IBON INTERNATIONAL

PEOPLE-POWERED SUSTAINABLE CONSUMPTION

A visioning & mapping study

People-Powered Sustainable Consumption:
A visioning & mapping study

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IBON International
3rd Floor, IBON Center
114 Timog Avenue, Quezon City
1103 Philippines
Telefax: +632 9276981
Telephone: +632 9277060 to 61 local 203 and 207
Email: international@iboninternational.org
Website: www.iboninternational.org

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Radinka Basuki
Leonida Odongo
Arnold Padilla
Marjorie Pamintuan
Borneo Dayak Forum and its Research Team

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FOREWORD

Sustainable consumption and production (SCP) as we know it today has been part of development conversations since at least the late 20th century, such as in the 1987 "Our Common Future" report and later, the Rio Earth Summit in 1992. This remains the case to this day. As articulated in the Sustainable Development Goal 12 (Ensure sustainable consumption and production patterns), SCP in the 2030 Agenda means using efficient use of resources, of "decoupling economic growth from resource use."

In itself, sustainability in the world's production and consumption of goods and services presents important stakes for peoples in the global South. Today's dominant economic model remains to be characterised by unbridled resource extraction and production of corporate giants, the historical reliance on emission-heavy fossil fuels, and wastage. People's rights especially in Southern countries, such as the right of indigenous peoples to their ancestral domains against mining plunder, are at stake in this contemporary monopoly capitalism.

In this volume, this unsustainable status quo is an important starting point. A grounded analysis means beginning with specific social contexts of resource extraction, production, exchange and circulation, consumption, waste treatment and disposal – which form a chain. SCP, as key in sustainable development, means tackling environmental, as well as economic and social aspects. For instance, historical and continuing unsustainable practices affect communities, as environmental impacts translate to social effects on populations (e.g., climate change, pollution, loss of ecosystems and resources), as well as when dominant production models create obstacles to people's rights (e.g., attacks on union rights, land-grabbing, development aggression).

With neoliberal norms of trade and investment liberalisation, deregulation, and privatisation still influential to many governments, unsustainable production and consumption patterns are entangled with concerns on corporate power, the dominance of foreign capital and elites in the global South. It is for this reason, among others, that we consider SCP as an issue of trade and investment as well.

The matter of shifting away from patterns that pollute, destroy ecosystems, and violate rights, is thus a matter of addressing systemic issues of international and national norms on trade and investment, economic structures and national development policy, among others. Moving towards systemic sustainability requires looking at the relationships of governments, corporations, civil society and people's organisations, and how exploitative relations could change.

This book aims to begin our work on SCP, a volume of a pre-study on the subject, establishing country-level evidence of how the states and people's organisations in Kenya, Indonesia and the Philippines have responded to the call for sustainability. This includes, for instance, responses and issues at the level of policy rhetoric and implementation.

In our work on SCP, as with our enriched 2016-2020 Strategic Plan, we aim to contribute in peoples and their organisations' defence and assertion of their rights and sovereignty. These comprise the full scope of people's civil, political, as well as social and economic rights, including the right of the people to enjoy, contribute to, and determine their development path. So, in this book and in future publications, we also set our eyes on innovations and initiatives of sustainable production and consumption practices from the grassroots, such as sustainable agriculture, and efforts to render governments and corporations accountable in the course of resisting

large-scale economic activities that disadvantage both communities and environments.

Vis-a-vis aiming for resource-efficient economic growth for its own sake, there is the need to defend, assert, uphold and realise people's rights; for government accountability (and for governments to render corporations accountable); to promote self-sufficiency from local to national levels through people's sovereignty; to focus on innovative practices of communities and people's organisations for sustainability. These for us, form a framework of people-powered, or people-led, sustainable consumption and production.

This volume on a pre-study will be followed by another research still on SCP that would be more in-depth in exploring the community practices or people-led SCP as well as corresponding policy recommendations. We are hopeful that this current and the forthcoming volume would be useful to civil society organisations, people's organisations and social movements in advocacy and campaigns for people's rights and sovereignty, for social transformation towards societies and economies sustainably producing, circulating and consuming goods and services – for the people and planet.

Amy Padilla
Director, IBON International

EXECUTIVE SUMMARY

At the Rio Earth Summit more than a quarter of a century ago, governments and other actors in development were in agreement that '*the major cause of the continued deterioration of the global environment are the unsustainable patterns of consumption and production*.' In response, a 10-year framework of programs on sustainable consumption and production (SCP) patterns (10YFP) was agreed to enhance international cooperation, guided by the principle of common but differentiated responsibilities (CBDR). In 2015, governments agreed on a new set of Sustainable Development Goals. 'Doing more and better with less' is the strategy promoted by the United Nations to achieve SCP (SDG 12). SCP, as promoted by the UN, is about promoting resource and energy efficiency, reducing degradation and pollution along the whole lifecycle, while increasing the quality of life. This approach to SCP presents environmental sustainability as a more resource-efficient version of the status quo. It misses the crucial point: that unsustainable production and consumption are symptoms of systemic, structural barriers that rest on the social, cultural, political, and economic make-up of societies. If the current framework and initiatives are inadequate to address these issues, what then does a transformative SCP agenda look like?

This coordinated research was lead by IBON International and its partners in order to understand how developing countries are responding to the challenge of shifting to SCP and to uncover the practices that enable or hinder the realization of a people-powered sustainable consumption and production. The study covers three countries from the Global South: Indonesia, Kenya, and the Philippines. Using latest available data from governments, international and local think tanks, as well as non-government organizations, the researchers analyzed the macroeconomic policy environment as well as the production and consumption patterns in the three countries.

While laudable at its objective, the mainstream understanding of SCP and as articulated in official policy discourse like the SDGs, appears to be restricted to its environmental dimension, ignoring the equally crucial pillars of sustainable development, namely social and economic. Conventional thinking also tends to focus on individual consumption to address and reverse these serious environmental concerns. This approach to SCP is quite evident in the SCP-related policies and projects implemented in Indonesia, Kenya, and the Philippines. While these three countries have good laws related to SCP, most of them are focused on the environment without changing economic and social policies that contribute to unsustainable production and consumption. Moreover, laws that are meant to protect the environment from harmful production and consumption practices are often not effectively enforced.

For example, Indonesia is considered a leader in SCP in Asia. It has its own national strategy on SCP based on the 10YFP. However, the Indonesian government still plans to expand palm oil production despite the negative impacts not only on communities and the local biodiversity. The trans-boundary haze produced by burning forests to make way for oil palm plantations causes health and economic problems for Indonesia and its neighboring countries.

The Philippines is another country known for its good environmental laws and mainstreaming international commitments, including SCP, in national laws. However, the country's government continues to promote foreign large-scale mining and coal-fired power plants despite its commitments to reduce greenhouse gas emissions; while the people protest the destructive social and environmental impacts. Plans to modernize the 'jeepneys' (popular means of transportation) in order to curb greenhouse gas emissions failed to address the fact that private vehicles are far more numerous than public utility

vehicles. The ownership of private vehicles continues to increase due to the lack of an affordable, efficient mass transport system that will address the needs of the people.

Kenya's Green Economy and Strategy and Implementation Plan (GESIP) 2016-2030 guides the implementation of the Vision 2030 by embedding the principles of sustainable development, including SCP, in the country's overall growth strategy. Meanwhile, Kenya also recently enacted its mining policy, which purportedly promotes sustainable mining. The impacts of the policy legislation on the condition of the mining industry, workers, and communities remain to be seen.

There has been increasing recognition that neoliberal globalization has exacerbated the inequitable distribution of wealth and resources. Privatization of water services in Indonesia and the Philippines has made water inaccessible and unaffordable. What is considered to be a right has been turned into a source of profits. As a result, significant portions of the populations of Indonesia and Philippines can barely afford safe drinking water. Economic liberalization through International Monetary Fund (IMF) prescriptions and World Trade Organization (WTO) agreements has contributed to the poverty of food producers in Indonesia, Kenya, and the Philippines. The liberalized mining industry and the lack of downstream industries in the Philippines enable the plunder of the country's mineral wealth. More than 90% of the country's mineral production is exported for processing in other countries. Mining companies are also taxed at a very low rate of 2%.

While national-level data may show that GDP levels are rising or that the consumption of resources is increasing, disaggregation for socio-economic classes reveal the unequal nature of this consumption. In Kenya for example, although protein consumption from meat is rising despite the increase of prices, meat consumption is higher among households in the urban areas and among those belonging to the highest income terciles. In the Philippines, the quality and quantity of food consumption differ between socioeconomic classes, wherein classes D and E generally consume less than classes A, B, and C, except for food that are considered for the poor (e.g. corn, roots crops [camote, cassava, gabi], string beans, saba, round scad [galunggong] and dried fish). Ironically, food producers belong to classes D and E. Although the number of housing units increased, not every family owns a home, as evidenced by the data on informal settlers and homeless families who live on the streets.

Data from the Philippines also reveal a disturbing trend that laws that are supposed to protect the environment and support the transition to SCP are actually dispossessing farmers and indigenous peoples of their lands, and preventing the fisherfolk from accessing fishing grounds. The control and ownership of these resources is then transferred to the profit-oriented private sector under euphemism of "green" projects.

There are also existing people-led SCP initiatives. In the Philippines, people-led initiatives on SCP are almost always linked to struggles for people's rights. Examples are reducing the use of plastics, promotion of solar energy and micro-hydro energy for communities without access to electricity, and promotion of agro-ecological farming. People's organizations and environmental advocates also wage campaigns against extractive industries.

The overall policy direction of SCP today, and even existing major initiatives and programs, are narrow, weak, and predominantly focused on efficiency and technological innovations. This is the approach favored by business and most policy makers. While the SDG 12 is not fundamentally defective, a lot is still to be desired if the world is truly to transition towards sustainable consumption and production. The prevailing bias towards the market under globalization and even greater power being accumulated by corporations pose formidable challenges to SCP and sustainable development, in general.

A people-powered SCP provides the best framework that could fill in the big gaps in mainstream SCP initiatives; confront the challenges that are currently undermining them; and introduce comprehensive and coherent reforms that will address structural barriers to sustainability. Four key elements must be present to achieve a people-powered SCP:

1. People's rights are protected and advanced in the whole production and consumption chain

2. Self-sufficiency from the community to the national level is promoted through people's sovereignty

3. Social innovations and community actions toward SCP are encouraged and supported

4. Accountability of corporations and governments is demanded and ensured

The three studies have shown that for SCP to be truly transformative, it should be responsive to a country and its people's particular needs and constraints. It must also recognize the need to address overlapping inequalities between and among societies and genders while democratizing policy formulation and reform, decision-making, and implementation. The existing consumption and production patterns of Indonesia, Kenya, and the Philippines are far from sustainable. Their country policy frameworks and the actual implementation are currently inadequate to make the shift towards a transformative SCP agenda. However, initiatives towards a people-powered SCP are already being pursued on the ground by communities and peoples organizations as illustrated in the Philippine case study. Civil society organizations are also claiming their spaces in policy and decision-making processes involving SCP despite the current trend of democracy deficit. The existing alternative SCP practices, as well as spaces for influencing policy and decision-making processed should be explored in order to advance a people-powered SCP agenda. ■

1 GLOBAL OVERVIEW: AN INTRODUCTION TO THE VISIONING AND MAPPING STUDY ON PEOPLE-POWERED SUSTAINABLE CONSUMPTION

PEOPLE-POWERED SUSTAINABLE CONSUMPTION

Already part of international policy discourse for decades[1], patterns of consumption and production have been well-established as vital contributors to the achievement or failure of sustainable development. That there is a specific goal on sustainable consumption and production (SCP)[2] in the United Nations' (UN) Sustainable Development Goals (SDGs) – the SDG 12 (Responsible consumption and production) – firmly illustrates the universal recognition of SCP's crucial role in making global environmental, social and economic sustainability possible. SCP core elements, in fact, are seen as key to realizing not just SDG 12 but the other SDGs and their specific targets as well (Bengtsson, Alfredsson, Cohen, Lorek, & Schroeder, 2018).

However, mainstream understanding of SCP and as articulated in official policy discourse like the SDGs, appears to be restricted to its environmental dimension, ignoring the equally crucial pillars of sustainable development, namely social and economic. Without a doubt, the adverse environmental impacts of unsustainable consumption and production – from raw material acquisition, and production to distribution, and use/consumption to end of life reuse, recycling, treatment and waste disposal – present visible and urgent challenges. Climate change, waste generation, pollutant emissions to air and water, biodiversity loss, and depletion of natural resources are big issues confronting humanity (Maxwell & Sheate, 2006). But beyond the issue of the environment, social, (e.g. worsening inequity, poverty, and hunger; and overall deterioration of the quality of life for most) and economic issues (e.g. resource scarcity including oil and unbridled financial speculation and their impacts on the real economy) are indispensable as well in looking for a comprehensive framework to approach the challenges posed by unsustainable consumption and production.

Relatedly, conventional thinking also tends to focus on individual consumption to address and reverse these serious environmental concerns. In theory, according to some proponents of SCP, a sustainable pattern of consumer demand and consumption will influence producers to embrace sustainable production processes, offer greater choice of green products, and provide different consumption options (e.g. services instead of products). With wider choice and consumption options, green goods and services, in turn, will become more affordable and accessible, thus creating "a closed cycle leading to sustainable consumption and production" (Staniškis, 2012).

This view puts the onus on (end) consumers to achieve SCP. However, consumption takes place through particular systems of production, distribution, and exchange that enable the people's use of goods and services. Thus, sustainable consumption must be viewed in the context of the social organization of consumption that underpins the environmental impacts of the daily use of various commodities (Southerton & Welch, 2016).

1 Landmark events at the international level that shaped the SCP policy discourse through the decades include: (1) the 1987 publication of the Brundtland report ("Our Common Future") that first defined sustainable development and introduced the perspective on how affluence and consumption patterns are important drivers of environmental problems and put sustainable development on the international policy agenda; (2) the 1992 UN Conference on Environment and Development (UNCED) in Rio de Janeiro that produced the Agenda 21 document (which called on countries to "strive to promote sustainable consumption patterns"; (3) the 2002 World Summit on Sustainable Development in Johannesburg which tasked national governments to establish a 10-year framework of programs (10YFP) on SCP; (4) the 2012 UN Conference on Sustainable Development (Rio+20) that officially adopted the 10YFP; and (5) the 2015 UN General Assembly that set the 2030 Agenda for Sustainable Developments which enumerated 17 SDGs, including one on "responsible consumption and production" (SDG 12).

2 As defined by the UN Environment Program, SCP pertains to "the use of services and related products, which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of further generations."

It is crucial to understand that while the "consumption" and the "production" in SCP are treated by mainstream discourse as if they were two separate concepts, the reality is that production itself is a form of consumption of resources. Unsustainable consumption thus is not simply the overconsumption of consumers in the industrial countries or of the rich but should also be appreciated as the over exploitation of the planet's natural resources by the world's biggest corporations. In other words, the problem of unsustainable consumption should be addressed not by merely making eco-friendly commodities and reorienting consumers to consume sustainably, but ensuring that consumption of resources (aka production) should be eco-friendly and sustainable as well.

This brings up the point on another dominant paradigm in the SCP discourse which focuses on the role of technology in making the production and distribution of goods and services more environment-friendly. It is true that technological innovations, especially when combined with suitable policies, could contribute to addressing the world's ecological problems. But the potential and actual impact of advancements in technology in transforming how society consumes and produces, including how it manages wastes, should not be overemphasized as innovations alone are not enough.[3] It must be stressed as well that technological advancements in the context of inter-capitalist competition are pursued to make production efficient but not necessarily sustainable.[4]

For instance, under the current global system of capitalist production that is driven by private profit accumulation, production is inherently anarchic and environmentally destructive, while consumption is wasteful and at the same time not accessible to many.[5]

A case in point is the mass production of smartphones and the cutthroat competition for global market share among its manufacturers. According to a recent study, the carbon footprint of the information and computer technologies (ICT) sector, especially of smartphones, is rapidly rising and could account to as much as 14% of the global footprint by 2040. Meanwhile, around 85 to 95% of carbon emissions associated with smartphones is caused not by the use of the device but rather by its production[6] (How smartphones are heating up the planet, 2018). Smartphones, together with tablets and laptops, also account for nearly 82% of electronic wastes generated worldwide. Electronic waste is considered the fastest rising waste stream on the planet today (Baldé, Forti, Gray, Kuehr, & Stegmann, 2017).

What propels the enormous production of smartphones[7] and the consequent excessive carbon footprint caused by such production and the wastes generated is not rational demand arising from the real needs of the consumers. For example, the same study noted that "phone plans that encourage users to get a new smartphone every two years… accelerate(s) the rate at which older models become obsolete and leads to an extraordinary and unnecessary amount of waste" (How smartphones are heating up the planet, 2018).The average smartphone lifecycle in large consumer countries like the US, China and major European Union (EU) countries is just between 1.5 and 2 years (Baldé, Forti, Gray, Kuehr, & Stegmann, 2017). Meanwhile, the number of smartphone users worldwide is about 2.5 billion and just around 36% of the global population is projected to use a smartphone by 2018 (Number of smartphone users worldwide from 2014 to 2020 [in billions], n.d.).

Indeed, there has been increasing recognition that beyond environmental problems associated with consumption and production, there are also critical social and economic issues that must be addressed for SCP to be fully realized, including among others, inequitable distribution of wealth and resources, and inequitable trading policies (Maxwell & Sheate, 2006).This is especially true today in the era of neoliberal globalization where markets and economic

3 Citing existing literature, Southerton & Welch (2016) summarized the restrictions and risks of narrowly framing SCP in terms of efficiency through "technology fix": (1) Efficiencies spur innovations in products and services and the creation of whole new markets that themselves increase demand and thus drive increased environmental impact; and (2) Increased efficiency may inadvertently naturalize less sustainable conventions, norms, expectations and thus needs: such as the need for Internet access to participate fully in modern life.

4 As noted by IBON International, "such appreciation of SCP is well about maximizing business' ability to improve the overall environmental performance of products throughout their lifecycle, to boost the demand for better products and production technologies and to help consumers in making informed choices. Efforts are geared toward integrating environmental sustainability with economic growth, while being mindful of the challenges posed by climate change and the ever-growing demand for energy and resources" (People-powered sustainable consumption: A visioning and mapping study, unpublished).

