGRAMS ACROSS REGIONS



Distribution of Undergraduate Programs

This section discusses the analysis of program offerings across regions which indicates that certain programs are more prevalent than others. The most and least commonly offered programs are as follows:

TABLE 13. LIST OF MOST AND LEAST OFFERED PROGRAMS

PROGRAM NAME (MOST OFFERED)	COUNT	PROGRAM NAME (LEAST OFFERED)	COUNT (LEAST OFFERED)
Secondary Education with no specialization	1008	Livelihood Management	1
Elementary Education	992	Management Economics	1
Information Technology	807	Food Science and Technology	1
Hotel and Restaurant Management	756	Food Science	1
Business Administration	590	Architectural Drafting	1
Computer Science	585	Food Engineering	1
Criminology	539	Aquaculture	1
Accountancy	538	English Literature	1
Tourism and Travel Management	514	Nutrition and Dietetics Teaching	1
Business Management	426	Nursing Education	1
Psychology	349	Commercial Education	1
Nursing	331	Music Liturgy	1
Business Entrepreneurship	331	Applied Deaf Studies	1
Accounting Technology	322	Commercial Science/Arts	1
Computer Engineering	287	Animal Technology	1
English	282	Evangelical Ministry	1
Office Administration/ Management	262	Chemical Technology	1
Physical Education	251	Extension Education	1
Technician Teacher Education	240	Farming System	1
Civil Engineering	226	Hospital Administration	1

The National Capital Region (NCR) has the highest number of unique programs (211), indicating a broad range of higher education offerings. In contrast, regions like BARMM and Region IV-B have fewer unique programs, suggesting gaps in educational opportunities. The Cordillera Administrative Region (CAR), particularly Benguet, shows high diversity indices, indicating an even distribution of varied programs. Conversely, BARMM, especially

Maguindanao del Sur, has lower diversity indices, highlighting limited variety and uneven distribution of programs.

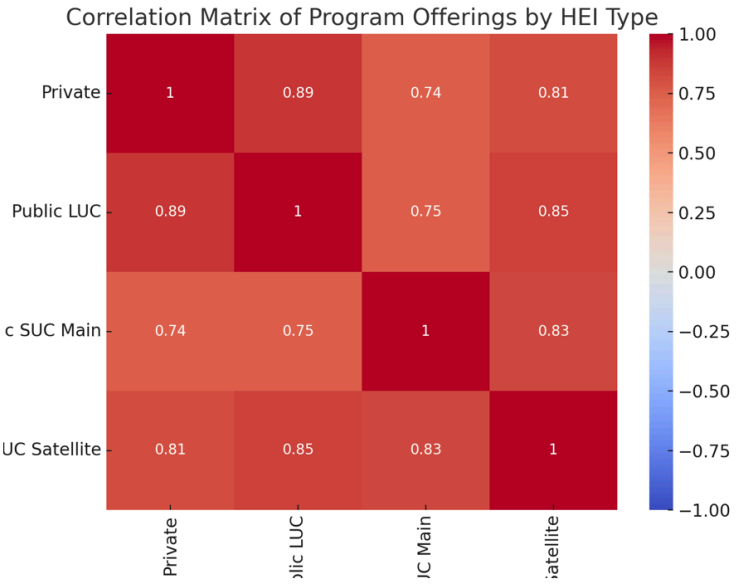
Private institutions generally exhibit higher diversity indices compared to public institutions. For example, private HEIs in Sultan Kudarat (Region XII) have a diversity index of 4.52, reflecting a broad and balanced program offering. On the other hand, public SUC main campuses often show lower diversity indices than their satellite campuses and private institutions, possibly due to a more focused program range at main campuses.

This raises the question of whether a national priority program plan exists to align educational offerings with the country's development goals. Such a plan would ensure that programs are strategically developed to meet national, regional, and local needs, promoting balanced and equitable access to higher education across all regions.

Distribution of Undergraduate Programs

The correlation matrix quantifies the degree to which program offerings in one type of HEI are related to those in another. Values close to 1 indicate a strong positive correlation, meaning that the programs are likely to be offered in both HEI types.

FIGURE 22. MATRIX OF PROGRAM OFFERINGS BY HEI TYPE



The analysis shows a strong positive correlation (0.886) between the number of programs offered by private institutions and public LUCs, indicating that popular programs in private

institutions are often available in LUCs as well. Additionally, there is a moderately strong correlation (0.745) between private institutions and public SUC main campuses, showing a similar trend in program offerings. The strong correlation (0.808) between private institutions and SUC satellite campuses further supports the idea that many programs in private institutions are also offered in SUC satellite campuses.

The correlation between public LUCs and SUC main campuses (0.746) reflects a similar alignment in their programs, while the strong positive correlation (0.854) between LUCs and SUC satellite campuses indicates that these institutions also share program offerings. Finally, the correlation (0.834) between SUC main and satellite campuses suggests a high degree of similarity in their academic programs. This overlap in program offerings highlights a lack of clear differentiation between public HEIs in terms of their roles and academic offerings.

Summary

The foregoing discussion on the education pipeline in the Philippines showed leaks that need to be plugged but more importantly, a seamless system of education needs to be established. The data revealed a compelling story of the country's educational pipeline and landscape that can be told in summary by the following infographics:

FIGURE 23. THE EDUCATION LEAKS

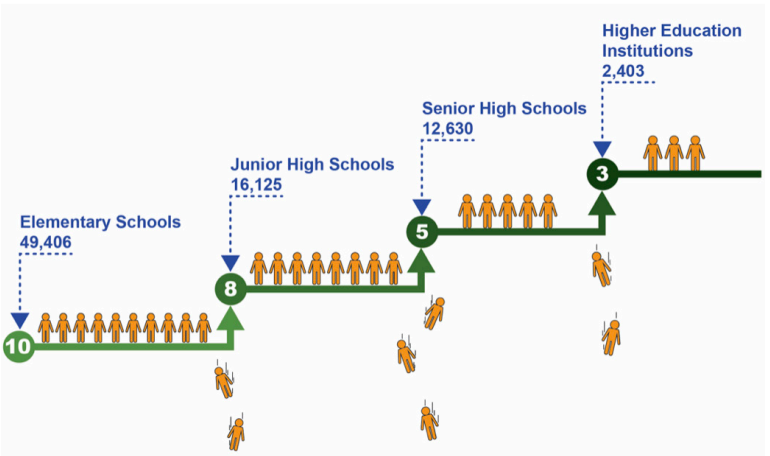


Figure 23 shows that out of every 10 students who started Grade 1 in 2006, around 8 completed junior high, 5 graduated from senior high, and about 3 finished college by 2022. This pattern is consistent across all levels—regional, provincial, city, and municipal. The dropout rate is influenced by various factors beyond school availability, highlighting the need for diverse and holistic strategies to keep students engaged and enrolled.

FIGURE 24. PLUGGING THE LEAKS

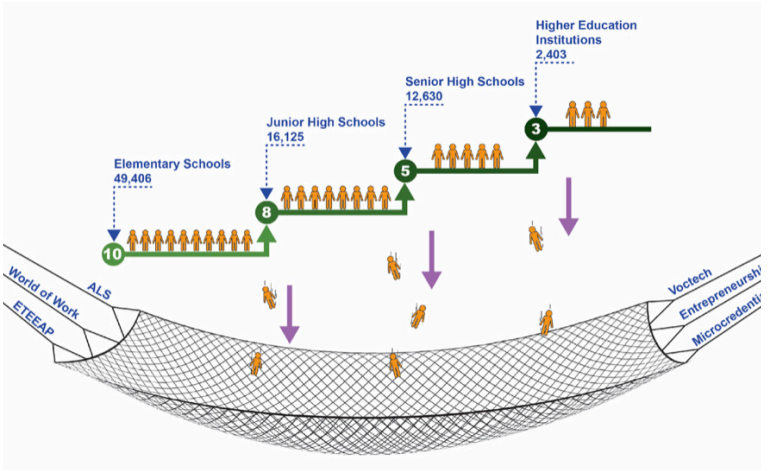


Figure 24 suggests that safety nets may already exist to improve student retention, but a significant portion of the school-age population remains out of school due to lack of access and socio-economic barriers. These "leaks" in the education system can be seen as curricular exits. Addressing this requires plugging the leaks and/or enhancing safety nets to retain students. Additionally, expanding alternative education programs can equip those outside the system with skills to become employable or productive, even without completing traditional education.