5 To illustrate, according to the UN, 767 million live in extreme poverty and 793 million are undernourished, while an independent estimate pegs global unemployment at close to 1 billion (as opposed to the International Labor Organization's or ILO official data of some 260 million) (Clifton, Real Global Unemployment Is 33%, Not 6%, 2018). Most of them are from the rural areas or agricultural sectors and are under 18 years old. Amid rising production and consumption and the accompanying wastes that destroy the planet, hundreds of millions are actually consuming too little and suffer from hunger and poverty. Ironically, they are also the most vulnerable to environmental degradation arising from unsustainable production and consumption.

6 That includes, in addition to the manufacturing energy, the energy for material mining for gold and the so-called rare-earth elements like yttrium, lanthanum and several others (How smartphones are heating up the planet, 2018).

7 In 2008, worldwide smartphone shipments were pegged at less than 200 million units. Less than a decade later, in 2017, shipments reached more than 1.48 billion units (Richter, 2018).

sectors are indiscriminately opened up, basic rights and social welfare are rolled back, and the private sector with narrow interests become ever more powerful in setting the development agenda often at the expense of the great majority, especially in the developing world.

Lorek & Spangenberg (2012) provided a useful outline to address SCP in a comprehensive manner that goes beyond the limited "greening" of industrial processes and economic activities. They started by pointing out that a sustainable economy is a necessary condition for sustainability. A sustainable economy is based on the key principles of sustainable development, namely sustainable (resource) consumption, defined as meeting human resource needs within environmental limits. It seeks to achieve a high ratio of need fulfillment while minimizing resource use. Human resource needs refer not just to material needs but all the requirements that will satisfy human well-being, which in turn should answer the crucial questions of "For what should the available resources be used best?" and "What contributes to human well-being beside goods and their services?" (Annex 1.1 summarizes the various enabling mechanisms for SCP, as cited in Lorek & Spangenberg (2012).)

They further explained: "Regarding the first question, the normative approach of sustainable consumption implies channeling resource use towards those consumers where the marginal utility is highest, i.e. the have-nots of any society. This indicates in turn the need to ensure that if reductions in material consumption are required, they have to fall on those with the lowest marginal utility of consumption, the wealthy (Beddoe et al., 2009). The latter question opens the perspective to recognize that further, non-material factors are of equal importance for the well-being of humans, like safety, belongingness, social coherence, equity, and social relations[8] (Scitovsky,1992; Rauschmayer, Omann, Frűman, & Bohunovsky, 2008).

As mainstream discourse often misses or even ignores the fundamental question of how systemic and structural barriers that rest on the social, cultural, political, and economic configuration of societies play a role in undermining SCP, it is crucial to advance a truly transformative SCP framework that will: (a) respond to a country and its people's particular needs and constraints; and (b) advance the realization of economic, social, cultural, and environmental development objectives. This entails recognizing the need to address overlapping inequalities between and among societies and countries while at the same time, elevating the standards for policy formulation, reform, and implementation.

Towards this, the discourse on people's rights offers the most comprehensive framework to approach the complex issues related to SCP.

1.1. People's Rights as Key Link in Achieving People-Powered SCP

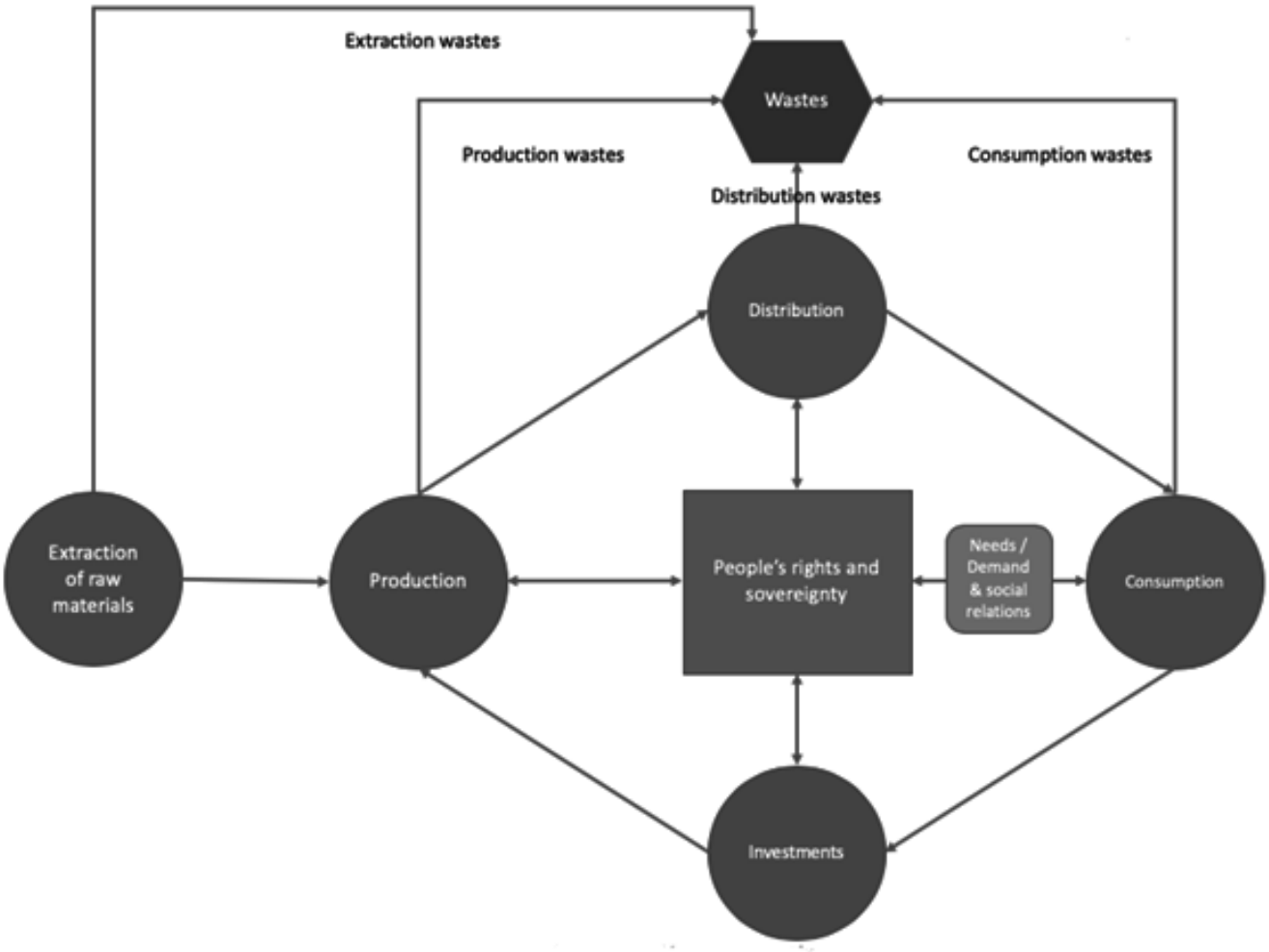
The starting point on the question of consumption and production is the question of people's rights. This goes beyond the state's responsibility to promote the rights of its citizens (e.g. food, shelter, and other material needs for a decent life) but more importantly touches on the question of how the people assert their rights such as through consumer awareness, empowerment, and action. This also goes beyond the people's power to choose what to consume (which is illusory under the current setup where people actually do not have a choice or have limited options) but advances the people's power to decide and determine how commodities and services are produced, distributed and consumed.

SCP must be understood as a system or chain. Between production and consumption are several processes to complete the system, such as distribution (i.e. trade including foreign trade, marketing, sales, delivery of commodities as products and services to consumers) and investments (e.g. public savings and national budgets and private, including foreign, financing/capital/reinvestments) that keep the production-consumption chain going. This can actually still be expanded to include processes that are seen as being outside the loop but indispensable parts of the whole system. Prior to the production of commodities, for instance, is the extraction of raw materials that are processed and used as components by and of production. The disposal and management of wastes, meanwhile, should be factored in as well in understanding the whole SCP system since waste is a function not just of consumption (downstream) but also of extraction and production (upstream) and even distribution.

The question now is what keeps the whole system together and what is driving it? Existing literature suggest that "values or needs" is the central and key link to the

8 Marginal utility is the additional satisfaction a consumer gains from consuming one more unit of a good or service. Economists use the concept of marginal utility to measure happiness and pleasure and how that affects consumer decision-making. They have also identified the "law of diminishing marginal utility", which means that the first unit of consumption of a good or service has more utility than the next units of consumption (Marginal utility, n.d.). Thus, a more affluent person who can consume more has a lower marginal utility than a poorer person who consume less.

FIGURE 1.1. SCP SYSTEMS AND PEOPLE'S RIGHTS AND SOVEREIGNTY



Source: (Barber, unpublished) as cited in (Vergragt, Akenji, & Dewick, 2013) and as modified by the author

whole production-consumption system. Barber (2010), as cited in Vergragt, Akenji, & Dewick (2014), provided a useful visual representation of the various processes that make up the production and consumption system and placed values/needs at the center of the diagram to stress the point that "the main drivers of the production/consumption system are our (perceived) needs or wants driven by our values." But what shapes these values and needs? What is the role of prevailing social relations (economic, political, and cultural) in shaping such values and needs?

Answers to these questions are important if a truly sustainable consumption and production system were to be pursued. Values and needs must be seen not as a static or a predetermined set of ideas but rather a dynamic product of the collective assertion of the people in a particular economic, political, and cultural context – that is the people's rights and sovereignty. A transformative SCP framework treats the assertion of people's rights and sovereignty as the key and central driver of the various dimensions of production and consumption, with values and needs as expression of such assertion. (See Figure 1.1)

People's rights are the synthesis of individual and collective rights of the people, based on the recognition that humans are social beings and that people seek to protect and develop their particular conditions of existence collectively as well as individually. People's rights also refer to the comprehensive or substantive scope of rights in the civil, political, economic, social, and cultural spheres. In addition, people's rights emanates from the people's exercise or assertion of their collective power and authority – or what is called people's sovereignty, which challenges the conventional notion that authority resides in the state that represents the people[9] (Module

9 Individual rights are basically civil and political rights (for instance, right to life and liberty). Civil rights limit the state's interference to individual rights

on advancing people's rights and people's sovereignty, Unpublished).

Putting people's rights at the center of the whole production and consumption chain stresses that every aspect of this system should be guided by the concept and principles of people's rights – from the extraction of raw materials up to the consumption of commodities and services. This means that the key point for SCP is not merely whether the perceived needs of the market are met through ecologically efficient production, including the management of resources and wastes.

As Lorek & Spangenberg (2012) explained in their discourse on sustainable economy and human well-being in relation to SCP, social and other non-material aspects should be embedded in all phases of the production and consumption process. These social/non-material aspects include "basic social rights in general, like human rights or the right to decent work, via equity in access to production and consumption to strengthening the human and social capabilities for production and consumption by strengthening social inclusion and supporting more equity in societies."

People's rights highlight the role of a community or social group asserting their rights in a collective way to ensure a truly sustainable consumption and production system. This is what people-powered SCP means wherein the people are empowered not as individual consumers but as a community or social group with collective rights and that pursue their common interests. Consumption and production are seen not as an individual activity but a community action. Elements of such assertion of people's rights and empowerment in consumption and production system are already present in several ongoing initiatives around the world.

One example is a farmers' market which covers the entire production-consumption chain. A farmers' market allows food producers (farmers) to directly sell their produce to the consumers, bypassing traders, wholesalers, food processors or large grocery firms. Farmers do not only benefit through higher earnings, the scheme also has ecological benefits as less transport, handling, refrigeration, or storage is required to deliver the food to the consumers. Consumers, on the other hand, benefit not just from generally cheaper prices (because middlemen such as traders and supermarkets have been eliminated as well as due to less logistics costs), they are also assured of fresher and healthier food.

A similar model of directly linking farmers and consumers is the community-supported agriculture (CSA) schemes. These are partnerships of mutual commitment between a farm and a community of supporters that provide a direct link between the production and consumption of food. Through CSA, supporters usually cover a farm's yearly operating budget by purchasing a share of the season's harvest and in return, the farm provides a healthy supply of seasonal fresh produce (Community supported agriculture, n.d.). Such direct partnerships between consumers and producers empower both to determine which food to grow and how (e.g. organically or through agro-ecological means), a collective right that industrial agriculture has systematically undermined.

Another is the concept of community sharing such as sharing the commons. In recent years, sharing the commons has moved beyond the traditional environmental commons (community forests, irrigation systems, etc.) There is also now the concept of "urban commons" and initiatives of "sharing cities".[10] As articulated by its proponents: "With the backdrop of worsening income inequality, climate change, and fiscal challenges, the growth of self-organized, democratic, and inclusive means for city dwellers to meet their own needs by sharing resources couldn't be more relevant" (Gorenflo, 2018, p. 20). The idea of sharing is to increase access to resources, boost the local economy, and reduce resource consumption simultaneously by organizing around access rather than ownership[11] (Gorenflo, 2018).

Sharing economy is laudable and as a community-based initiative, could become a solid building block for a truly sustainable consumption and production system. But it is

and freedoms while political rights outline the individual's rights in relation to the government, laws and society. Collective rights, on the other hand, are those that people hold in common as a group, based on the concept of humans as social beings who belong to distinct social groups and whose interactions are greatly shaped by their groups (for example, right to common resources, right to development and right to a healthy and safe environment). In contrast to individual human rights, collective rights are largely dependent on collective interests rather than the mere summation of the members' individual rights (Democracy and People's Sovereignty, Unpublished).

10 Focus on sustainable cities has been increasing in the past ten years when the UN first reported that urban population now comprises more than half of the global population. Cities are considered major contributors to global environmental problems. While representing only one percent of the world's total land mass and housing just over 50% of humanity, cities account for more than 70% all energy consumption and greenhouse gas emissions worldwide (Cohen & Muñoz, 2016).

11 An example of this is car-sharing. According to a 2010 survey of the University of California, Berkeley's Transportation Sustainability Research Center (TSRC) on car-sharing in the US, one shared car replaces up to 13 owned cars, and 51% of car-sharing members joined to gain access to a car when they previously did not have access to one. Meanwhile, a separate estimate showed that for every 15,000 cars taken off the road, a city could keep US$127 million in the local economy that could have otherwise ended up in the coffers of multinational car manufacturers (Gorenflo, 2018).

inherently limited in scope. For instance, a ride-sharing initiative by members of a community may increase the access of some to a mode of transportation, reduce the number of vehicles on the road, and contribute to lessening greenhouse gas emission. But it is still not a substitute to a reliable, accessible to all (e.g. subsidized), and efficient system of mass transportation that puts the same benefits of community-based ride-sharing at a much greater scale. This is not to say that it is an unavoidable choice between the two alternatives. In fact, both could exist and complement each other.

The same thing can be argued about farmers' markets and community-supported agriculture. How could such community-led initiatives prosper amid a predominant system wherein the global food supply chain – from farm to plate – is monopolized by a handful of transnational corporations (TNCs)? How can local farm production be encouraged to meet community needs when the prevailing policy environment is neoliberal restructuring of agricultural production and unsustainable corporate agriculture at the expense of food self-sufficiency, farmers' livelihoods, and the environment? Or in the case of many backward, pre-industrial countries, how can farmers even participate in such community partnerships when they are dispossessed of lands to till? This is not to dismiss the contribution of community initiatives to link farmers and consumers but to simply point out that while such initiatives challenge the status quo, they are still not enough.

1.2. SCP as a Systemic Issue and the Need for Sustained People's Action

This brings another key point about people-powered SCP. It views consumption and production as a systemic issue. As mentioned, production and consumption must be understood as a whole chain instead of two discrete constructs within the SCP system (e.g. sustainable consumption as simply raising consumer awareness, changing their behavior, values and motivations, while sustainable production is mainly about producing goods in an ecologically-friendly way and responsible management of wastes) (Cohen & Muñoz, 2015). SCP is not merely an issue of efficiency (i.e. efficient products and methods by the producers through technological improvements and informed choices by consumers) but a systemic one that looks at overall volumes of consumption, distributional issues, and related social and institutional changes (Bengtsson, Alfredsson, Cohen, Lorek, & Schroeder, 2018).

Approaching consumption and production (and all other processes within the system such as extraction of raw materials, distribution, waste management, etc.) as one system addresses the question of sustainability with the perspective of the whole chain and avoids seeing specific acts or aspects as separate and unrelated phenomena. In the same way that economic solutions that do not consider the structural causes of poverty will not produce sustainable development, environmental/technological solutions that do not consider the systemic factors that drive and maintain unsustainable consumption and production will produce little positive impact. As noted by Bengtsson, Alfredsson, Cohen, Lorek, & Schroeder (2018), "The ecological crisis – overuse of natural resources, pollution, and disruption of the planet's natural process – is a direct reflection of what gets produced and consumed, and in what amounts. The humanitarian and social crises are to a large degree due to unequal access to energy and materials and opportunities to satisfy needs and wants. Dealing successfully with these dire threats thus require(s) a restructuring of how we produce and consume".

A rights-based approach to sustainable development is useful because it allows a view of the world as a system that connects space, time, resources, economies, peoples, organizations, institutions and values (Tavanti & Sfeir-Yunis, 2013). It also facilitates the understanding of the existing relations within this system, which is necessary to grasp in order for any meaningful change to happen. As such, it thus provides as well a valuable framework in addressing or resolving contradictions that may arise among the various stakeholders in the consumption and production chain in ways that best serve the greatest interest, and are socially just and truly sustainable. (See Annex 1.2 for an example)

Through collective action, people's rights, in particular, advances the empowerment of the people in determining systemic changes in consumption, production, and development that faithfully reflect the aspirations of the majority. This is the essence of people's sovereignty and is the only way forward for SCP and sustainable development. According to Tavanti & Sfeir-Yunis (2013), "The future of sustainable development lies on the creation of a collective consensus about the quality of life we want to have as humanity on one planet. This consensus will be attained out of empowering people. In turn, this will be attained out of meaningful participation and representation in decision and policy making."