FIGURE 25. SEAMLESSNESS

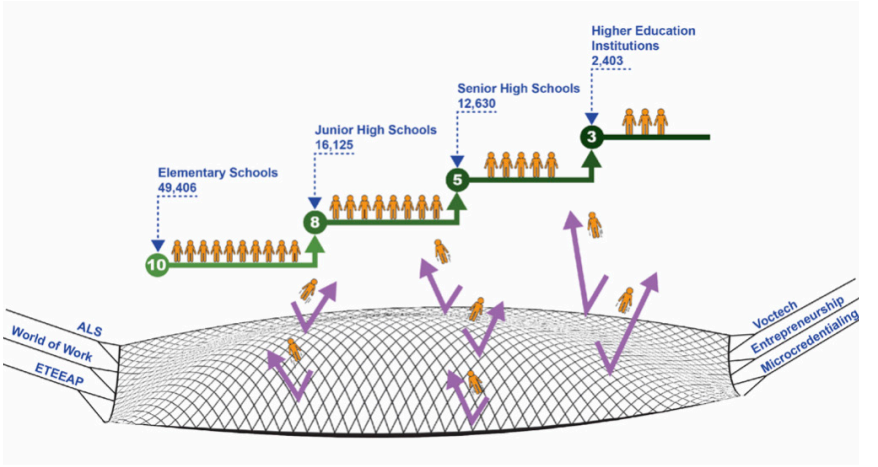
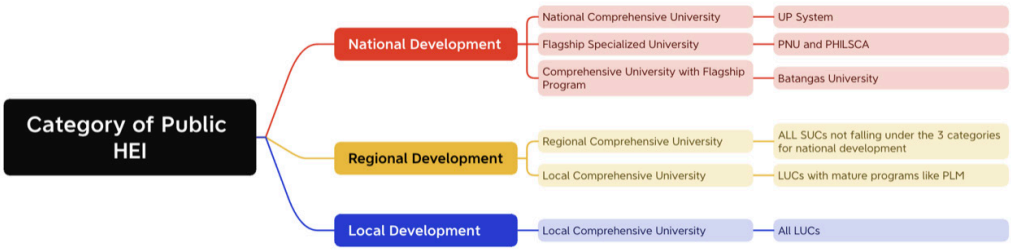


Figure 25 emphasizes the need for a seamless educational system that offers multiple pathways for learners who have dropped out to gain skills, earn credentials, and rejoin the workforce. Such a system promotes lifelong learning and allows individuals to re-enter

formal education without barriers. The current education system's lack of flexibility leads to many students leaving without completing their education, often resulting in limited skills and qualifications for stable employment.

A seamless system would address this by offering alternative pathways, such as vocational training and apprenticeships, which focus on practical skills. Implementing prior learning assessment and recognition (PLAR) would enable individuals to receive formal credentials for non-traditional learning experiences. Collaboration between educational institutions, industry, and government would ensure that curricula align with labor market needs, providing students with relevant skills and enhancing job placement opportunities.

FIGURE 26. DIVISION OF LABOR IN HIGHER EDUCATION



The analysis of programs and public HEI distribution highlights the urgent need to define the division of development work, which is crucial for optimizing limited resources. A strategic approach, through a comprehensive higher education roadmap, is needed to align priority programs with national, regional, and local development goals. This roadmap would guide institutions in tailoring their offerings to regional needs, promoting balanced and equitable development.

Higher education plays a key role in supplying credentialed educators and trainers for various educational pathways. Expanding access through both traditional academic programs and vocational/technical training can enhance educational opportunities. A well-defined roadmap ensures institutions can meet their regions' needs, fostering a more inclusive and effective educational system nationwide.

Conclusion

This research highlights the crucial role that both access to education and the overall quality of the educational system play in shaping educational outcomes in the Philippines. Through a comprehensive analysis of school distribution, literacy rates, and educational

attainment, the study identifies significant geographic disparities in access to education, particularly in rural and underserved urban areas. While the availability of schools remains a foundational requirement for educational success, it is insufficient by itself to address broader educational inequities. A more holistic approach, integrating infrastructure development, socio-economic support, educational quality, and community involvement, is necessary.

Geographic Disparities in Educational Access and Outcomes

Findings show that geographic disparities in school availability significantly hinder equitable education. The study reveals that 23 percent of barangays still lack an elementary school, and an even smaller percentage of schools offer Junior High School (JHS) programs. This limited access is especially detrimental to rural and underserved urban populations, where educational attainment and literacy rates fall below national averages. While the presence of more schools, particularly JHS programs, correlates with improved educational attainment, this alone is insufficient to solve the broader socio-economic inequities and quality issues.

Junior and Senior High Schools as Key Determinants of Educational Success

The availability of JHS is closely linked to higher educational attainment. Regions with more JHS schools demonstrate higher educational attainment and literacy rates, particularly for learners aged 10 to 19. However, the research also indicates that the presence of Senior High Schools (SHS) and Higher Education Institutions (HEIs) does not guarantee improved outcomes, as many students are unable to continue their education due to socio-economic challenges, lack of motivation, and inadequate educational quality.

Educational Pipeline Leakages

One of the major concerns uncovered in this research is the high rate of "leakage" within the educational system, particularly after elementary school and JHS. Socio-economic challenges, limited access to schools, and insufficient support mechanisms contribute to this phenomenon. These leakages result in only a small percentage of students advancing to higher education, which poses a significant threat to long-term human capital development. To address this issue, the study advocates for integrating formal and non-formal education systems. By creating flexible educational pathways, such as distance learning or vocational training, students who exit the formal system prematurely can still pursue meaningful educational opportunities.

State and Local Universities: Roles in Development

State Universities and Colleges (SUCs) and Local Universities and Colleges (LUCs) both play critical roles in the country's development, albeit at different levels. SUCs primarily focus on broader national and regional development through research, innovation, and the production of skilled professionals. LUCs, meanwhile, are more localized and offer education tailored to the specific needs of their communities. This division of labor allows both SUCs and LUCs to complement one another in driving development, fostering social equity, and contributing to economic growth across the country.

Socio-Economic Support for Students

To enhance access to education and reduce dropout rates, socio-economic support for students must be improved. This includes expanding Conditional Cash Transfer (CCT) programs, providing scholarships, transportation subsidies, and implementing school-based nutrition and health initiatives. These support mechanisms will help alleviate some of the financial burdens that prevent students from completing their education, particularly in marginalized communities.

Leveraging Technology for Distance Learning

In regions where constructing new schools may not be feasible, especially in remote or underserved areas, the study recommends leveraging technology to provide education through digital platforms or virtual classrooms. These technological solutions offer flexible learning opportunities for geographically isolated students and ensure continuity of education during external disruptions, such as the COVID-19 pandemic.

Collaboration Among Stakeholders

The study emphasizes the importance of adopting a collaborative approach to education. The proposed KeepKidsLearning Ecosystem brings together stakeholders, including schools, local government units (LGUs), businesses, non-governmental organizations (NGOs), and community leaders, to support students throughout their educational journey. This ecosystem fosters shared responsibility for education and shifts the burden away from solely the Department of Education (DepEd), encouraging active involvement from various stakeholders to ensure student success.

The Role of Early Childhood Education

Strengthening early childhood education programs, particularly in underserved areas, is essential in reducing dropout rates in the early grades. High-quality early childhood education prepares students for elementary school and helps close gaps in educational outcomes, laying a solid foundation for academic success and overall educational development.

Poilcy Recommendations

Several key policy recommendations emerge from this research to address the disparities and challenges identified:

1. **Expand School Infrastructure:** Expanding school infrastructure in underserved barangays is essential. The government should prioritize constructing new Junior High Schools (JHS) and Senior High Schools (SHS) in areas with limited access to such institutions. This expansion will reduce travel distances for students and lower dropout rates.

2. **Integrate Formal and Non-Formal Education Systems:** The government should expand non-formal education pathways, including vocational training and distance learning programs, to provide students who leave the formal education system with opportunities to continue their education. This will ensure that students who face socio-economic barriers can still achieve meaningful educational outcomes and gain skills that enhance their employability.

3. **Improve the Quality of Education:** Improving educational quality is as important as expanding access. Investment in teacher training, the adoption of modern teaching methodologies, and the provision of adequate learning materials and technology are crucial to creating a conducive learning environment. Additionally, school-industry partnerships and industry immersion programs will enhance students' employability by providing practical, real-world skills and experiences.