Indeed, addressing SCP as a systemic issue requires sustained people's action not only in developing and promoting alternative models of consumption and production at the community level but in challenging current paradigms and policies that impact on sustainability and dictate how the world produces and consumes. Consumer or community actions that promote sustainability, for instance, are always reined in by the ruling economic and political forces, and the "dominant social paradigm which transcends consumer actions." The goal of ecological sustainability is increasingly recognized as impossible if not "all facets of the system of production and consumption are critically examined and perhaps dismantled and reformed using new assumptions, rules, and methods." (McDonagh & Prothero, 2011)

Such new assumptions, rules, and methods are difficult, if not altogether impossible, to develop in a largely business as usual setup which appears to be the prevailing mode today. An efficiency approach could only produce "weak" interventions to achieve SCP. For instance, while there is already global recognition of the need to substantially reduce GHG emissions, a narrow efficiency approach focuses on product-based technological innovation and relative improvement of product performance such as improving the fuel economy of vehicles. On the other hand, "strong" interventions offer a comprehensive, systemic approach that aims to cut GHG emissions by reducing consumption volumes and exploring alternative modes of transport or transforming the need for mobility (Bengtsson, Alfredsson, Cohen, Lorek, & Schroeder, 2018).

Policy makers – from local and national to international level – would have to play an important role for systemic change in consumption and production to occur. The industry, while they may have a level of incentive to pursue sustainable production, is incapable of playing a leading role in SCP because they are inherently constrained by their own narrow profit motivation. To outcompete each other, big car manufacturers, for example, are driven to produce and sell as many cars as they can, regardless of how much cars the world actually needs, of how much people can afford and maintain sustainably, and of how much the environment and physical infrastructures can accommodate them – all creating unnecessary pressure on the world's natural and economic resources. The business of cars, first and foremost, is the business of making and selling cars and not the business of facilitating mobility which is what sustainable transportation is about. To set the rules and limits, and provide guidance to business to contribute to a strong SCP system, is the mandate of the governments. But sustained people's action to assert their rights is needed to challenge the governments and policy makers to be accountable in building the necessary environment for SCP – from policies and programs to hard infrastructure and the needed resources to make them possible.

A people's movement around SCP, with the assertion of people's rights at its core, has tremendous potential for systemic transformation. Already, many community-led initiatives are gaining prominence because of their effectiveness and some have gained recognition and support from governments.[12]

1.3. Sustainable Consumption and Production in the SDGs

The SDGs duly recognize the key role of SCP in realizing the overall sustainable development agenda and has stated explicitly that achieving the goals, including on SCP (SDG 12), require far-reaching reforms. In its various sections, the official document "Transforming our world: The 2030 agenda for sustainable development" has made this very clear. Its Preamble, for instance, states: "We are resolved to free the human race from the tyranny of poverty and want and to heal and secure our planet. We are determined to take bold and transformative steps which are urgently needed to shift the world on to a sustainable and resilient path"; while in its Declaration, it states: "We commit to making fundamental changes in the way that our societies produce and consume goods and services." The SDG 12 on SCP, with its 11 targets and 13 indicators, is the culmination of various efforts at the UN level to address the issue of sustainable consumption and production in the past 30 years. Aside from SDG 12, SCP objectives and core elements are also present in other SDGs.[13]

12 A comprehensive list of successful and promising cases of "sharing cities", for instance, is provided in the book "*Sharing cities: Activating the urban commons*" published in 2018 by Shareable, a US-based non-profit. The cases cover functional areas such as food, housing, work, mobility, energy, land, technology, waste, finance, water and governance. The cases illustrate how communities can take the power away from big corporations and exercise people's sovereignty by collectively managing and sharing their own local resources to meet their daily needs.

13 These include, for instance, SDG 8.4 on improving global resource efficiency in consumption and production and endeavoring to decouple economic growth from environmental degradation and SDG 7.3 on doubling the global rate of improvement in energy efficiency by 2030. SCP approaches are also required in SDG 6.3 (on reducing water pollution and hazardous chemicals), SDG 6.4 (on increasing water-use efficiency); and SDG 11.6 (on improving municipal waste management) (Bengtsson, Alfredsson, Cohen, Lorek, & Schroeder, 2018).

But while the SDGs acknowledge the need for approaching the issue of SCP in a fundamental (or systemic) way, the targets that have been outlined under SDG 12 appear to reinforce the already prevailing efficiency approach to SCP. In addition, the goals are also saddled by vague indicators while some of the targets are already existing commitments in other related global initiatives outside the SDG, without clarity on how the targets will contribute either through strict monitoring of implementation or through scaling up of commitments and resources. Bengtsson, Alfredsson, Cohen, Lorek, & Schroeder (2018) has produced a comprehensive critique of each of the SDG 12 targets and indicators. Their comments are summarized in Table 1.1.

Three of the 11 targets under SDG 12 are mainly reiteration or recognition of the importance already existing global agreements. These are the 10YFP in SDG 12.1; the Strategic Approach to International Chemicals Management (SAICM)[14] in SDG 12.4 on environmentally-sound management of chemicals and all wastes; and the Group of 20 (G20) agreement to phase out fossil fuel subsidies in SDG 12.C on rationalizing fossil fuel subsidies. These past agreements have been largely unmet and it is not clear how the SDG 12 would ensure compliance especially with the absence of any

14 SAICM is a policy framework to promote chemical safety around the world that was adopted by the International Conference on Chemicals Management co-convened by the UN Environment Programme (UNEP). The UNEP is hosting the SAICM secretariat.

TABLE 1.1. SDG 12: ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS. SUMMARY OF TARGETS AND INDICATORS AND PERCEIVED CONCERNS, CONSTRAINTS OR CHALLENGES (SOURCE: BENGTSSON, ALFREDSSON, COHEN, LOREK, & SCHROEDER, 2018)

Target	Indicator	Concerns, constraints or challenges
(12.1) Implement the 10-year framework of programmes on sustainable consumption and production[a], all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries	(12.1) Number of countries with sustainable consumption and production (SCP) national action plans or SCP mainstreamed as a priority or a target into national policies	There is no clear recognition of a need to limit or reduce overall volumes of consumption in line with a broader systemic approach Assumes that separate national SCP action plans are the preferable way to integrate SCP into the work of governments. In reality, other approaches, such as integration of SCP objectives into mainstream economic development planning processes or into sectoral plans and policy frameworks may be equally or more effective
(12.2) By 2030, achieve the sustainable management and efficient use of natural resources	(12.2.1) Material footprint, material footprint per capita, and material footprint per GDP	Wording (i.e. sustainable management of resources, but silent on their efficient use) gives the impression that resource extraction and consumption are not directly connected; as long as natural resources are sustainably managed, there appears to be no need to consider the sustainability of consumption as such. This ambiguity may reflect a reluctance to commit explicitly to sustainable consumption. In addition, although the four indicators can provide a robust quantification of resource consumption, the target does not specify what levels are to be achieved by 2030
	(12.2.2) Domestic material consumption, domestic material consumption per capita, and domestic material consumption per GDP	

TABLE 1.1. SDG 12: ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS. SUMMARY OF TARGETS AND INDICATORS AND PERCEIVED CONCERNS, CONSTRAINTS OR CHALLENGES (SOURCE: BENGTSSON, ALFREDSSON, COHEN, LOREK, & SCHROEDER, 2018)

Target	Indicator	Concerns, constraints or challenges
(12.3) By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses	(12.3.1) Global food loss index	Not evident how the envisaged reduction in food waste would affect the overall volume of food production and its environmental impacts or to what extent it could contribute to hunger relief While the target seems to aim for cutting food waste by half in absolute terms, the food-loss index measures waste in relative terms as percentage of food input. As such, the target is aiming mainly for enhanced efficiency of agri-food systems instead of facilitating structural reforms
(12.4) By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment	(12.4.1) Number of parties to international multilateral environmental agreements on hazardous waste, and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement	Impact target that will be very challenging to achieve, even after 2020 while progress will also be difficult to monitor since there is no agreed definition of "environmentally sound management" There is no indicator tracking the treatment of non-hazardous waste, which is also causing serious health and environmental impacts
	(12.4.2) Hazardous waste generated per capita and proportion of hazardous waste treated, by type of treatment	
(12.5) By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse	(12.5.1) National recycling rate, tons of material recycled	Although the target mentions four different approaches to waste reduction, the indicator only measures recycling (national recycling rate and amount of waste recycled), which is often the least preferable option from an environmental perspective. This preference is in line with a technology-focused efficiency approach and reflects a weak commitment to a broader systemic strategy
(12.6) Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle	(12.6.1) Number of companies publishing sustainability reports	Phrased in a vague fashion, using the word "encourage" rather than stronger alternatives, such as "require" The indicator is the number of companies that publish sustainability reports, hence focusing on the latter and much easier part of the target—to provide information. Increasing the transparency of how companies address sustainability can be a step toward improved practices, but there is little evidence that this measure by itself will have significant impact

TABLE 1.1. SDG 12: ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS. SUMMARY OF TARGETS AND INDICATORS AND PERCEIVED CONCERNS, CONSTRAINTS OR CHALLENGES (SOURCE: BENGTSSON, ALFREDSSON, COHEN, LOREK, & SCHROEDER, 2018)

Target	Indicator	Concerns, constraints or challenges
(12.7) Promote public procurement practices that are sustainable, in accordance with national policies and priorities	(12.7.1) Number of countries implementing sustainable public procurement policies and action plans	Target is vaguely phrased, aiming only to promote better practice; The indicator that measures the number of countries implementing sustainable public procurement policies and action plans is not very meaningful, because the metric says nothing about the level of ambition of such plans or the extent to which they are implemented
(12.8) By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature	(12.8.1) Extent to which (i) global citizenship education and (ii) education for sustainable development (including climate change education) are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment	If seriously implemented, the target can contribute to achieving SCP but, as research has shown, providing information and raising awareness on their own will not be sufficient to achieve the required transformation of currently unsustainable consumption and production patterns
(12.A) Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production	(12.A.1) Amount of support to developing countries on research and development for sustainable consumption and production and environmentally sound technologies	Target has a strong focus on technological solutions and efficiency. Progress will be measured by the amount of support provided to developing countries on research and development for SCP and green technologies. However, the level and kind of support to be provided are not specified and is unclear on how much additional support should be mobilized beyond what wealthy countries are already providing through bilateral and multilateral channels
(12.B) Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products	(12.B.1) Number of sustainable tourism strategies or policies and implemented action plans with agreed monitoring and evaluation tools	Target is very narrow, with its focus on tools for monitoring impacts in a specific economic sector and thus hard to see how it could be effective as a means of implementation across the other SDG12 targets. The indicator for the target (the number of sustainable tourism strategies or policies) is difficult to measure in a meaningful way and for which it is also hard to assess the potential impact

TABLE 1.1. SDG 12: ENSURE SUSTAINABLE CONSUMPTION AND PRODUCTION PATTERNS. SUMMARY OF TARGETS AND INDICATORS AND PERCEIVED CONCERNS, CONSTRAINTS OR CHALLENGES (SOURCE: BENGTSSON, ALFREDSSON, COHEN, LOREK, & SCHROEDER, 2018)

Target	Indicator	Concerns, constraints or challenges
(12.C) Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimizing the possible adverse impacts on their development in a manner that protects the poor and the affected communities	(12.C.1) Amount of fossil-fuel subsidies per unit of GDP (production and consumption) and as a proportion of total national expenditure on fossil fuels	Target contains a number of caveats, such as a reference only to "inefficient" subsidies, which makes it possible for governments to maintain such subsidies if they so wish. Target could provide incentives for enhanced efficiency and for shifting consumption away from fossil fuel-intensive goods and services but unless overall consumption volumes are also addressed, in line with a systemic approach, this could have undesirable side-effects such as worsening environmental impacts caused by increasing production of biofuels

a The 10-Year Framework of Programmes on Sustainable Consumption and Production (10YFP) is a global commitment, made by member states at the Rio+20 conference on Sustainable Development in 2012, to accelerate the shift to more sustainable modes of consumption and production in both the developing and developed world.

effective mechanism to make the countries accountable for their commitments.[15] Furthermore, they are phrased in such a way that it will be challenging to demonstrate whether any additional resources, beyond already intended contributions, will be mobilized.

Meanwhile, three targets (SDG 12.7 on promoting sustainable public procurement; 12.8 on sustainable lifestyles; and SDG 12.B on sustainable tourism) are also already among the thematic focus of the 10YFP. Another set of three targets – on capacity building in developing countries (SDG 12.A); on sustainable public procurement (SDG 12.7); and on increased disclosure of information by private companies (SDG 12.8) – are formulated in a somehow vague manner that could undermine their effectiveness. Moreover, their outcome targets seem to rely on simplistic assumptions regarding their contribution to higher order impacts.

Overall, the SDG 12 is introducing just four new commitments that have not been already made in previous international agreements. Three of these commitments deal with waste (SDG 12.3 on global food waste; SDG 12.4 on chemical waste management; and SDG 12.5 on waste reduction, recycling and reuse). While these targets could provide a basis for a systematic approach to the world's throughput of materials, the targets remain bias mainly toward end-of-pipe solutions and underline improvements in relative terms (e.g. efficiency) rather than as absolute reduction in material throughput. Meanwhile, their indicators also do not reflect the most salient aspects of the targets as such and are thus not useful as proxies (Bengtsson, Alfredsson, Cohen, Lorek, & Schroeder, 2018).

1.4. Big Business and SCP

The business community views and promotes[16] itself as a leading player in advancing sustainable development

15 The G20, for example, continues to provide massive subsidies to coal, oil and gas industry to the tune of US$147 billion in 2016, almost twice the subsidies in 2007 (US$75 billion). Additionally, 15 of the G20 countries saw their energy-related CO2 emissions rise again in 2017 while fossil fuels continue to comprise 82% of G20 energy supply. As a result, global temperature is on track to rise by 3.2o C as opposed to the target under the 2015 Paris Agreement of keeping global warming below 2o C and pursuing 1.5o C (Corbett, 2018).

16 Many of the largest TNCs, and often those which historically have the most notorious track record in terms of the environmental and social impacts of their operations such as Nestlé Waters and Coca Cola, have even established their own "sustainability departments" to handle company initiatives related to SCP, including public relations and publicity to ensure that the world knows what they are doing for the environment and the communities.

and SCP. The World Business Council for Sustainable Development (WBCSD)[17], for instance, claims that "Collaboration across companies and industry sectors is the *only option* to build a safe and resilient world where sustainable companies are more successful, prosperity is shared and poverty is history" (emphasis added) (Our members, n.d.).

WBCSD is a network of the world's biggest corporations established to make "member companies more successful and sustainable by focusing on the maximum positive impact for shareholders, the environment and societies."[18] It is one of the major platforms of the industry to engage in and influence discussions and debates on sustainable development issues (including SCP) in a variety of forums with governments, multilateral institutions, civil society, etc. In 2014, WBCSD released its so-called Action 2020, which identified targets to be met by 2020 to stay on track to meet the goals of its Vision 2050, a separate report it published and that described what needs to happen to achieve sustainability by 2050. Action 2020 was described as the largest concerted corporate sustainability action plan at the time of its release. It called for, among others, addressing rising greenhouse gas emissions and ensuring societies move to sustainable agriculture (Wills, 2014).

"...these so-called "business solutions" to the world's sustainability problems are heavily skewed towards efficiency and innovations that have limited impact or worse, designed to consolidate corporate domination over markets and resources. "

But these so-called "business solutions" to the world's sustainability problems are heavily skewed towards efficiency and innovations that have limited impact or worse, designed to consolidate corporate domination over markets and resources. The WBCSD's Action 2020, for instance, has been focusing on low-carbon technology development to promote "climate smart agriculture" (CSA)[19] (WBCSD Climate smart agriculture Action Plan 2020 Mid-term report, 2017). Supposedly effective corporate practices that promote SCP being showcased by other groupings of big business, such as those featured in the International Chamber of Commerce's (ICC) report on business' contributions to SDG 12 (on SCP) prepared for the 2018 UN High-Level Political Forum on Sustainable Development, are similarly cases of technological innovation and recycling, and none on systemic approaches. (See Annex 1.3)

Nonetheless, the private sector's supposed buy-in to sustainable development is seen as necessary and they always play a part in multi-stakeholder partnerships to advance the development agenda. They comprise, for instance, 19% of membership in the One Planet Network (OPN), a "multi- stakeholder" group along with civil society, national governments, and science groups that is considered as the primary political mechanism for implementing SDG 12, including its current 2018-2022 One Plan for One Planet strategic plan (IBON International, 2018).

Because of the massive amounts they entail (about US$4 trillion and up to US$7 trillion a year), private investments, including from corporations, are seen as indispensable in fulfilling the targets outlined in the SDGs on top of businesses adopting sustainable practices that promote the SDGs. For example, SDG 17 (Strengthen the means of implementation and revitalize

17 The WBCSD describes itself as "a global, CEO-led organization of over 200 leading businesses working together to accelerate the transition to a sustainable world." Their members are among the largest corporations in the world with a combined revenue of US$8.5 trillion and with 19 million employees. Members are from a wide array of industry (chemicals, automobiles, food, oil and gas, electricity, pharmaceuticals, etc.). The WBCSD has a global network of 70 national business councils and traces its origins to the Rio Earth Summit of 1992. Its founding chairman was the CEO of British Petroleum (one of the world's biggest oil TNCs) while the incumbent is the CEO of the Bank of America (one of the world's largest banks in terms of assets).

18 One mechanism that is used to measure business' contribution to sustainable development is the so-called Triple Bottom Line (TBL). It is a concept which broadens a business' focus on the financial bottom line to include social and environmental considerations. It measures a company's degree of social responsibility, its economic value and its environmental impact. The elements of the TBL are referred to as "people, profits and planet." However, TBL can be difficult to measure because while the issue of profitability is black and white, there is no standardized measurement for social and environmental responsibility. This makes TBL somewhat subjective (Triple Bottom Line [TBL], n.d.).

19 While claiming to simultaneously address the issues of agricultural productivity and incomes, climate change, and food security, CSA is feared as just a pretext to perpetuate corporate agricultural systems that hurt small farmers and the environment especially considering that the initiative is being led by the same agrochemical and fertilizer companies that dominate corporate agriculture.

the global partnership for sustainable development) calls for the mobilization of financial resources for developing countries from multiple sources (SDG 17.3) including foreign direct investments, official development assistance (ODA), and South-South cooperation (indicator 17.3.1).