4. **Increase Accountability at the Local Level:** Local government units (LGUs) should integrate educational outcomes into their performance scorecards. This will create a culture of accountability and enable targeted interventions that address the specific needs of communities. LGUs should work closely with schools to ensure resource allocation and program effectiveness.

5. **Create a National Framework for Human Capital Development:** A National Framework for Human Capital Development should clearly define the division of labor between State Universities and Colleges (SUCs) and Local Universities and Colleges (LUCs). SUCs should focus on advancing research, fostering innovation, and developing high-level skills to address national priorities such as technological advancements, industrial growth, and scientific research. LUCs, on the other hand, should prioritize accessible, community-focused education that addresses the specific needs of local industries and economies, such as vocational training and public service programs.

6. **Foster Collaboration Between SUCs and LUCs:** Collaboration between SUCs and LUCs should be encouraged to optimize resources and ensure that curricula meet both local and national development goals. Joint programs will provide students with practical opportunities to apply their skills in real-world settings, contributing to both immediate local development and broader national progress.

7. **Expand and Enhance Conditional Cash Transfer (CCT) Programs:** The expansion and enhancement of CCT programs can address the socio-economic factors that contribute to dropout rates. Providing financial support to low-income families, conditional on their children's school attendance, will help keep students in school and improve overall educational attainment.

Addressing the disparities in the Philippine educational system requires a comprehensive and inclusive framework that prioritizes not only geographic access to education but also the quality of learning, socio-economic support, and community involvement. Integrating formal and non-formal education systems and leveraging technology will ensure that all students have the opportunity to achieve their full potential and contribute to national development. By adopting these recommendations, the Philippines can build a more resilient, responsive, and equitable education system that serves the needs of all learners.

Biographical note

Dr. Feliece I. Yeban is a teacher-educator with the academic rank of professor at the Faculty of Behavioral and Social Sciences at Philippine Normal University. She has served PNU in various capacities as VP for Finance and Administration, VP for University Relations and Advancement, Dean of the College of Graduate Studies and Teacher Education Research, Associate Dean of the Faculty of Behavioral and Social Sciences, and Faculty Regent. She has an earned PhD in Development Studies from De La Salle University. She obtained her Master of Arts in Education with Specialization in Social Science Teaching at Philippine Normal University and her Bachelor of Arts in Political Science from Philippine Christian University. She also obtained a scholarship from Yale University on Law and Literature under the Yale-China Program.

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Appendix

APPENDIX A. ADEQUACY OF HEIs BY PROVINCE

PROVINCE	TOTAL HEI	20-24 AGE GROUP 2020 POP	POPULATION PER HEI 2020	20-24 AGE GROUP 2025 POP	IDEAL HEI 2025 (NATIONAL RATIO)	ADEQUACY 2025 (NATIONAL RATIO)	HEIs NEEDED 2025 (NATIONAL RATIO)	20-24 AGE GROUP 2030 POP	IDEAL HEI 2030 (NATIONAL RATIO)	ADEQUACY 2030 (NATIONAL RATIO)	HEIs NEEDED 2030 (NATIONAL RATIO)
Abra	5	23,115.72	4,623.14	23,984.62	5.73	Moderately Adequate	0.73	25,251.98	6.03	Moderately Adequate	1.03
Agusan del Norte	20	70,034.04	3,501.7	72,666.55	17.35	Adequate	0.0	76,506.31	18.27	Adequate	0.0
Agusan del Sur	8	68,095.7	8,511.96	70,655.36	16.87	Not Adequate	8.87	74,388.84	17.76	Not Adequate	9.76
Aklan	17	56,685.25	3,334.43	58,815.99	14.04	Adequate	0.0	61,923.88	14.79	Adequate	0.0
Albay	49	126,616.13	2,584.0	131,375.52	31.37	Not Adequate	0.0	138,317.5	33.03	Adequate	0.0
Antique	7	56,454.91	8,064.99	58,576.99	13.99	Not Adequate	6.99	61,672.25	14.73	Not Adequate	7.73
Apayao	2	11,454.11	5,727.05	11,884.66	2.84	Not Adequate	0.84	12,512.65	2.99	Not Adequate	0.99
Aurora	8	21,712.58	2,714.07	22,528.73	5.38	Adequate	0.0	23,719.17	5.66	Adequate	0.0
Basilan	13	51,261.57	3,943.2	53,188.45	12.7	Adequate	0.0	55,998.97	13.37	Moderately Adequate	0.37
Bataan	22	78,595.65	3,572.53	81,549.99	19.47	Adequate	0.0	85,859.16	20.5	Adequate	0.0
Batanes	2	1,734.34	867.17	1,799.53	0.43	Adequate	0.0	1,894.62	0.45	Adequate	0.0
Batangas	59	26,7872.3	4,540.21	277,941.37	66.36	Moderately Adequate	7.36	288,590.86	68.91	Moderately Adequate	9.91
Benguet	28	76,170.48	2,720.37	79,033.65	18.87	Adequate	0.0	83,209.85	19.87	Adequate	0.00
Biliran	2	16,514.64	8,257.32	17,135.41	4.09	Not Adequate	2.09	18,040.85	4.31	Not Adequate	2.31
Bohol	27	128,417.7	4,756.21	133,244.8	31.81	Moderately Adequate	4.81	140,285.56	33.5	Moderately Adequate	6.5
Bukidnon	32	141,954.47	4,436.08	147,290.4	35.17	Moderately Adequate	3.17	155,073.35	37.03	Moderately Adequate	5.03
Bulacan	70	351,612.56	5,023.04	364,829.36	87.11	Moderately Adequate	17.11	384,107.23	91.71	Moderately Adequate	21.71
Cagayan	25	116,838.34	4,673.53	121,230.18	28.95	Moderately Adequate	3.95	127,636.08	30.48	Moderately Adequate	5.48
Camarines Norte	20	57,995.28	2,899.76	60,175.27	14.37	Adequate	0.0	63,354.98	15.13	Adequate	0.0
Camarines Sur	64	190,485.27	2,976.33	197645.44	47.19	Adequate	0.0	208,089.18	49.68	Adequate	0.0
Camiguin	2	8,547.62	4,273.81	8,868.91	2.12	Moderately Adequate	0.12	9,337.55	2.23	Moderately Adequate	0.23
Capiz	17	74,136.08	4,360.95	76,922.79	18.37	Moderately Adequate	1.37	80,987.45	19.34	Moderately Adequate	2.34
Catanduanes	4	25,040.06	6,260.01	25,981.29	6.2	Not Adequate	2.2	27,354.16	6.53	Not Adequate	2.53
Cavite	85	400,158.75	4,707.75	415,200.35	99.14	Moderately Adequate	14.14	437,139.86	104.37	Moderately Adequate	19.37
Cebu	103	474,432.34	4,606.14	492,265.81	117.54	Moderately Adequate	14.54	518,277.52	123.75	Moderately Adequate	20.75
Cotabato	19	117,444.54	6,181.29	121,859.17	29.1	Not Adequate	10.1	128,298.3	30.63	Not Adequate	11.63
Davao Occidental	1	29,210.34	29,210.34	30,308.33	7.24	Not Adequate	6.24	31,909.85	7.62	Not Adequate	6.62
Davao Oriental	9	53,081.19	,5897.91	55,076.46	13.15	Not Adequate	4.15	57,986.75	13.85	Not Adequate	4.85
Davao de Oro	10	70,691.08	7,069.11	73,348.29	17.51	Not Adequate	7.51	77,224.07	18.44	Not Adequate	8.44
Davao del Norte	25	103617.75	4,144.71	107,512.65	25.67	Moderately Adequate	0.67	113,193.7	27.03	Moderately Adequate	2.03
Davao del Sur	60	226,329.3	3,772.16	234,836.81	56.07	Adequate	0.0	247,245.77	59.03	Adequate	0.0