But private investments' inherent need for commercial, private gains remains a source of contradictions in pursuing sustainable development. Their desire to access and control the most amount of resources and exploit them in the cheapest possible way, and then flood the market with the greatest number of commodities they can in a never-ending cycle of profit seeking through the production and consumption chain will always have adverse sustainability impacts. If corporations could ever play any meaningful role in promoting SCP and achieving sustainable development, there needs to be a strong state regulation, strict implementation of rules along with practical and effective corporate accountability mechanisms all founded on national sustainable development agendas built and owned by the people.

Unfortunately, what has been happening in the past four decades of neoliberal globalization is the reverse – corporations are becoming ever more powerful at the expense of national and people's sovereignty and their development aspirations. In fact, the ecological, social, and economic crises the world has been confronting are the direct results of years of systematic erosion of countries' sovereignty over their development agenda, including regulatory powers over corporations – from liberalization of agriculture and food systems to minerals extraction, to privatization of resource management such as on water and energy to infrastructure development. All these have made corporations bigger and wielding unprecedented economic and consequently, political power.[20]

The policy-setting role of the government has been significantly reduced to the creation of the most favorable investment climate for corporations while allowing the private sector to take over many aspects of governance, including in the sphere of sustainable development. As a Nestlé Waters' "sustainability director" said: "The role for government is to set the rules, require everybody to play in an equitable way, and then get out of the way and let us solve the problem"[21] (Goffman, 2012).

Instead of greater accountability on corporations for the harmful impacts of their operations on the environment and people's rights, the burden of accountability to ensure that the "rights" and interests of private capital are promoted and protected is being shifted to the public sector. This can be seen, for example, in the investor-state dispute settlement (ISDS) mechanisms contained in bilateral investment treaties (BITs) and free trade agreements (FTA).[22] ISDS undermines the capacity of governments in formulating and implementing policies, regulations or reforms that could promote sustainable development, including in the area of consumption and production. ISDS affords investors the power to question, stop or reverse these policies, regulations and reforms by actually suing the state in a private international tribunal if the investors deem that such government actions unfavorably impact the commercial viability of their operations. Many of the state policies and regulations being targeted by ISDS cases have direct implications on SCP such as on the environment, tariffs for water and electricity, health services, public safety and health, pharmaceutical import regulations, etc. (Muchhala, 2018). ISDS basically ties the hands of governments or severely limits their policy options in introducing new regulations or repealing or amending existing ones to promote sustainable development programs.

More worrisome is that even private corporations that are supposedly in the "business of sustainable development" have also been increasingly using ISDS mechanisms to challenge government policies with potential adverse effects. Renewable energy investors, for instance, have already filed 32 ISDS cases under the Energy Charter Treaty (ECT) against Spain, Italy, Czech Republic, and others. The cases stemmed from the states' decision to scale back incentives for renewable energy investments when the response to them far exceeded expectations and budgets. While the ISDS is favorable for the renewable

20 The ever-growing size and power of corporations is best illustrated in the recent mega-mergers and consolidation in the global agro-food industry. After the mega-merger of Syngenta and ChemChina, Bayer and Monsanto, and Dow and DuPont, plus the BASF means that these four giant companies now control almost 71% of the global agrochemical market. For comparison, the top four in 1994 controlled 28% of the market. In addition, Bayer/Monsanto, Dow/DuPont and Syngenta/ChemChina also today control almost 64% of the global seed market. Including the fourth-ranked company will put the seed market share of the top 4 to almost 69%, as compared to 21% in 1994 (ETC Group, 2018). Such unprecedented concentration of resources and market power in the hands of super monopolies pose serious challenges to people's food sovereignty and in achieving sustainable food consumption and production.

21 Among the common themes in the various proposals of the industry to supposedly enable them to contribute to the realization of sustainable development are: (1) greater private sector role/participation in designing and implementing national policy frameworks; (2) greater incentives (not just financial but also in terms of policies) for businesses to promote more innovation; (3) trade liberalization; and (4) privatization or public-private partnership (Business action for sustainable and resilient societies).

22 ISDS is a mechanism through which a foreign investor can bring the host government to an international arbitration tribunal and seek monetary compensation for State measures that impact current or future profits for the investor. As of November 2017, the aggregate number of publicly known ISDS cases had reached 817, involving at least 109 countries. Every year, 42 ISDS cases against governments are being initiated by the private sector, mostly American and European companies, in the past 10 years (Muchhala, 2018).

energy firms, unfavorable decisions against governments by ISDS tribunals hinders their overall capacity to fight climate change and promote ecological sustainability. This as ISDS mechanisms are also being used by big corporations to challenge government's environmental laws or policies such as those that deny or ban oil exploration and mining[23] (Cosbey, 2017).

1.5. Conclusion: Achieving People-Powered SCP

To summarize, the overall policy direction of SCP today is the narrow and weak SCP approach that is focused on efficiency and technological innovations. This is the approach favored by business and most policy makers as currently reflected in the various global platforms and initiatives, including the SDGs and in particular, SDG 12. While the SDG 12 is not fundamentally defective, a lot is still to be desired if the world is truly to transition towards sustainable consumption and production. To be sure, using technological advancements to make production and products more efficient should be welcomed. They do provide essential contributions to make production processes and their outputs more sustainable.[24] Meanwhile, the prevailing bias towards the market under globalization and even greater power being accumulated by corporations through ISDS mechanisms in neoliberal trade and investment agreements pose formidable challenges to SCP and sustainable development, in general.

A people-powered SCP provides the best framework that could fill in the big gaps in mainstream SCP initiatives; confront the challenges that are currently undermining them; and introduce comprehensive and coherent reforms that will address structural barriers to sustainability. Based on the previous discussion, four key elements must be present to achieve a people-powered SCP, to wit:

1. People's rights are protected and advanced in the whole production and consumption chain

2. Self-sufficiency from the community to the national level is promoted through people's sovereignty

3. Social innovations and community actions toward SCP are encouraged and supported

4. Accountability of corporations and governments is demanded and ensured

PEOPLE'S RIGHTS ARE PROTECTED AND ADVANCED IN THE WHOLE PRODUCTION AND CONSUMPTION CHAIN

Technological innovations should just be complementary to the more fundamental reforms that ensure that the people's rights are protected and advanced at every step of the production and consumption process. Sustainable development, and the sustainable consumption and production that it entails, should be understood as the people's collective right to development.

Appreciated in the context of rights and as articulated in the UN General Assembly's Declaration on the Right to Development, "development is a comprehensive economic, social, cultural and political process, which aims at the constant improvement of the well-being of the entire population and of all individuals on the basis of their active, free and meaningful participation in development, and in the fair distribution of benefits resulting therefrom." The right to development, meanwhile, is "an inalienable human right by virtue of which every human person and all peoples are entitled to participate in, contribute to, and enjoy economic, social, cultural and political development, in which all human rights and fundamental freedoms can be fully realized" (Article 1.1). Further, the Declaration read: "The human right to development also implies the full realization of the right of peoples to self-determination, which includes, subject to the relevant provisions of both International Covenants on Human Rights, the exercise of their inalienable right to full sovereignty over all their natural wealth and resources."

Three important dimensions of the right to development described above must be considered in relation to SCP: first, the people's right to participate in the development process; second, the people's right to enjoy a fair distribution of benefits from such process; and three, the people's right to self-determination including full sovereignty over all their natural wealth and resources.

People-powered SCP means that the principles of the right to development and all human rights that comprise it should be upheld from the extraction of raw materials

23 For instance, TransCanada v. the USA (denial of oil sands pipeline permit); Vattenfall v. Germany II (nuclear phase-out), Lone Pine v. Canada (Quebec's fracking ban); Rockhopper v. Italy (offshore drilling ban) and others (Cosbey, 2017).

24 In fact, some previous environmental problems in the industrial countries have been addressed through innovations such as certain pollutants like acid rain-causing sulfur dioxide that was solved through the use of scrubbers and nitrate pollution from detergents causing eutrophication which was solved by regulations enforcing changes in product composition (Lorek & Spangenberg, 2012).

up to the consumption of the final products and services. Technological innovations and efficiency enhancements do not cover these important aspects of SCP.

People-powered SCP fills in this gap by asserting that the production and consumption of commodities must also answer the question of not just whether the extraction of raw materials such as minerals or energy needed for production of goods and services are done responsibly in relation to environmental standards but whether such resource extraction is allowed in the first place by affected communities through a democratic decision-making process and if they truly benefit from it. People-powered SCP strives to answers the question of not only whether the commodities were manufactured or services were provided using energy-efficient innovations but also whether the collective rights and welfare of the workers that produce or provide them are duly respected.

SELF-SUFFICIENCY FROM THE COMMUNITY TO THE NATIONAL LEVEL IS PROMOTED THROUGH PEOPLE'S SOVEREIGNTY

The people's right to self-determination and full empowerment over their own resources are crucial to ensure sustainability in consumption and production. If the premise is that the world's biophysical resources are limited and further hampered by ecological challenges such as global warming, and the point of SCP is how to maximize such limited resources to meet the people's basic needs (not just material products but all the requisites of well-being and decent living), then the people should have the right to decide on how best to use their own resources. People-powered SCP promotes the maximum possible self-sufficiency of communities and nations in meeting their own needs through the exercise of people's sovereignty over the sustainable management and utilization of their own resources.

This is best illustrated, for instance, in the issue of food especially amid decades of neoliberal restructuring that has deeply transformed global agricultural and food production from meeting domestic and community

consumption needs to satisfying the whims of the market. Such restructuring has reduced the right to food and food security (based on the UN FAO definition) as being able to ensure that nutritionally adequate and culturally acceptable food is available and accessible at all times. The implication is that a community or country that could otherwise produce its own food may just rely on importation if the market offers higher potential profit from other (non-food) crops. Central to this is the control over land and other agricultural resources that are concentrated in the hands of corporations and local elite, and thus the power to decide how to use such resources.

People-powered SCP challenges this by asserting food sovereignty or the right of peoples, communities and countries to determine their own production systems. Food sovereignty is the power of people and their communities and countries to assert and realize the right to food, produce food, and fight the power of corporations and other forces that destroy the people's food production systems and deny them food and life (The People's Convention on Food Sovereignty).

This does not discount the importance of partnerships or relationships with other communities and countries such as through trade. Indeed, self-sufficiency in the context of people-powered SCP should not be construed as an autarkic concept but rather as basis to challenge irrational patterns of production and consumption created by overweening neoliberalism and corporate dominance and control. Self-sufficient and sovereign communities and countries are in a better position to engage in equitable trade partnerships since they have already clearly outlined their priorities based on their capacity, resources, and people's needs.

SOCIAL INNOVATIONS AND COMMUNITY ACTIONS TOWARD SCP ARE ENCOURAGED AND SUPPORTED

People-powered SCP are driven by community initiatives and actions not just in promoting policy reforms but also in actual or concrete people-led innovations that provide, or at least attempt to create, alternatives to the ways that consumption and production are taking place. Communities have the biggest incentives to innovate because they have the biggest stake in SCP, namely, the realization of their collective rights and aspirations; whereas corporate innovations for SCP are largely motivated (and at the same time restricted) by private financial gains.

As such, citizens and communities are taking an increasingly active role in solving by themselves the challenges posed by unsustainable consumption and production. These social innovations and community actions are essentially a form of assertion of the people's right to reclaim their role in the development process and equitably benefit from it through the exercise of their self-determination. More than the actual innovations or actions themselves, the importance of these initiatives should be appreciated in how they strengthen relations within the community and reinforce the people's solidarity and collective empowerment in determining their own path towards sustainability based on equitable distribution of and access to resources.

Social innovations and community actions encompass a broad range of activities. These include the various sharing economies initiatives run by voluntary community associations, cooperatives, and social enterprises that utilize technical innovations such as eco-friendly vehicles, use of renewable energy like wind or solar for household electricity, management of water resources for community use, etc. They also include more direct political actions such as the land occupation movement and collective cultivation campaigns that peasant groups, especially in the developing countries, are carrying out; occupation of abandoned or idle housing units by mass organizations of the poor and homeless; and factory takeovers by workers displaced by shutdowns and closures, among others. People-powered SCP can only be a growing and dynamic movement if it is both encouraged by and supportive of these people's innovations and actions.

ACCOUNTABILITY OF CORPORATIONS AND GOVERNMENTS IS DEMANDED AND ENSURED

Government and corporate accountability in the context of SCP and people's rights can be looked at on two levels. The first one is the accountability of governments and corporations to fulfill their commitments in all existing SCP-related initiatives such as on reducing GHG emissions, cutting fuel subsidies, banning hazardous pesticides, etc. This is important especially considering that there are no existing mechanisms to hold governments and corporations accountable for their repeated failure to accomplish their own targets and obligations. Even in the SDG 12, there are no clearly established mechanisms to demand and ensure such accountability.

But beyond this, a far greater accountability rests on governments and corporations in relation to SCP. As mentioned, the biggest challenges to the necessary reforms to make SCP a reality are presented not by the environmental problems but by the prevailing policy environment pushed by the corporations that benefit from the current consumption and production system and supported by most governments. People-powered SCP must necessarily confront these challenges for any systemic change to take place. Using a rights-based approach means demanding and ensuring accountability from governments and corporations for the violation of the people's rights, such as the right to development, because of government policies and programs or business operations. In most cases of people's rights violations, the government and corporations are accountable at the same time since the operations of the latter are sanctioned by the former.

Demanding governments' accountability is pretty straightforward as their obligations are well-defined in various human rights instruments. In the Declaration on the Right to Development, for example, it is stated that "that the creation of conditions favorable to the development of peoples and individuals is the primary responsibility of their States." Towards this, governments have the duty to formulate appropriate national development policies that aim at the constant improvement of the well-being of the people and to create national and international conditions favorable to the realization of the right to development. These obligations are also usually outlined in national charters. An even greater challenge is demanding and ensuring corporate accountability partly because of the lack of existing binding mechanisms or instruments to make them accountable for violations of people's rights. Meanwhile, the general lack of government accountability translates to the impunity with which corporations operate.

But making governments and corporations accountable in the context of people-powered SCP goes beyond codified obligations and is not merely a function of governance, including the way corporations are regulated. Rather, it emanates from the concept and practice of people's democracy that gives full play to their initiatives in social, economic, and political processes based on the full spectrum of their rights and freedoms, including the power to change governance (at the community or national level) that no longer upholds their development aspirations. (Democracy Founded on People's Sovereignty, IBON International) ■

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2 INDONESIA

2.1. INTRODUCTION

Indonesia is a developing country with an aspiration to attain a developed country status. While it attempts to boost its economic growth, Indonesia is also striving to transform its economy towards sustainable consumption and production to accomplish the Sustainable Development Goals (SDGs). Policies, laws and programs were issued to meet the SDG's in terms of consumption and production.

As a country with more than 200 million people, Indonesia faces big challenges in providing the needs of its citizens. From the basics such as food, water, shelter, and clothing, to other needs such as energy, transportation, telecommunications, and rest and recreation, the government strives to keep production levels at par with the demands for consumption. However, production and consumption of goods also have negative environmental impacts which are already being felt in Indonesia.

2.2. REVIEW OF POLICIES, LAWS, PROGRAMS ON CONSUMPTION AND PRODUCTION IN INDONESIA

Indonesian's basic consumption needs are fulfilled primarily by domestic production, especially rice. Nevertheless, some types of food that are rare in quantity and quality, or not produced domestically, are also imported. Importation of food is aimed at balancing food diversity. Some policies on the consumption and production on food are increasing the price of dried grain

paddy, subsidizing fertilizers, reducing the importation of rice and livestock meat. These policies benefit the farmers' farm production. Other policies include the maintenance or controlling the prices of basic consumption goods and a moratorium on the expansion of oil palm plantations which have encroached on lands used for food production.

Indonesia's Law No. 18/2012 (Undang-Undang tentang Pangan, 2012) on food carries the principles of sovereignty, independence, resilience, security, benefits, equity, sustainability, and justice in food production. It means that Indonesia should be able to improve and sustain food production for their own needs (independence), and that food should be affordable (justice). Other food-related policies and laws include the Agriculture Minister's Decree no. 32 (PERMENTAN, 2017) on Supply, Distribution and Controlling of Chicken and Eggs; and Decree no. 14/Permentan/OT.140/3/2015 on Guidelines for Farming Counselors, Students and County Advisors in Supporting to Improve Rice, Corn, and Soybean Production.

Some areas for producing staple foods, such as, rice, sago, and cereals have been converted into oil palm plantation and real estates (housing). Palm oil has become a main commercial commodity for huge and small scale companies. The rapid expansion of oil palm plantations have decreased land for cultivation of crops and have made the soil infertile. The President's Instruction No. 8/2018 on Oil Palm, focuses on verifying the data on forest conversion to palm oil plantations, maps for plantations, the company's profile, location, and land rights (right to cultivate).

The Presidential Regulation No. 5/2006 (Peraturan Presiden tentang Kebijakan Energi Nasional, 2006) or the National Energy Policy tackles the supply and energy resources. The regulation also encourages government and the private sector to explore/search for other alternative sources of energy.

Indonesia's *Bank Tabungan Negara* (BTN) was specifically mandated to manage low interest rate housing loans under the housing program coordinated with the Indonesian Public Works and Housing Ministry and the banking sector. Recently, most of commercial and public banks have started to also manage affordable housing loan programs.

To manage its water resources, Indonesia set up the Dewan Air Nasional or National Water Board. The board assures the availability of water for irrigation and consumption, and ensures water pollution reduction.

Indonesia issued Law No. 32/2009 (Undang-Undang tentang Perlindungan dan Pengelolaan Lingkungan Hidup, 2009) on Environmental Protection and Management. The law is the legal basis of some Environment and Forestry Minister decrees and regulations like Environmental Impacts Analysis, Animal Species Protection, Plants Species Protection, Forest and Peat Land Fires Protection, and Watershed Protection.

The country's Social Security Program is managed under *Badan Penyelenggara Jaminan Sosial* or Social Security Agency. This agency manages and secures insurance for health and pension. POSYANDU is an Integrated Service Post for Nutrition monitoring and maintenance. Indonesia builds a large number of hospitals to maintain and secure people's health. In 2013, the number of public hospitals was 1,725 units, specialty hospitals was 503 units, and *Pusat Kesehatan Masrakyat* (PUSKESMAS) or community health centers (situated at sub-district) was 9,655 units. These numbers do not yet include the *Pusat Kesehatan Desa* (PUSKEDES) or Village Health Center, maternity clinics and dispensaries. To control bad habits like smoking, the Indonesian Health Ministry has a campaign on the dangers of smoking. Regulations to ban smoking in public areas include fines. Drinking alcohol or liquor is strictly forbidden by the government of Indonesia.