PROVINCE	TOTAL HEI	20-24 AGE GROUP 2020 POP	POPULATION PER HEI 2020	20-24 AGE GROUP 2025 POP	IDEAL HEI 2025 (NATIONAL RATIO)	ADEQUACY 2025 (NATIONAL RATIO)	HEIs NEEDED 2025 (NATIONAL RATIO)	20-24 AGE GROUP 2030 POP	IDEAL HEI 2030 (NATIONAL RATIO)	ADEQUACY 2030 (NATIONAL RATIO)	HEIs NEEDED 2030 (NATIONAL RATIO)
Dinagat Islands	1	11,799.58	11,799.58	12,243.11	2.92	Not Adequate	1.92	12,890.05	3.08	Not Adequate	2.08
Eastern Samar	8	43,947.17	5,493.4	45,599.11	10.89	Not Adequate	2.89	48,008.6	11.46	Not Adequate	3.46
Guimaras	4	17,300.25	4,325.06	17,950.55	4.29	Moderately Adequate	0.29	18,899.07	4.51	Moderately Adequate	0.51
Ifugao	6	19,110.57	3,185.09	19,828.91	4.73	Adequate	0.0	20,876.69	4.98	Adequate	0.0
Ilocos Norte	12	56,143.05	4,678.59	58,253.42	13.91	Moderately Adequate	1.91	61,331.58	14.64	Moderately Adequate	2.64
Ilocos Sur	17	65,023.43	3,824.91	67,467.6	16.11	Adequate	0.0	71,032.64	16.96	Adequate	0.0
Iloilo	53	231,127.25	4,360.89	239815.11	57.26	Moderately Adequate	4.26	252,487.13	60.29	Moderately Adequate	7.29
Isabela	34	156,298.3	4,597.01	162,173.41	38.72	Moderately Adequate	4.72	170,742.79	40.77	Moderately Adequate	6.77
Kalinga	8	21,143.4	2,642.92	21,938.16	5.24	Adequate	0.0	23,097.39	5.51	Adequate	0.0
La Union	20	75,738.62	3,786.93	78,585.56	18.76	Adequate	0.0	82,738.09	19.75	Adequate	0.0
Laguna	95	311,499.98	3,278.95	323,208.97	77.17	Adequate	0.0	340,287.59	81.25	Adequate	0.0
Lanao del Norte	17	100,022.17	5,883.66	103,781.91	24.78	Not Adequate	7.78	109,265.82	26.09	Not Adequate	9.09
Lanao del Sur	45	110,107.21	2,446.83	114,246.04	27.28	Adequate	0.0	120,282.89	28.72	Adequate	0.0
Leyte	46	186,845.85	4,061.87	193,869.21	46.29	Moderately Adequate	0.29	204,113.41	48.74	Moderately Adequate	2.74
Maguindanao del Norte	29	86,896.35	2,996.43	90162.7	21.53	Adequate	0.0	94,926.97	22.67	Adequate	0.0
Maguindanao del Sur	9	86,499.49	9,611.05	89,750.93	21.43	Not Adequate	12.43	94,493.44	22.56	Not Adequate	13.56
Marinduque	9	22,030.96	2,447.88	22,859.09	5.46	Adequate	0.0	24,066.98	5.75	Adequate	0.0
Masbate	15	83,711.53	5,580.77	86,858.17	20.74	Not Adequate	5.74	91,447.83	21.83	Not Adequate	6.83
Metro Manila	327	1,241,918.95	3,797.92	1,288,601.54	307.67	Adequate	0.0	1,356,692.26	323.93	Adequate	0.0
Misamis Occidental	18	56,856.37	3,158.69	58,993.55	14.09	Adequate	0.0	621,10.81	14.83	Adequate	0.0
Misamis Oriental	38	155,216.31	4,084.64	161,050.75	38.45	Moderately Adequate	0.45	169,560.8	40.49	Moderately Adequate	2.49
Mountain Province	3	14,570.22	4,856.74	15,117.9	3.61	Moderately Adequate	0.61	15,916.74	3.8	Moderately Adequate	0.8
Negros Occidental	58	296,926.26	5,119.42	308,087.44	73.56	Moderately Adequate	15.56	324,367.02	77.45	Moderately Adequate	19.45
Negros Oriental	24	131,978.38	5,499.1	136,939.32	32.7	Moderately Adequate	8.7	144,175.31	34.42	Moderately Adequate	10.42
Northern Samar	11	59,687.06	5,426.1	61,930.64	14.79	Not Adequate	3.79	65,203.11	15.57	Not Adequate	4.57
Nueva Ecija	46	212,763.34	4,625.29	220,760.92	52.71	Moderately Adequate	6.71	232,426.1	55.5	Moderately Adequate	9.5
Nueva Vizcaya	6	45,813.49	7,635.58	47,535.57	11.35	Not Adequate	5.35	50,047.39	11.95	Not Adequate	5.95
Occidental Mindoro	10	4,8385.1	4,838.51	50,203.85	11.99	Moderately Adequate	1.99	52,856.67	12.62	Moderately Adequate	2.62
Oriental Mindoro	30	83,658.02	2,788.6	86,802.65	20.73	Adequate	0.0	91,389.37	21.82	Adequate	0.0
Palawan	33	114,818.58	3,479.35	119,134.51	28.45	Adequate	0.0	125,429.67	29.95	Adequate	0.0
Pampanga	51	267,148.67	5,238.21	277,190.54	66.18	Moderately Adequate	15.18	291,837.51	69.68	Moderately Adequate	18.68
Pangasinan	61	291,329.8	4,775.9	302,280.62	72.17	Moderately Adequate	11.17	318,253.36	75.99	Moderately Adequate	14.99

PROVINCE	TOTAL HEI	20-24 AGE GROUP 2020 POP	POPULATION PER HEI 2020	20-24 AGE GROUP 2025 POP	IDEAL HEI 2025 (NATIONAL RATIO)	ADEQUACY 2025 (NATIONAL RATIO)	HEIs NEEDED 2025 (NATIONAL RATIO)	20-24 AGE GROUP 2030 POP	IDEAL HEI 2030 (NATIONAL RATIO)	ADEQUACY 2030 (NATIONAL RATIO)	HEIs NEEDED 2030 (NATIONAL RATIO)
Quezon	57	213334.18	3742.7	221353.21	52.85	Adequate	0.0	233049.69	55.64	Adequate	0.0
Quirino	3	18772.56	6257.52	19478.2	4.65	Not Adequate	1.65	20507.45	4.9	Not Adequate	1.9
Rizal	64	306706.17	4792.28	318234.97	7.05	Adequate	11.98	335050.76	80.0	Moderately Adequate	16.0
Romblon	12	28457.52	2371.46	29527.21	7.05	Adequate	0.0	31087.45	7.42	Adequate	0.0
Samar	11	73052.15	6641.1	75798.12	18.1	Not Adequate	7.1	79803.35	19.05	Not Adequate	8.05
Sarangani	6	51478.93	8579.82	53413.97	12.75	Not Adequate	6.75	56236.41	13.43	Not Adequate	7.43
Siquijor	4	9522.68	2380.67	9880.63	2.36	Adequate	0.0	10402.73	2.48	Adequate	0.0
Sorsogon	22	76319.13	3469.05	79187.89	18.91	Adequate	0.0	83372.24	19.91	Adequate	0.0
South Cotabato	50	154064.05	3081.28	159855.18	38.17	Adequate	0.0	168302.05	40.18	Adequate	0.0
Southern Leyte	9	39563.67	4395.96	41050.84	9.8	Moderately Adequate	0.8	43219.99	10.32	Moderately Adequate	1.32
Sultan Kudarat	23	78658.19	3419.92	81614.88	19.49	Adequate	0.0	85927.47	20.52	Adequate	0.0
Sulu	8	92109.95	11513.74	95572.27	22.82	Not Adequate	14.82	100622.39	24.03	Not Adequate	16.03
Surigao del Norte	12	49239.98	4103.33	51090.86	12.2	Moderately Adequate	0.2	53790.54	12.84	Moderately Adequate	0.84
Surigao del Sur	15	59151.69	3943.45	61375.14	14.65	Adequate	0.0	64618.25	15.43	Moderately Adequate	0.43
Tarlac	26	138468.3	5325.7	143673.19	34.3	Moderately Adequate	8.3	151265.0	36.12	Not Adequate	10.12
Tawi-Tawi	10	40549.42	4054.94	42073.63	10.05	Moderately Adequate	0.05	44296.84	10.58	Moderately Adequate	0.58
Zambales	29	87253.88	3008.75	90533.68	21.62	Adequate	0.0	95317.55	22.76	Adequate	0.0
Zamboanga Sibugay	17	61692.26	3628.96	64011.22	15.28	Adequate	0.0	67393.62	16.09	Adequate	0.0
Zamboanga del Norte	21	96470.61	4593.84	100096.85	23.9	Moderately Adequate	2.9	105386.04	25.16	Moderately Adequate	4.16
Zamboanga del Sur	45	186769.77	4150.44	193790.28	46.27	Moderately Adequate	1.27	204030.31	48.72	Moderately Adequate	3.72
National	2403	10064,260.84	4188.21	nan	nan	Not Adequate	0.0	nan	nan	Not Adequate	0.0

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