Indonesia has numerous banks and affiliates, including third party vendors to support banking and finance. To control the flow and traffic of banking and financing transactions (one of the purposes is to detect and prevent money laundering), Indonesia has set up a body called *Otoritas Jasa Keuangan (OJK)* or Monetary Service Authority. To secure the safety of savings (in order to anticipate bankruptcy), *Bank Sentral Indonesia* rules private and public banks as *Lembaga Penjamin Simpanan (LPS)* or Saving Guarantee Bank. Indonesia also has *Bank Perkreditan Rakyat (BPR)* or People Crediting Bank and *Bank Pembangunan Daerah (BPD)* or Provincial Government Bank. This provincial bank has branches even in district and sub-district areas of provinces.

2.3. PRODUCTION AND CONSUMPTION PATTERNS

2.3.1. Food

Indonesians consume many kinds of food, such as rice, maize, soybean, and sago. Rice and sago are the most dominantly consumed food products. This pattern of consumption has become a consideration for the government to develop the food and agriculture policies and programs discussed in the previous section.

Table 2.1. shows that the consumption of calories per capita per year within five years fluctuated or was unstable. In 2014, the total calorie consumption decreased, and rose again in 2015. For instance, the consumption of cereals increased a little in 2013 and dropped in 2014-2015, but it was significantly high in 2011-2013. However, there was a significant increase in the consumption of tubers compared to the last four years (2011-2014). The consumption of tubers in 2015 (185.52 cal/capita/day) increased twice the total consumption in the last four years. It indicated that some consumers had replaced cereals with tubers.

The consumption of meat, eggs, and milk increased a little every year. It is interesting to note that the consumption of meat in 2015 was the lowest within five years. This might have been caused by the increase in the price of meat which was at IDR 120,000 per kilogram. On the other hand, the consumption of eggs and milk increased a lot, which might have compensated for the decrease in meat consumption. The consumption of oils and fats was stable. Meanwhile, the consumption of ready foods and beverages fell a lot in 2014 and 2015. The information or reports from health institutions about the effects of these products on health, such as diabetes, might have influenced the consumers' perception. However, in general, the consumption of calorie per capita per year within 2011-2015 fluctuated.

Table 2.2 shows the data on the consumption of various kinds of meat. It is clear that meat consumption for Indonesians was low, though there was an increasing amount of meat consumed from year to year. For instance, the consumption fresh fish and shrimps was considered low. Beef and buffalo meat were considered pricey at IDR 120,000, and therefore, many families could not afford them for regular consumption.

Table 2.3 shows the consumption patterns on eggs and dairy products within 2015-2016, which significantly increased in 2016.

The government encourages parents to feed their children with different foods with high protein, calcium, and other nutrients because Indonesia has problem with stunting. Indonesia's Minister of Health always discusses about healthy foods and its relation to children's growth.

Table 2.4 shows that the consumption levels of different types of foodstuffs per capita is stable from 2015 to 2017. The most consumed are rice (local rice/sticky rice), broiler eggs /free-range chicken eggs, and white sugar.

Table 2.5 shows the harvest areas with their production and also the consumption of rice within three months in 2018. The rice supply for each month is always surplus, particularly in March, because rice production is very high compared to consumption.

Java island is suitable for rice cultivation because of the fertile land due to the presence of volcanoes. Arid areas on the other hand, like the eastern parts of Indonesia, are not suitable for the cultivation of food crops. Some provinces produced surplus rice, corn, and other food crops while a few provinces produced enough for its population's consumption. Sometimes, Indonesia imports rice from other countries, like Vietnam and Thailand, while it also exported certain agricultural products like maize and cassava.

2.3.2. Water

Indonesia has rich water sources. However, some parts of Indonesia frequently face clean water crises. The supply of clean water tends to decrease every year because of the destruction in water catchment areas. The use of ground water for industries and agriculture is not proportional and contributed towards clean water crisis. During the dry season, upper parts of rivers do not receive additional water while the extraction at the middle parts is high. As a result, sea water intrusion contaminates fresh water resources in coastal areas. Clean water crisis and water shortages also frequently happen in some parts of the country even during the rainy season.

The effective management of Indonesia's water supply is viewed as urgent to save since some of Indonesia's water resources are occupied by foreign multinational companies. Urban and suburban people enjoy clean water

TABLE 2.1. AVERAGE CONSUMPTION OF CALORIE PER CAPITA DAILY BASED ON FOOD GROUP (CAL)

Kinds of Food Stuff	Year /Cal/Capita				
	2011	2012	2013	2014	2015
Cereals	919.09	894.92	963.71	843.64	848.11
Tubers	43.49	31.05	23.81	62.63	185.52
F i s h	47.83	45.19	62.57	25.11	72.67
Meat	44.71	53.52	58.51	114.80	27.30
Eggs and Milk	55.97	48.89	63.89	51.33	124.93
Vegetables	37.40	37.54	32.38	5.33	43.77
Legumes/beans	54.17	52.54	22.20	27.15	27.12
Fruits	39.44	37.11	30.60	35.87	36.30
Oils and Fats	232.03	238.25	210.98	204.92	214.09
Beverage Stuffs	97.69	84.02	133.93	58.98	64.70
Spices	16.14	13.41	13.14	2.41	15.14
Miscellaneous Food Items	59.70	51.65	61.37	77.39	52.96
Ready foods and beverages	304.35	265.55	170.95	48.08	83.43
Total	**1,952.01**	**1,853.64**	**1,848.04**	**1,557.64**	**1,796.04**

Source: Badan Pusat Statistik [BPS], 2016

TABLE 2.2. MEAT CONSUMPTION PER CAPITA/KG (SOURCE: BPS)

Types of Food	Unit	Years			
		2014	2015	2016	2017
Fresh fish and shrimps1	Kg	0.274	0.298	0.302	0.326
Preserved fish and shrimps	Ons	0.429	0.309	0.301	0.408
Beef / buffalo meat	Kg	0.005	0.008	0.008	0.009
Broiler/free-range chicken meat	Kg	0.086	0.103	0.111	0.124
Broiler / free-range chicken eggs	Kg	0.171	1.940	1.983	2.119

TABLE 2.3. AVERAGE CONSUMPTION OF EGGS AND DAIRY PRODUCTS PER CAPITA PER YEAR FROM 2015 TO 2016 (SOURCE: INDONESIA STATICS)

Commodity	Unit	Year	
		2015	2016
Eggs			
Broiler Chicken	egg	97.398	99.796
Free-range Chicken	egg	3.754	3.546
Duck/Manila Duck	egg	2.138	1.981
Quail (bird)	egg	6.674	7.769
Milk			
Powder milk	kg	0.939	0.939
Liquid milk factory	250 ml	2.390	2.972
Sweetened condensed milk	397 gram	3.598	4.119
Infant milk powder	kg	0.678	0.678

TABLE 2.4. CONSUMPTION OF VARIOUS OF FOODSTUFFS PER CAPITA/YEAR (SOURCE: BPS)

Types of Foodstuffs	Unit	2015	2016	2017
Local rice / sticky rice	Kilogram (kg)	1.631	1.668	1.571
Wet maize	kg	0.029	0.035	0.026
Corn seeds	kg	0.023	0.021	0.019
Cassava	kg	0.069	0.073	0.122
Sweet potato	kg	0.065	0.069	0.070
Cassava (processed)	kg	0.004	0.003	0.002
Fresh fish and shrimps1	kg	0.298	0.302	0.326
Preserved fish and shrimps	Ounce (oz)	0.309	0.301	0.408
Beef/buffalo meat	kg	0.008	0.008	0.009
Broiler/free-range chicken meat	kg	0.103	0.111	0.124
Broiler egg/free-range chicken egg2	kg	1.940	1.983	2.119
Duck/manila duck/salted egg	egg	0.041	0.038	0.040
Sweetened condensed milk	(397 gr)	0.069	0.079	0.089
Infant milk powder	kg	0.013	0.013	0.013
Onions	oz	0.520	0.542	0.493
Garlic	oz	0.335	0.339	0.313
Red chilies	oz	0.057	0.044	0.034
Cayenne (small) chilies	oz	0.057	0.047	0.029
Soya	kg	-	-	0.001
Soybean	kg	0.144	0.151	0.157
Fermented soybean	kg	0.134	0.141	0.147
Oils (Coconut/maize/others)	liter	0.223	0.230	0.221
Coconuts	butir	0.136	0.126	0.100
White sugar	ons	1.305	1.432	1.333
Brown sugar	ons	0.136	0.149	0.129

TABLE 2.5. RICE PRODUCTION AND CONSUMPTION FROM JANUARY TO MARCH 2018 (SOURCE: BPS)

	2018		
	January	February	March
Harvest Area in West Java (ha)	100,996	222,186	250,087
Harvest Area in Central Java (ha)	109,876	335,723	279,877
Harvest Area in East Java (ha)	75,432	237,626	452,923
Harvest Area in other provinces (ha)	568,065	842,856	1,270,075
Harvest Area Indonesia (ha)	854,369	1,638,391	2,252,962
Unhulled (Paddy) Production (ton Dried unhulled)	4,519,612	8,667,088	11,918,169
Rice Production (ton)	2,835,605	5,437,731	7,477,459
Rice Consumption (ton)	2,506,285	2,506,285	2,506,285
Rice Surplus / Deficit (ton)	329,320	2,931,446	4,971,174

TABLE 2.6. PROPORTION AND SUFFICIENCY OF FOOD ENERGY CONSUMPTION BY CHARACTERISTICS OF POPULATION IN INDONESIA (SAFITRI, JAHARI, & ERNAWATI, 2016)

Characteristics of Population	Variety of Consumption (%)	Proportion of Consumption (%)	Sufficiency of Consumption (%)
	Good	Good	Good
Age Groups			
6-12 yrs	81.05	23.47	38.07
13-19 yrs	83.94	24.89	27.06
20-45 yrs	87.84	27.13	28.6
46-55 yrs	89.66	27.94	31.43
≥56 yrs	85.21	25.96	32.95
Sex			
Male	85.86	27.47	30.87
Female	87.29	25.39	29.93
Location of Settlement			
Urban	90.73	28.03	32.81
Rural	82.39	24.82	27.98
Level of Education			
Elementary below	83.53	25.55	29.68
Secondary Schools	89.79	27.52	30.7
Tertiary	95.19	27.83	35.66
Level of Economy			
Lowest	72.01	21.3	24.46
Intermediate (lower)	85	26.32	28.4
Intermediate	88.07	28.07	30.32
Intermediate (High)	90.85	28.38	32.42
Highest	92.15	26.29	34.36

for showering, drinking, and cooking from pipe and tap from water supply companies that are managed by local, national, and multinational firms. Rural people, on the contrary, secure their bathing, drinking, and cooking water from water that can rapidly be polluted and dried when the dry season comes. Managing water resources need to come up with win-win solutions for the Indonesian. These water resources, supplies, and management need further win-win regulations for all peoples.

In 2016, Water Aid mentioned that Indonesia ranked sixth out of the ten countries with a big portion of population that do not have access to clean water. About 32 million people live without clean water. Statistik Indonesia recorded that 71.14% of the population has access to clean water for drinking while 76.37% has access to sanitation. Around 26% of the population access water through pipelines. A survey done by the National Socio-Economic Survey (Susenas) in 2012, indicated an increasing trend of using refilled water/packaged water in Indonesia, from 11.26% in 2008 to 23.33% in 2012. The increased usage of refilled water/packaged water coincided with the decrease in access to clean water, from 46.45% in 2008 to 41.66% in 2012. The demand for refilled water/packaged water increased in line with the population increase, as well as the decreased access to clean water. In 2015, the consumption of refilled water/packaged water was about 23.1 billion liters, which is an increase of about 11.3% from the consumption in 2013 (Konsumsi Air Minuman Dalam Kemasan di Indonesia Capai 23,1 Miliar Liter, 2015).

TABLE 2.7. ALCOHOL CONSUMPTION BY PEOPLE AGED ≥ 15 YEARS FROM 2015 TO 2017 (SOURCE: BPS)

Classification	Alcohol Consumption (Liter per capita)		
Urban/Rural	2015	2016	2017
Urban	0.34	0.21	0.27
Rural	0.61	0.46	0.85
Urban + Rural	0.47	0.33	0.54

2.3.3. Nutrition

According to a study conducted by researchers from the Center for Research and Development of Public Health Efforts of the Ministry of Health Research and Development Agency (2016):

"Indonesia is facing double burden nutrition problems, under nutrition and over nutrition. The national research in 2013 shows that, on basic health, the underweight is 19.6 percent and 11.9 percent overweight. One of the causes of malnutrition is a problem in selecting healthy food which is related to consumption of variety, proportion, and adequacy food required by the body. Based on the data analysis in 2014, the Individual Food Consumption Survey (SKMI), there were adequate consumption of food varieties but poor consumption in food proportion and energy" (Safitri, Jauhari, & Ernawati, 2016, p. 87).

Nutrition monitoring is done by the government from provincial level to district and municipality level, and even down to sub-district level under guidance of the Ministry of Health of Indonesia. At the village level, nutrition monitoring is controlled and executed by the POSYANDU, a program created specially to monitor infants' and pregnant women's nutrition. Infants and pregnant women are regularly weighed. The results are documented and reported. Vitamins, particularly nutrition tablets, vaccines, and supplements, are given free of charge to infants, pregnant women, and also school children aged 5-12 years old.

According to the manual *Buku Saku Pemantauan Status Gizi* issued by the Ministry of Health as a guideline for nutritionists, nutrition monitoring covers the nutrition of infants aged 0-23 months and aged 0-59 months, school children aged 5-12 years, teenagers of 12-18 years old, and adults aged more than 18 years old and onwards.

TABLE 2.8. PERCENTAGE OF SMOKERS AGED ≥ 15 YEARS BY PROVINCE FROM 2015 TO 2016 (SOURCE: BPS, 2017)

Province	Percentage of Smokers	
	2015	2016
Aceh	29.82	28.16
Sumatera Utara	29.15	27.88
Sumatera Barat	32.41	30.59
Riau	31.21	29.61
Jambi	30.82	29.18
Sumatera Selatan	33.13	31.57
Bengkulu	33.68	33.15
Lampung	34.12	33.39
Kep. Bangka Belitung	30.70	29.32
Kep. Riau	29.18	29.25
DKI Jakarta	27.31	26.42
Jawa Barat	33.82	32.67
Jawa Tengah	28.57	27.19
D.I. Yogyakarta	24.12	23.11
Jawa Timur	29.03	28.16
Banten	32.95	31.64
Bali	22.96	21.62
Nusa Tenggara Barat	31.60	30.88
Nusa Tenggara Timur	25.47	24.91
Kalimantan Barat	29.35	28.09
Kalimantan Tengah	30.53	29.21
Kalimantan Selatan	25.76	25.34
Kalimantan Timur	25.59	25.23
Kalimantan Utara	28.61	28.38
Sulawesi Utara	29.31	29.23
Sulawesi Tengah	32.56	31.88
Sulawesi Selatan	25.49	25.13
Sulawesi Tenggara	28.49	27.60
Gorontalo	33.93	31.71
Sulawesi Barat	28.29	27.36
Maluku	27.19	25.68
Maluku Utara	31.14	30.23
Papua Barat	29.28	26.18
Papua	26.67	24.04
Indonesia	30.08	28.97

TABLE 2.9. WEEKLY AVERAGE CONSUMPTION AND EXPENDITURE PER CAPITA (IDR) BY TYPE OF FOOD IN URBAN AREAS, MARCH 2016 (SOURCE: BPS, 2017)

Cigarettes	Unit of Quantity	Quantity	Value (IDR)
Clove non filter cigarettes	Unit	5,520	4,982
Clove filter cigarettes	Unit	8,236	8,097
Cigarettes	Unit	1,750	1,782

In 2017, around 3.9% of infants aged 0-23 months were severely wasted, 8.9% were wasted, 83.5% were normal, and 3.7% were overweight. In the same year, 2.8% of infants aged 0-59 months were severely wasted, 6.7% were wasted, 8.5% were normal, and 4.6% were overweight. Meanwhile, 9.8% of infants aged 0-59 months in 2017 were severely stunted, 19.8% were stunted, and 70.4% (Ministry of Health, 2018, p. 39).

2.3.4. Health

Table 2.7 shows the alcohol consumption by people aged ≥ 15 years from 2015 to 2017 in urban and rural areas. Levels of alcohol consumption were stable, though there was a little increase in 2017. In Indonesia, there are some ethnic groups that use alcoholic drinks for certain functions, such as festivals to give thanks to gods and other rituals. Alcoholic drinks are also consumed during special events such as birthday parties, celebrating successes, and so forth.

Table 2.8 shows that the number of smokers among people aged ≥ 15 years decreased from 2015 to 2016 (BPS, 2017). In Indonesia, smoking among teenagers is strictly disallowed. Taxes on tobacco and cigarettes have been increased by the government. Some provinces show a significant decrease of smokers from 2015 to 2016. For example, in the Kalimantan provinces, the number of smokers dropped between 1% to 1.5%. Though there are increases in some provinces, the number is not significant.

2.3.4.a Control of Bad Habits

The campaign against smoking in Indonesia is led by the Ministry of Health through its provincial and district level offices and public hospitals. The Indonesian Special Commission for Children's Rights and Protection or *Komisi Perlindungan Anak Indonesia (KPAI)*, insurance firms, and NGOs working on health issues are also involved in the campaign

Table 2.9 shows the weekly average consumption and expenditure on cigarettes (BPS, 2017). The harmful signs or symbols instructed by the ministry of health printed on the packages of cigarettes are not correlated to the decrease in smoking. Smoking prohibitions enforced by the government in public transportation, public service offices, hotels, restaurants, and hospitals have small results. Moreover, advertisements of cigarettes on mass media, printed or electronic, are continuously being created to attract adults and also children to smoke. Most of sports and entertainment events involving teenagers are sponsored and sometimes hosted by cigarette manufacturers.

The campaign on smoking prohibition should be boosted. The signs and symbols printed on the packages of cigarettes should be enhanced. Advertisements on smoking and cigarettes should be eliminated. The sponsorship by tobacco companies of sports and entertainment involving students and teenagers should also be stopped.

2.3.5. Housing

Table 2.10 shows the ownership status of houses: self-owner, contract, non-contract, and official. Some regencies have significant increases on self-ownership of homes in rural areas from 2016 to 2017.

The demand for housing increases every year as the population continues to grow. Prices of houses and land also increased rapidly.

2.3.6. Apparel

Urban households spend twice as high as rural households on clothing, footwear, and headgear. Commodity taxes and insurance in urban areas are almost three times greater than expenditure on the rural population. Populations with small incomes will spend most of their income to meet basic needs that is food. Along with the increase in income, there will be a gradual shift in expenditure patterns, i.e., the portion of income spent on food will decrease and the portion of non-food will increase.

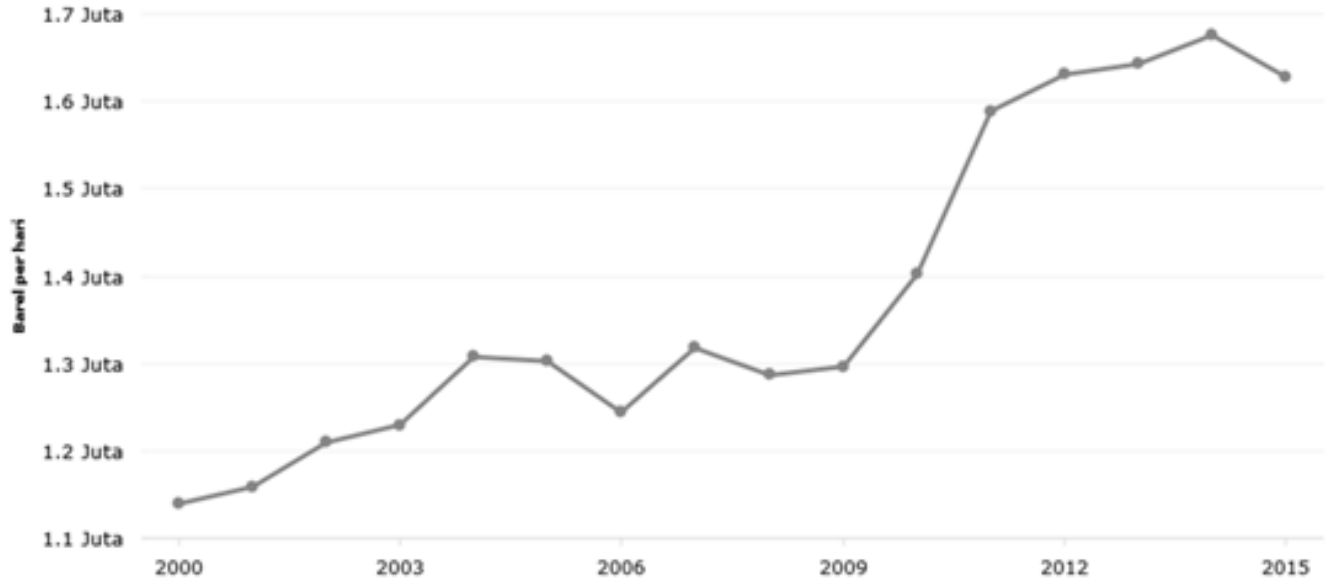
TABLE 2.10. HOME OWNERSHIP STATUS BY REGENCY/CITY (IN PERCENTATGES) FROM 2016 TO 2017 (SOURCE: BPS, 2017)

Regency / City	2016												2017											
	Urban				Rural				Urban + Rural				Urban				Rural				Urban + Rural			
	Owners of Home (Percent)				Owners of Residences (Percent)				Owners of Residences (Percent)				Owners of Home (Percent)				Owners of Residences (Percent)				Owners of Residences (Percent)			
	Self-owner	Contract	Non-contract	Official	Self-owner	Contract	Non-contract	Official	Self-owner	Contract	Non-contract	Official	Self-owner	Contract	Non-contract	Official	Self-owner	Contract	Non-contract	Official	Self-owner	Contract	Non-contract	Official
Kalimantan Barat	77.74	10.52	8.15	2.06	94.01	0.92	3.54	1.23	89.06	3.84	4.94	1.49	77.93	8.81	10.61	2.65	93.76	0.65	4.10	1.49	89.31	2.94	5.93	1.82
Sambas	86.96	3.10	9.52	0.42	95.92	0.72	3.36	0	94.26	1.16	4.50	0.08	81.65	4.43	13.29	0.63	96.85	1.05	2.10	0	93.07	1.89	4.88	0.16
Bengkayang	82.81	9.92	7.27	0	88.64	0.37	6.23	4.76	88.14	1.20	6.32	4.35	85	2.50	12.50	0	88.91	0.84	5.65	4.60	88.61	0.97	6.18	4.24
Landak	89.53	2.51	0	1.99	97.87	0	1.16	0.49	97.15	0.22	1.06	0.62	92.50	0	2.50	5	93.39	0.19	6.03	0.39	93.32	0.18	5.78	0.72
Mempawah	85.40	7.48	6.72	0.40	94.68	1.18	3.82	0.33	92.61	2.58	4.47	0.34	86.67	2.50	7.50	3.33	94.09	0.45	5.23	0.23	92.50	0.89	5.71	0.90
Sanggau	79.27	6.85	4.05	7.79	91.81	0.27	3.75	4.17	89.16	1.66	3.81	4.94	75.48	3.87	14.19	6.46	91.97	0.42	3.38	4.23	87.90	1.27	6.05	4.78
Ketapang	72.10	11.54	9.74	6.63	94.70	1.18	2.81	0.96	89.21	3.70	4.49	2.33	86.53	10.36	2.07	1.04	93.51	0.72	3.13	2.64	91.30	3.78	2.79	2.13
Sintang	83.66	12.04	3.85	0.45	96.51	0.43	2.53	0.53	94.49	2.25	2.74	0.52	80.52	3.90	9.09	6.49	96.56	0	1.99	1.45	94.60	0.48	2.86	2.06
Kapuas Hulu	89.54	0	0	10.46	89.39	2.01	7.22	0.88	89.40	1.84	6.62	1.69	65.79	21.05	2.63	10.53	93.21	0.42	5.52	0.85	91.16	1.96	5.30	1.58
Sekadau	91.03	4.30	4.67	0	93.36	2.18	3.23	1	93.14	2.39	3.37	0.90	87.18	5.13	5.13	2.56	94.13	1.68	3.77	0.42	93.60	1.94	3.88	0.58
Melawi	82.81	14.91	0.80	1.48	91.89	1.79	4.41	1.70	90.59	3.67	3.89	1.67	66.23	23.38	9.09	1.30	94.94	0.46	4.60	0	90.63	3.91	5.26	0.20
Kayong Utara	94.07	4.57	1.36	0	97.67	1.29	0.36	0.68	97.29	1.63	0.47	0.61	92.50	7.50	0	0	95.71	0.76	3.03	0.50	95.41	1.38	2.75	0.46
Kubu Raya	87.07	5.82	6.31	0.45	94.47	1.15	2.99	0	92.13	2.63	4.04	0.14	84.45	4.20	4.62	6.73	94.74	0	5.01	0.25	90.89	1.57	4.87	2.67
Kota Pontianak	69.99	14.99	10.85	1.51	0	0	0	0	69.99	14.99	10.85	1.51	69.56	13.55	15.98	0.91	0	0	0	0	69.56	13.55	15.98	0.91
Kota Singkawang	82.07	8.15	7.75	0.50	90.22	0.54	7.66	1.08	85.54	5.85	7.72	0.68	79.04	7.37	11.61	1.98	85.53	3.14	3.77	7.56	81.05	6.05	9.18	3.72

TABLE 2.11. MONTHLY AVERAGE EXPENDITURE PER CAPITA (IDR) ON CLOTHING, FOOTWEAR, AND HEADGEAR MARCH 2016 (BPS, 2017)

	Urban	Rural	Urban+Rural
Ready-made clothes for adult men (suits, uniforms, shirts, jackets, sarong)	9,129	5,811	7,518
Ready-made clothes for women (uniforms, dresses, long cloth, blouse, blaze/jacket women, nightgowns, sweaters, skirts, sarong, scarves, cloth waistband, underwear, etc.)	10,261	6,307	8,341
Ready-made clothes for children (uniforms, shirts, pants, t-shirts, underwear, diapers, etc.)	5,662	4,264	4,983
Clothes material for men, women, and children (wool, polyester, cotton, silk, etc.)	1,006	615	816
Tailor fee, clothes repairing, threads sewing, and others	609	331	474
Footwear (shoes, sandals, socks)	6,110	3,378	4,783
Headgear for men, women, and children (hat, cap, hijab, etc.)	1,321	952	1,142
Others (towel, belt, shoe polish, tie, dry cleaning/laundry, cloth hanger, etc.)	1,108	500	813

FIGURE 2.1. PETROLEUM CONSUMPTION FROM 2000 TO 2015 (BARRELS PER DAY, IN MILLIONS)



Source: PH Petroleum and Natural Gas [BPH] Migas

TABLE 2.12. TOTAL NUMBER OF INTER-PROVINCE BUSES BY PROVINCE FROM 2012 TO 2016

Description	2012	2013	2014	2015	2016
Aceh	635	684	696	720	716
Sumatera Utara	1,278	1,292	1,306	1,310	1102
Sumatera Barat	882	897	900	900	722
Riau	402	417	418	429	366
Jambi	511	517	517	517	517
Bengkulu	328	327	328	328	328
Sumatera Selatan	584	588	605	605	604
Lampung	580	580	587	587	599
Kalimantan Utara	0	0	0	0	0
Kalimantan Timur	74	74	74	74	74
Kalimantan Selatan	162	167	176	176	176
Kalimantan Tengah	158	158	162	162	162
Kalimantan Barat	30	30	31	32	36
DKI Jakarta	3,843	3,882	3,987	4,279	4248
Jawa Barat	3,858	3,903	3,962	4,040	3833
Jawa Tengah	4,008	4,119	4,165	4,542	4199
DI Yogyakarta	518	538	542	544	544
Jawa Timur	1,941	2,007	2,044	2,127	2330
Bali	203	212	224	232	232
Sulawesi Utara	41	106	41	41	41
Sulawesi Selatan	293	295	307	307	307
Sulawesi Tengah	132	132	133	133	133
Sulawesi Tenggara	8	8	8	8	8
Nusa Tenggara Bara	119	121	135	135	135
Nusa Tenggara Timur/	0	0	0	0	0
Maluku	0	0	0	0	0
Papua	0	0	0	0	0
Maluku Utara	0	0	0	0	0
Gorontalo	42	673	42	43	43
Bangka Belitung	0	0	0	0	0
Banten	1,085	1,150	1,149	1,188	1282
Kepulauan Riau	0	0	0	0	0
Papua Barat	0	0	0	0	0
Sulawesi Barat	5	5	5	5	5
Total	**21,720**	**22,882**	**22,544**	**23,464**	**22,742**

Source: Direktorat Angkutan Multimoda, 2016

TABLE 2.13. TOTAL BUS INTER-PROVINCE BUS COMPANIES BY PROVINCE FROM 2012 TO 2016

Description	2012	2013	2014	2015	2016
Aceh	20	22	22	23	18
Sumatera Utara	45	45	45	45	32
Sumatera Barat	67	67	67	67	51
Riau	24	26	26	27	26
Jambi	38	37	37	37	37
Bengkulu	21	21	34	21	21
Sumatera Selatan	31	32	21	34	32
Lampung	28	28	28	28	27
Kalimantan Utara	0	0	0	0	0
Kalimantan Timur	5	5	5	5	5
Kalimantan Selatan	23	25	25	25	25
Kalimantan Tengah	24	24	24	24	24
Kalimantan Barat	3	3	3	3	3
DKI Jakarta	67	68	71	72	53
Jawa Barat	118	119	120	121	101
Jawa Tengah	147	148	146	149	139
DI Yogyakarta	29	29	30	30	30
Jawa Timur	69	72	71	72	74
Bali	14	14	14	14	14
Sulawesi Utara	7	7	7	7	7
Sulawesi Selatan	36	37	39	39	39
Sulawesi Tengah	24	24	24	24	24
Sulawesi Tenggara	1	1	1	1	1
Nusa Tenggara Barat	10	10	10	10	10
Nusa Tenggara Timur	0	0	0	0	0
Maluku	0	0	0	0	0
Papua	0	0	0	0	0
Maluku Utara	0	0	0	0	0
Gorontalo	9	62	9	9	9
Bangka Belitung	0	0	0	0	0
Banten	46	47	46	46	40
Kepulauan Riau	0	0	0	0	0
Papua Barat	0	0	0	0	0
Sulawesi Barat	1	1	1	1	1
Total	**907**	**974**	**926**	**934**	
					843

Source: Direktorat Angkutan Multimoda, 2016

Indonesia produces apparel to fulfill its domestic demands. Indonesian's most popular apparel, batik, is produced for daily, formal, and official wear, and is part of the Indonesian fashion industry. Moreover, the country is also rich with *pakaian daerah* or local clothing and local weaved fabrics.

2.3.7. Energy

The consumption of energy by the transportation sector was 256 million SBM in 2010 which had increased at an average of 6.2% from the previous years. The sources of energy for consumption are aviation turbine fuel (11.3 %), electricity (7.2%), gasoline (6.8%), and solar/diesel (5%).

The consumption of gas and kerosene decreased. Petroleum consumption in Indonesia decreased by 3.2% in 2015 compared to the previous years. At the end of 2015, petroleum consumption was about 1.63 million barrels daily, or 47,000 barrels lower daily compared to the consumption in 2014. Though petroleum consumption decreased, BP Statistical Review 2016 noted that overall energy consumption increased by 3.9% (BPS, 2017).

Indonesia has six renewable energy resources namely hydro, solar, wind, wave, bioenergy and geothermal. Total potential energy produced from these sources is estimated at 441.7 GW (gigawatts). According to the head of the Directorate General of Renewable Energy, only 8.89 GW or 2% of the total potential is currently realized. The General Plan on Energy (RUEN) targets to increase the share of renewable energy usage from 11.9% in 2017 to 23% in 2025.

Figure 2.1. Petroleum Consumption from 2000 to 2015 (barrels per day, in millions) (Source: PH Petroleum and Natural Gas [BPH] Migas)

2.3.8. Transportation

Transportation covers air, land, and sea transportation. To support air transportation, the Indonesian state company *Angkasa Pura* improves the quality and standard of some Indonesian airports. Some local and national airports have been upgraded to meet international quality levels and standards. Despite the hazardous practices of some aviation companies, continuous improvement, and the strict and fair implementation of regulations are being done in order to explore the archipelago of Indonesia. Land transportation requires road, bridge, and highway infrastructures which are currently being constructed under President Joko Widodo's administration. Seaports and shipping highways are being built to support the "one-price policy" (same price regardless of the distance of islands in the archipelago) for all goods and materials throughout Indonesia, including cement and fuel for energy.

There are at least three peak seasons of people's mobility in Indonesia: first is during the *Idul Fitri/Lebaran* (Muslim festive days), second is during the Christmas Eve, and third is during the Chinese New Year. During these seasons, millions of citizens go back to their hometowns. This phenomenon commonly known as "mudik" or "back to hometown." This has become a national tradition. Home-comers bring and spend their money in their hometowns, which have a positive effect on the their families as well as the local economy. Thus, the government and other institutions coordinate transportation for home-coming citizens for security, safety, and ease of traveling.

The Secretary General of the Transportation Department noted that there was an extraordinary increase in the means of transportation during "mudik lebaran" in 2017. All means of public transportation increased by 50%. Tariffs/costs also significantly increased. For instance, the tariffs for common days in 2017 was IDR 166,000. This increased to IDR 247,000 during the "mudik".

Land Transportation

Table 2.12 shows the number of inter-province buses from 2012 to 2016, while Table 2.13 shows the number of bus companies for the same years.

Sea Transportation

Statistics Indonesia noted the total passengers that used sea transport within January – July 2018 reached 12.1 million, or an increase of 27.21% compared to the amount of passengers in the same period in 2017. Seaports such as the Balikpapan, Tanjung Perak, Tanjung Periok, and Belawan in particular experienced an increase of passengers by 40.70%, 8.36%, 6.86%, and 6.84% respectively. On the other hand, passengers using Makassar Port dropped by 5.70%

Cargo transportation using ships reached 23.6 million tons or an increase of 8.40% compared to the previous

TABLE 2.14. TOTAL PASSENGERS FOR DOMESTIC FLIGHTS

Airport Management	2012	2013	2014	2015	2016
UPT	15,368,464	15,853,115	10,422,872	18,048,162	14,334,907
PT.AngkasaPura 1/ Angkasa Pura 1 Co. Ltd	52,708,958	58,024,230	58,463,526	58,405,370	66,698,966
Pt.AngkasaPura 2/ Angkasa Pura 2 co.ltd	63,701,364	67,249,726	69,096,523	68,391,024	79,001,787
Total	131,796,786	141,127,071	137,982,921	144,844,556	160,035,660

Source: Direktorat Angkutan Udara, 2016

TABLE 2.15. TOTAL PASSENGERS FOR INTERNATIONAL FLIGHTS

Airport Management	2012	2013	2014	2015	2016
UPT	27,688	30,141	16,687	77,883	24,339
PT.AngkasaPura 1/ Angkasa Pura 1 Co. Ltd	8,775,560	9,803,324	11,037,997	11,289,195	13,062,097
Pt.AngkasaPura 2/ Angkasa Pura 2 co.ltd	14,623,609	15,616,976	15,898,196	15,366,039	16,291,918
Total	23,426,857	25,450,441	26,952,880	26,733,117	29,378,354

Source: Direktorat Angkutan Udara, 2016

TABLE 2.16. DOMESTIC FLIGHTS IN INDONESIA FROM 2013 TO 2016

Description	Unit	2013	2014	2015	2016
1. Airplane					
Departure	Unit	796,788	768,658	790,779	876,095
Arrival	Unit	800,193	769,762	791,783	875,603
2. Passengers					
Departure	person	73,594,917	71,625,696	72,563,813	83,000,983
Arrival	person	77,568,403	73,889,533	75,593,248	86,892,572
Transit	person	8,020,644	6,955,759	7,048,233	7,998,466
3. Goods					
Loading	Ton	525,412	542,297	597,939	528,035
Unloading	Ton	469,149	392,566	496,300	435,730
4. Baggage					
Loading	Ton	610,344	554,271	584,304	694,303
Unloading	Ton	613,197	565,883	568,726	734,371
5. Post/Package					
Loading	Ton	7,237	3,019	2,945	4,249
Unloading	Ton	9,039	4,131	4,575	3,360

Source: Direktorat Angkutan Udara, 2016

TABLE 2.17. FOREIGN FLIGHTS IN INDONESIA FROM 2013 TO 2016

Description	Unit	2013	2014	2015	2016 x
1.Airplanes					
Departure	Unit	89,375	106,827	95,647	98,966
Arrival	Unit	89,478	107,353	95,623	98,975
2.Passengers					
Departure	Person	13,221,004	13,694,482	13,625,109	15,073,970
Arrival	Person	13,136,131	13,245,568	13,175,804	14,775,991
Transit	Person	122,295	65,877	68,809	51,997
3. Goods					
Loading	Ton	210,733	206,707	196,275	205,389
Unloading	Ton	190,952	182,545	185,426	188,761
4.Baggage					
Loading	Ton	137,140	142,838	145,737	153,011
Unloading	Ton	172,484	173,287	168,707	175,584
5.Post/Package					
Loading	Ton	641	955	1,194	2,173
Unloading	Ton	2,461	1,923	725	927

Source: Direktorat Angkutan Udara, 2016

year's quarter. Cargo transported through Makassar increased by 57.01%, Tanjung Perak by 51.28%, and Tanjung Priok by 38.36%.

Air Transportation

According to the Directorate General of Air Transportation, the total number of passengers of all national aircrafts was 109,385,106 in 2017. The total number of passengers increased 9.6% compared to figures in 2016 which was 99,762,611 passengers. The expansion of air transportation contributed positively towards national economic growth and tourism in Indonesia.

In 2017, the number of domestic passengers reached 96,890,664, which is an increase by 8.4% compared to 2016 wherein domestic passenger reached 89,385,365. Foreign passengers reached 12,494,442 in 2017, compared to 2016 with 10,377,246 passengers. Passengers carried by foreign aircraft reached 19,061,737.

Cargo transported through air reached 729,194 tons in 2017. This indicates an increase of 1.8% from 2016 figures which reached 715,936 tons. On the other hand, cargo carried by foreign aircraft reached 384,936 tons.

Table 2.14 and 2.15 show the data of passengers for domestic and foreign flights. The number of passengers increased significantly for both domestic and foreign flights.

Table 2.17 showed the number of foreign flights and packages that entered Indonesia. The number of packages, such as baggage and post packages, significantly increased for both loading and unloading in Indonesia.

2.3.9. Telecommunications

Telecommunications is being developed by private telecommunication companies to provide services to Indonesians. Although internet penetration and usage is increasing and internet speed levels are becoming

TABLE 2.18. AVERAGE RURAL HOUSEHOLDS EXPENDITURE ON TELECOMMUNICATIONS BY PROVINCE FROM 2012 TO 2015 (IDR)

Provinces	Year			
	2012	2013	2014	2015
Aceh	3 976 475.15	3 828 208.05	4 081 058.31	4 374 398.01
Sumatera Utara	3 289 127.95	3 409 924.95	3 485 831.54	3 780 040.14
Sumatera Barat	3 932 216.16	4 342 185.56	4 357 932.74	4 661 176.88
Riau	4 683 288.11	4 850 215.05	4 688 297.25	4 878 597.31
Jambi	3 470 298.53	3 734 459.05	3 779 933.63	4 265 026.04
Sumatera Selatan	3 573 292.79	3 832 900.24	4 185 853.41	4 015 797.02
Bengkulu	3 173 692.68	3 768 087.62	3 547 751.59	4 082 976.94
Lampung	3 244 329.64	3 687 628.91	3 711 398.54	4 217 847.83
Kepulauan Bangka Belitung	3 906 892.36	4 152 253.63	4 489 515.16	4 861 040.88
Kepulauan Riau	4 179 259.06	4 578 458.54	5 281 693.44	5 269 554.77
DKI Jakarta	5 716 333.53	5 967 919.19	6 464 527.70	6 735 605.08
Jawa Barat	3 448 055.63	3 462 215.06	3 641 055.82	4 012 673.87
Jawa Tengah	2 628 961.22	2 762 105.64	2 869 619.33	3 281 158.71
DI Yogyakarta	2 974 753.12	3 233 127.42	3 004 232.15	3 685 885.33
Jawa Timur	2 766 535.99	2 824 137.55	3 230 543.24	4 013 965.98
Banten	3 783 122.88	4 199 626.02	4 673 098.40	5 052 839.32
Bali	4 236 383.24	4 436 540.03	4 810 806.55	4 572 690.29
Nusa Tenggara Barat	2 818 033.14	2 694 791.54	3 129 005.44	2 974 840.86
Nusa Tenggara Timur	3 622 459.20	4 055 579.10	4 205 654.47	3 941 597.63
Kalimantan Barat	4 079 704.77	4 394 814.61	4 756 737.75	4 380 768.45
Kalimantan Tengah	3 575 139.69	3 807 703.98	4 109 838.86	4 067 269.45
Kalimantan Selatan	3 816 642.90	3 833 532.63	3 713 139.51	4 368 269.85
Kalimantan Timur	4 857 771.06	5 056 506.62	5 160 950.18	5 221 020.85
Kalimantan Utara	-	-	-	3 946 963.13
Sulawesi Utara	2 787 736.05	2 631 006.79	2 620 128.64	2 839 656.12
Sulawesi Tengah	2 960 690.48	2 585 245.50	2 647 655.48	2 958 349.23
Sulawesi Selatan	2 232 983.66	2 110 833.10	2 365 897.88	2 630 730.70
Sulawesi Tenggara	2 483 199.12	2 183 509.44	2 291 066.16	2 641 682.33
Gorontalo	3 297 632.59	3 650 341.75	3 607 987.92	3 954 189.29
Sulawesi Barat	2 942 336.83	3 369 406.36	3 111 787.15	3 533 637.03
Maluku	4 346 357.87	4 481 612.46	4 411 865.87	4 648 977.18
Maluku Utara	4 398 352.57	4 385 390.72	4 613 521.61	4 486 115.47
Papua Barat	5 797 875.56	6 116 931.85	5 933 289.26	5 666 932.21
Papua	5 246 291.94	5 176 753.87	5 527 852.44	6 031 509.41
Indonesia	**3 572 078.67**	**3 723 307.03**	**3 954 607.82**	**4 318 356.78**

Note: Kalimantan Utara is part of Kalimantan Timur Province in 2012-2014

Source: Statistics Indonesia, National Socio-Economic Survey

TABLE 2.19. AVERAGE RURAL AND URBAN HOUSEHOLDS EXPENDITURE ON TELECOMMUNICATIONS BY PROVINCE FROM 2012 TO 2015 (IDR)

Provinces	Year			
	2012	2013	2014	2015
Aceh	3 026 560.73	2 805 560.16	3 031 273.75	3 377 225.71
Sumatera Utara	3 032 025.17	3 038 257.76	3 130 067.75	3 397 816.45
Sumatera Barat	3 457 397.28	3 516 837.65	3 594 996.48	3 957 387.14
Riau	3 757 585.36	3 787 454.83	3 811 654.56	4 183 711.85
Jambi	2 883 384.44	2 906 825.51	2 986 471.79	3 441 281.77
Sumatera Selatan	2 851 323.12	2 881 229.50	3 033 304.93	3 093 192.07
Bengkulu	2 674 652.29	2 836 103.45	2 893 617.34	3 369 170.37
Lampung	2 443 758.17	2 502 002.11	2 544 738.54	3 015 968.73
Kepulauan Bangka Belitung	3 634 031.15	3 779 996.42	4 064 995.30	4 456 018.95
Kepulauan Riau	4 004 958.76	4 329 468.84	5 017 504.44	4 994 865.54
DKI Jakarta	5 716 333.53	5 967 919.19	6 464 527.70	6 735 605.08
Jawa Barat	3 020 633.33	3 014 182.29	3 163 681.02	3 546 655.10
Jawa Tengah	2 266 284.89	2 345 052.71	2 510 421.71	2 798 556.31
DI Yogyakarta	2 766 324.90	2 959 997.96	2 860 157.81	3 308 052.30
Jawa Timur	2 323 522.75	2 347 636.34	2 681 958.76	3 291 761.46
Banten	3 507 218.40	3 751 027.53	4 139 301.75	4 471 820.83
Bali	3 835 455.14	3 943 664.03	4 282 057.35	4 192 463.38
Nusa Tenggara Barat	2 613 480.88	2 335 260.47	2 582 291.52	2 635 101.62
Nusa Tenggara Timur	3 055 665.23	2 500 559.93	2 629 261.14	2 741 871.43
Kalimantan Barat	3 232 234.37	3 181 555.73	3 419 379.03	3 529 047.69
Kalimantan Tengah	3 060 562.06	3 136 785.52	3 447 647.77	3 584 786.74
Kalimantan Selatan	3 145 263.33	3 174 622.76	3 275 837.90	3 649 558.06
Kalimantan Timur	4 204 043.36	4 325 241.54	4 513 628.24	4 775 907.62
Kalimantan Utara	-	-	-	4 618 771.24
Sulawesi Utara	3 086 095.10	3 152 265.33	3 271 490.84	3 329 096.97
Sulawesi Tengah	3 285 082.01	3 144 830.08	3 202 750.07	3 420 655.36
Sulawesi Selatan	2 822 193.23	2 883 697.89	3 052 548.35	3 358 498.94
Sulawesi Tenggara	2 896 307.56	2 692 030.36	2 705 241.38	3 045 493.46
Gorontalo	2 752 781.70	2 779 901.00	2 925 813.62	2 868 586.42
Sulawesi Barat	2 556 786.61	2 518 186.80	2 528 044.24	2 999 115.34
Maluku	4 215 526.44	3 665 554.03	3 803 364.47	4 076 869.04
Maluku Utara	3 920 424.52	3 251 156.34	3 606 537.22	3 911 345.33
Papua Barat	5 054 964.62	4 791 210.45	4 497 287.68	5 057 818.84
Papua	6 798 971.40	4 186 952.75	4 497 655.66	4 863 315.56
Indonesia	**3 019 738.72**	**3 037 121.82**	**3 239 761.43**	**3 586 512.48**

Note: Kalimantan Utara is part of Kalimantan Timur Province in 2012-2014

Source: Statistics Indonesia, National Socio-Economic Survey

TABLE 2.20. COSTS OF LABOR IN MICRO AND SMALL MANUFACTURING INDUSTRIES BY PROVINCES (MILLION IDR) FROM 2013 TO 2015

Provinces	2013		2014		2015	
	Micro	Small Scale	Micro	Small Scale	Micro	Small Scale
Aceh	698 756	359 541	298 306	192 245	331 801	92 371
Sumatera Utara	948 931	2 695 702	741 844	800 446	619 554	333 769
Sumatera Barat	603 256	1 373 761	456 976	529 606	422 840	542 172
Riau	244 130	218 990	146 656	137 800	229 441	89 811
Jambi	277 111	298 750	293 627	174 118	202 320	141 419
Sumatera Selatan	709 909	1 444 716	595 132	473 275	278 139	174 425
Bengkulu	159 598	82 459	102 556	47 996	113 261	51 631
Lampung	890 300	980 636	769 864	546 935	506 884	309 006
Kep. Bangka Belitung	109 747	268 504	72 627	76 804	42 704	32 675
Kep. Riau	87 126	282 631	43 090	96 509	24 977	30 829
Dki Jakarta	586 627	3 813 878	391 693	4 207 470	691 139	1 167 917
Jawa Barat	3 598 998	16 365 149	3 557 817	7 147 792	4 591 399	8 073 656
Jawa Tengah	2 853 267	12 556 526	2 147 191	3 523 673	4 516 166	8 513 273
Di Yogyakarta	366 543	1 151 472	284 500	572 298	300 320	427 924
Jawa Timur	3 331 051	14 021 976	2 821 248	5 196 116	4 796 500.74	4 713 652
Banten	529 951	1 208 323	485 324	722 930	1 011 950	1 365 379
Bali	534 328	2 247 869	595 041	1 099 717	794 852	1 037 342
Nusa Tenggara Barat	529 161	1 081 228	465 461	2 838 729	811 764	679 833
Nusa Tenggara Timur	248 943	247 576	196 184	221 578	97 224	156 285
Kalimantan Barat	333 111	302 114	265 555	181 654	321 836	124 194
Kalimantan Tengah	194 050	287 123	203 914	132 484	133 332	107 868
Kalimantan Selatan	391 085	595 095	309 214	309 550	297 804	223 463
Kalimantan Timur	336 081	618 901	206 234	253 274	106 140	133 945
Kalimantan Utara	-	-	-	-	17 702	20 737
Sulawesi Utara	337 187	263 119	303 465	6 919	418 737	1 662
Sulawesi Tengah	317 873	320 742	386 122	198 770	167 541	103 906
Sulawesi Selatan	485 753	933 254	417 943	862 292	846 589	813 919
Sulawesi Tenggara	460 712	1 087 543	569 863	133 828	308 169	122 549
Gorontalo	114 087	108 504	72 787	74 280	61 142.24	38 153
Sulawesi Barat	78 081	98 102	69 613	92 888	48 426	27 153
Maluku	55 515	71 877	42 947	16 052	50 976	31 865
Maluku Utara	78 580	18 035	23 968	7 831	11 779	17 990
Papua Barat	51 776	22 380	34 609	22 923	20 851	16 251
Papua	317 958	260 611	205 775	126 255	82 318	52 869
Indonesia	**20 859 582**	**65 687 087**	**17 577 146**	**31 025 037**	**23 276 577.98**	**29 769 893**

Source: Micro and Small Manufacturing Industry Survey, 2016

TABLE 2.21. NUMBER OF MICRO AND SMALL MANUFACTURING INDUSTRIES BY PROVINCES FROM 2013 TO 2015

Provinces	2013		2014		2015	
	Micro	Small	Micro	Small	Micro	Small
Aceh	74 880	3 688	69 316	1 715	96 758	1 715
Sumatera Utara	64 034	18 854	76 227	9 836	94 979	4 043
Sumatera Barat	57 987	8 007	71 413	5 107	63 409	4 288
Riau	15 241	1 808	14 355	1 360	16 791	644
Jambi	22 590	2 510	25 441	2 006	22 415	1 754
Sumatera Selatan	57 495	13 852	58 751	5 741	47 516	1 830
Bengkulu	10 595	1 111	11 310	738	11 663	618
Lampung	90 051	11 568	94 739	8 971	76 728	3 777
Kep. Bangka Belitung	9 723	1 692	7 752	515	5 914	237
Kep. Riau	13 706	2 515	14 638	761	7 231	237
Dki Jakarta	20 738	19 172	15 110	22 748	28 378	6 616
Jawa Barat	382 899	106 861	437 985	60 078	421 881	58 359
Jawa Tengah	650 115	160 148	766 782	65 690	934 814	95 560
Di Yogyakarta	67 454	13 306	73 266	7 313	52 907	4 758
Jawa Timur	539 320	89 786	608 774	39 932	771 185	49 659
Banten	71 736	7 424	75 760	5 652	108 235	9 313
Bali	84 149	21 333	107 434	8 659	95 282	8 078
Nusa Tenggara Barat	93 694	7 484	93 645	13 586	79 764	14 527
Nusa Tenggara Timur	100 761	3 845	109 266	2 776	71 768	1 401
Kalimantan Barat	35 892	1 785	36 311	1 101	53 867	1 246
Kalimantan Tengah	17 456	1 285	18 936	996	11 884	715
Kalimantan Selatan	64 235	4 155	67 674	3 192	55 564	1 913
Kalimantan Timur	20 689	3 694	15 866	1 855	11 084	944
Kalimantan Utara	-	-	-	-	1 180	120
Sulawesi Utara	37 091	2 594	35 527	60	39 431	39
Sulawesi Tengah	30 247	2 943	38 511	1 784	20 745	1 651
Sulawesi Selatan	94 537	7 949	100 526	5 893	112 896	5 577
Sulawesi Tenggara	57 180	7 864	68 711	2 845	46 084	1 186
Gorontalo	20 934	1 502	22 610	1 241	12 458	758
Sulawesi Barat	26 028	1 092	27 888	1 210	11 123	751
Maluku	35 208	664	36 422	218	19 312	263
Maluku Utara	8 328	105	7 851	107	6 939	112
Papua Barat	2 730	92	2 353	126	1 442	81
Papua	9 292	663	9 413	689	6 973	484
Indonesia	**2 887 015**	**531 351**	**3 220 563**	**284 501**	**3 385 851**	**283 022**

Source: Micro and Small Manufacturing Industry Survey, 2016

faster, some remote areas in the Indonesian archipelago are not yet connected due to the lack of infrastructure. Telecommunication is important to support small and medium scale business' e-commerce and e-government activities. Indonesia also faces challenges controlling and combating hoax or fake information and radicalism disseminated through social media. Progress of the telecommunication sector is projected to decrease the number of printed materials (book and literature) since millions of internet users will read online. It is also expected to reduce the number of conventional or traditional stores because people will do shopping online.

In 2017, telecommunications companies had the following number of users: (1) Telcom- 157.4 million, (2) Indosat-85 million, (3) Tri-56.5 million, and (4) XL-44 million. Recently, the competition was attracting costumers focusing on internet services. In West Kalimantan (Kalimantan Barat), the total number of telecommunications users is around 2.8 million, of which 75-78% use the internet. In general, there are about 72% percent of costumers or 3 million users that have mobile telecommunications (Telkomsel).

Expenditures on telecommunications tend to increase from time to time. In provinces such as Aceh, Sumatera Barat, DKI Jakarta and others, expenditures have significantly increased. Most of houses in rural areas have telecommunication facilities. In general, it can be concluded that telecommunications is vital for modern living.

TABLE 2.22. INDONESIA FOREIGN TRADE

Exports (in Million USD)		Imports (in Million USD)	
Goods	168,573	Goods	156,925
Services	23,946	Services	32,433
Trade Balance (in Million USD)			**18,892**
Foreign Trade (in % of GDP)			**39.5%**

Sources: WTO, 2015 & World Bank, 2017

TABLE 2.23. MAIN TRADING PARTNERS FOR 2017

Main Customers (% of Exports)		Main Suppliers (% of Imports)	
China	13.7%	China	21.9%
United States	10.6%	Singapore	10.8%
Japan	10.5%	Japan	9.0%
India	8.3%	Malaysia	5.8%
Singapore	7.6%	Thailand	5.7%

Source: Comtrade, Latest Available Data

TABLE 2.24. MAIN PRODUCTS TRADED IN 2017

168.8 bn USD of products exported		157.4 bn USD of products imported	
Palm oil and its fractions, whether or not refined	11.0%	Petroleum oils and oils obtained from bituminous...	9.5%
Coal; briquettes, ovoids and similar solid fuels	10.6%	Petroleum oils and oils obtained from bituminous..	5.2%
Petroleum gas and other gaseous hydrocarbons	5.2%	Wheat and meslin	2.3%
Petroleum oils and oils obtained from bituminous...	3.1%	Electrical apparatus for line telephony or line	2.1%
Natural rubber, balata, gutta-percha, guayule	3.0%	Petroleum gas and other gaseous hydrocarbons	1.8%
Other products	67.1%	Other products	79.0%

Source: Comtrade, Latest Available Data

TABLE 2.25. MAIN SERVICES TRADED IN 2015

168.8 bn USD of products exported		157.4 bn USD of products imported	
Travel	52.64%	Transportation	34.75%
Other business services	24.45%	Other business services	27.00%
Transportation	17.02%	Travel	26.39%
Government services	3.09%	Royalties and license fees	5.98%
Construction services	1.85%	Insurance services	3.41%
Cultural and recreational services	0.56%	Construction services	1.64%
Royalties and license fees	0.26%	Government services	0.59%
Insurance services	0.13%	Cultural and recreational services	0.24%

Source: Comtrade, Latest Available Data

TABLE 2.26. PALM OIL PRODUCTION, EXPORTS, AND TOTAL AREA CULTIVATED WITH OIL PALM

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016
Production (in Million tons)	19.2	19.4	21.8	23.5	26.5	30.0	31.5	32.5	32.0
Export (in Million tons)	15.1	17.1	17.1	17.6	18.2	22.4	21.7	26.4	27.0
Export (in USD)	15.6	10.0	16.4	20.2	21.6	20.6	21.1	18.6	18.6
Area (in Million ha)	n.a.	n.a.	n.a.	n.a.	9.6	10.5	10.7	11.4	11.8

Source: Indonesian Palm Oil Producers Association [GAPKI] & Indonesian Ministry of Agriculture

TABLE 2.27. RUBBER PRODUCTION FROM 2013 TO 2016

Year	Area (Ha)				Production (Ton)			
	Smallholder	Government	Private	Total	Smallholder	Government	Private	Total
2013	3,026,020	247,068	282,859	3,555,946	2,655,942	255,616	325,875	3,237,433
2014	3,067,388	229,940	308,917	3,606,245	2,583,439	227,783	341,964	3,153,186
2015*	3,070,508	230,900	320,179	3,621,587	2,520,472	228,876	358,912	3,108,260
2016**	3,072,769	231,707	335,219	3,639,695	2,553,928	231,716	372,141	3,157,785

Note:
**preliminary*
***Estimation*
Source: Directorate General of Estate Crops, 2014-2016

TABLE 2.28. VOLUME AND VALUE OF RUBBER EXPORTS AND IMPORTS FROM 2013 TO 2015

Year	Export		Import	
	Volume (Ton)	Value (000 US$)	Volume (Ton)	Value (000 US$)
2012	2,444,503	7,861,947	26,908	69,804
2013	2,701,995	6,906,952	24,527	52,045
2014	2,623,471	4,741,574	28,753	48,343
2015*	2,009,712	2,942,307	24,864	32,229

Source: Directorate General of Estate Crops, 2014-2016

At national level, the demand for telecommunications was stable in terms of expenditures for urban and rural households. There were little difference in expenses from 2012 to 2015. However, the use of telecommunications tends to increase as the population increases. The younger generation in particular has more interest and skill in operating the mobile phones.

2.3.10 Manufacturing

Table 2.21 shows the number of micro and small scale manufacturing industries by provinces from 2013 to 2015. The largest number of manufacturing industries are located in Java Island and a few are in Sumatera. The growth of micro manufacturing industries is high in some provinces in Kalimantan.

2.3.11. Foreign Trade

Foreign trade involves export and import trading, including consumption of imported goods. Indonesian export commodities include crude palm oil (CPO), coal, liquid natural gas (LNG), other minerals and composite materials, pulp and paper, rubber, furniture, fish, shrimp, and noodles. Indonesian imports include automotive spare-parts, mobile phones, and mainly food for consumption like livestock meat, corn, milk, bean, wheat, some portions and types of rice, and snacks. Foreign trade income and revenue adequately contributes to the State Budget every year.

Since 2007, Indonesia has reviewed its policies on international trade. Indonesia continues to undertake systematic efforts to reduce barriers to trade, investments, and is implementing measures to streamline procedures at the border. Customs reform is prominent on the government's agenda. This includes the 2007 launch of Indonesia's National Single Window which facilitates online processing of customs documentation, applications for licenses, and duty payments.

Indonesia leads the global production of palm oil. According to the Indonesian Palm Oil Producers Association (GAPKI), Indonesia can produce at least 40 million tons of palm oil annually. In 2016, Indonesia produced 32 million tons, which is twice as much of what was produced in 2008. Oil palm plantations also expanded from 2012 to 2016. Palm oil contributes 1.5-2.5% to Indonesia's gross domestic product (GDP). Table 2.26 below shows amounts of palm oil production and total areas cultivated for oil palm.

Rubber is another top commercial crop. Rubber has become a commodity which helps farmers' families earn money to purchase daily consumption goods, pay for children's education, and other living needs (electricity, entertainment, etc.). However, the price of rubber fluctuates. Because of this, farmers started to cultivate oil palm or worked at oil palm plantations. The table below shows the area and production of rubber between 2013 and 2016.

Rubber exports and imports in 2015 were considerably much lower compared to the previous years (BPS, 2015). The price of rubber was so low in 2015. For instance, a kilogram of rubber might be unable to buy a kilogram of rice or other foods. Weather is also a factor that determined the activity of tapping rubber.

2.3.12. Retail trade

Retail trade of domestically produced and imported goods plays an important role in Indonesia. The retailers make the Indonesian market and trading alive, whether retail trading is done in conventional or traditional markets, or in supermarkets or department stores. Like printed materials that are projected to decrease, conventional retail trading done in physical stores is also predicted to decrease due to the use of internet and mobile phone telecommunications to trade online.

In July 2018, Indonesian retail trade grew by 2.9% after a 2.3% percent gain in the previous month. Sales went up for automotive parts and accessories (1.6% in July vs 1.1% in June), fuel (15.4% vs 10.7%), and cultural and recreational goods (5.6% vs 3.7%). On the other hand, sales fell for information and communication equipment (-13.9% vs -14.4%) and rebounded for clothing (13% vs -11.2%) and other household goods (5.3% vs -0.5%). Sales slowed for food, beverages, and tobacco (5% vs 6.6%).

Table 2.29 shows the expenditures on housing and household appliances, goods and services, apparel, taxes and other collections, and so forth. All provinces spent much on housing and household appliances and various goods and services. Papua has the highest expenditures on housing and household appliances. The cost of living in Papua is very high because prices of goods could be

TABLE 2.29. AVERAGE PERCENTAGE OF NON-FOOD EXPENDITURES PER CAPITA /MONTH IN 2017

Provinces	Housing and Household Appliances/ Facilities	Various Goods and Services	Clothes, Footwear and Caps/ Headwear	Durable Goods	Taxes, Collections and Insurance	Festival and Ritual Needs
Aceh	45.22	24.04	11.60	8.62	7.68	2.84
Sumatera Utara	48.02	27.27	8.01	7.14	6.55	3.01
Sumatera Barat	43.60	24.58	9.23	13.05	6.07	3.47
Riau	52.11	22.72	8.43	8.84	4.96	2.94
Jambi	52.08	20.26	8.50	10.95	4.82	3.39
Sumatera Selatan	51.27	22.78	5.95	8.00	8.19	3.81
Bengkulu	47.74	23.29	6.93	12.18	5.49	4.37
Lampung	48.33	23.50	7.46	11.22	6.26	3.23
Kepulauan Bangka Belitung	54.16	20.34	6.34	9.88	6.84	2.44
Kepulauan Riau	54.21	24.19	6.42	8.02	5.40	1.76
DKI Jakarta	55.82	26.14	4.37	5.02	6.76	1.89
Jawa Barat	48.93	25.42	6.27	10.76	5.15	3.47
Jawa Tengah	42.34	26.11	5.64	14.66	6.49	4.76
DI Yogyakarta	41.94	28.06	4.68	15.65	6.69	2.98
Jawa Timur	45.77	25.58	5.68	13.02	5.87	4.08
Banten	50.97	25.18	6.18	8.60	6.10	2.97
Bali	51.99	19.27	3.36	10.39	6.47	8.52
Nusa Tenggara Barat	51.30	21.90	6.60	11.55	5.45	3.20
Nusa Tenggara Timur	49.22	24.61	5.40	11.36	6.44	2.97
Kalimantan Barat	55.14	22.50	6.51	7.26	4.91	3.68
Kalimantan Tengah	53.94	21.05	5.20	10.86	5.69	3.26
Kalimantan Selatan	49.33	22.9	6.72	12.59	5.17	3.29
Kalimantan Timur	56.55	21.82	4.99	6.95	6.39	3.30
Kalimantan Utara	57.64	23.39	4.87	7.07	5.24	1.79
Sulawesi Utara	46.02	26.29	7.78	10.56	4.72	4.63
Sulawesi Tengah	49.86	20.69	6.51	12.76	5.89	4.29
Sulawesi Selatan	45.99	21.03	6.72	14.73	6.36	5.17
Sulawesi Tenggara	50.58	18.87	6.02	15.45	6.17	2.91
Gorontalo	44.35	24.11	7.21	14.37	6.33	3.63
Sulawesi Barat	48.37	21.45	6.75	12.37	8.13	2.93
Maluku	54.69	24.47	6.59	7.52	3.86	2.87
Maluku Utara	56.36	23.3	7.17	6.23	4.85	2.09
Papua Barat	57.60	22.83	3.98	7.73	5.64	2.22
Papua	62.80	21.28	4.94	5.65	3.08	2.25
Indonesia	**49.09**	**24.61**	**6.13**	**10.62**	**5.96**	**3.59**

Source: BPS, 2017

TABLE 2.30. NUMBER OF FOREIGN TOURISTS FROM 2016 TO 2017

Month	Number of Foreign Tourists		
	2016	2017	Growth
January	814,303	1,107,968	36.06%
February	888,309	1,023,388	15.21%
March	915,019	1,059,777	15.82%
April	901,095	1,171,386	30.00%
May	915,206	1,148,588	25.50%
June	857,651	1,144,001	33.39%
July	1,032,741	1,370,591	32.71%
August	1,031,986	1,393,243	35.01%
September	1,006,653	1,250,231	24.20%
October	1,040,651	1,161,565	11.62%
November	1,002,333	1,062,030	5.96%
December	1,113,328	1,147,031	.03%
TOTAL	11,519.275	14,039,799	22.38%

Source: BPS, 2018

TABLE 2.31. NUMBER OF DOMESTIC TOURISTS FROM 2011 TO 2016

Year	Number of Domestic Tourists	
	Total	Growth %
2011	6,750,416	8.26%
2012	7,453,633	10.42%
2013	8,024,876	7.66%
2014	7,899,070	-1.57%
2015	7,908,534	0.12%
2016	6,677,918	1.97%

Source: BPS, 2018

TABLE 2.32. NUMBER OF ACCOMMODATIONS, AVERAGE WORKERS, AND GUESTS PER DAY BY PROVINCES IN 2016

Provinces	Number of Accommodations			Average Workers Per Day		Guests Per Day		
	Business	Room	Beds	Business	Room	Indonesia	Foreigner	Total
Aceh	348	5 648	10 001	5.5	0.3	1 332	70	1 402
Sumatera Utara	724	14 655	20 572	6.8	0.3	5 949	86	6 035
Sumatera Barat	297	4 556	8 132	5.5	0.4	1 734	34	1 768
Riau	306	7 607	12 104	7.6	0.3	2 546	16	2 562
Jambi	168	3 599	5 451	6.5	0.3	807	8	815
Sumatera Selatan	288	6 051	8 820	8	0.4	2 087	9	2 096
Bengkulu	147	2 714	4 074	5.8	0.3	715	1	716
Lampung	227	4 704	7 473	9.5	0.5	2 171	34	2 205
Kep Bangka Belitung	91	1 563	2 106	7.2	0.4	293	1	294
Kepulauan Riau	291	8 358	9 876	8.1	0.3	2 414	359	2 773
DKI Jakarta	205	8 298	10 991	20.7	0.5	7 966	181	8 147
Jawa Barat	1 408	35 113	55 151	12.7	0.5	19 588	285	19 873
Jawa Tengah	1 318	26 336	38 434	8	0.4	14 974	165	15 139
DI Yogyakarta	1 076	14 357	20 295	5.3	0.4	5 558	186	5 744
Jawa Timur	2 136	34 505	48 792	7	0.4	24 403	840	25 243
Banten	255	4 994	7 627	8.5	0.4	1 785	27	1 812
Bali	1 788	26 588	36 513	12.5	0.8	6 490	4 554	11 044
Nusa Tenggara Barat	814	8 892	12 460	7.6	0.7	1 511	942	2 453
Nusa Tenggara Timur	318	5 401	9 310	7.7	0.5	2 331	446	2 777
Kalimantan Barat	391	7 688	10 317	5.6	0.3	2 728	25	2 753
Kalimantan Tengah	383	6 925	9 865	4.9	0.3	1 778	5	1 783
Kalimantan Selatan	269	4 853	7 846	6	0.3	2 770	20	2 790
Kalimantan Timur	504	8 940	12 512	5.4	0.3	2 468	20	2 488
Kalimantan Utara	128	2 543	3 634	7	0.4	684	4	688
Sulawesi Utara	207	3 570	4 948	9.1	0.5	1 108	102	1 210
Sulawesi Tengah	491	5 982	9 465	4.5	0.4	1 965	19	1 984
Sulawesi Selatan	548	9 019	13 520	6.5	0.4	2 793	22	2 815
Sulawesi Tenggara	413	5 122	6 620	4.2	0.3	1 167	2	1 169
Gorontalo	90	1 509	2 148	6.4	0.4	304	1	305
Sulawesi Barat	140	1 946	3 127	4.5	0.3	540	5	545
Maluku	213	3 484	4 524	5.4	0.3	648	8	656
Maluku Utara	196	3 118	3 811	4.5	0.3	757	1	758
Papua Barat	110	1 961	2 801	8.4	0.5	377	6	383
Papua	154	3 570	4 964	10	0.4	955	25	980
Indonesia	16 442	294 169	428 284	8	0.4	125 696	8 509	134 205

Source: Statistics Indonesia, 2018

TABLE 2.33. RANK AND NUMBER OF VIEWERS OF THE TOP 15 FILM TITLES IN 2017

Title	Viewers
Pengabdi Setan	4,206,103
Warkop DKI Reborn: Jangkrik Boss Part 2	4,083,190
Ayat-Ayat Cinta 2	2,840,159
Danur: I Can See Ghosts	2,736,157
Jailangkung	2,550,271
Susah Sinyal	2,172,512
Surga Yang Tak Dirindukan 2	1,637,472
Mata Batin	1,282,557
The Doll 2	1,226,864
Surat Cinta untuk Starla the Movie	1,218,317
Sweet 20	1,044,045
Critical Eleven	881,530
London Love Story 2	862,874
Insya Allah Sah	833,010
Surat Kecil untuk Tuhan	715,361

twice or more than the prices in Jakarta or in the other provinces of Indonesia.

2.3.13. Rest, Recreation, and Tourism

The World Tourism Organization (UNWTO) forecasted that there will be about 1,602 billion tourists in 2020. According to the UNWTO, 231 million will visit East Asian regions and 438 million will visit the Pacific regions. This will create an income of about USD 2 trillion in 2020. Indonesia is poised to gain from this increase in tourism.

Sustainable tourism has gained traction among tourists and service providers. The concern now is how to develop tourism without destroying nature and cultures, and balance its impacts on economic growth and on communities. In Indonesia, this concern is addressed by the National Tourism Plan 2010- 2025.

Table 2.30 shows the increase in the number of foreign tourists that visited in Indonesia. January, June, July, and August have the highest amounts of increase in foreign tourists. It means that those months might be the most suitable months for foreign tourists to visit Indonesia.

There was a small increase of domestic tourists in 2015 and 2016 compared to 2011, 2012, and 2013 which had high growth rates (Table 2.31).

2.3.14. Sports

Among the types of sports that Indonesians enjoy are running or jogging, badminton, cycling, football/soccer, swimming, basketball, gymnastics, fishing, table tennis, martial arts, hiking, tennis, and volleyball. The Statistics Portal reported that in a 2018 survey conducted by Cint, 22.64% of the respondents stated that they played football or soccer regularly.

2.3.15. Entertainment

Domestically-produced films and music are enjoyed massively through TV channels, streaming, and mobile phone applications. A special board called the Creative Economic Board or *Badan Ekonomi Kreatif (BEKRAF)* was established to promote and develop the national film and music industry. The average ticket price to watch a film show in year 2008 was IDR 13,000 per viewer. It rose steadily within the last 10 years to IDR 37,000 per viewer in 2017. Table 2.33 shows the number of viewers of the top 15 film titles in 2017.

TABLE 2.34. IKAPI MEMBERSHIP FROM 2012 TO 2015

Territory	Quantity			
	2012	2013	2014	2015 (as of June)
Jakarta	450	473	497	504
Jawa Barat/West Java	227	249	273	278
Jawa Tengah/Central Java	131	136	145	145
Yogyakarta	144	148	156	159
Jawa Timur/East Java	80	85	89	91
Sumatera Selatan/South Sumatera	1	1	1	1
Kalimantan Barat/West Kalimantan	11	13	13	13
Sulawesi Selatan/South Sulawesi	1	1	1	1
Sulawesi Tengah/Central Sulawesi	10	10	11	12
Bali	3	3	3	3
Banten	1	1	1	1
Sumatera Barat/West Sumatera	11	11	12	12
Aceh	3	3	3	3
Sumatera Utara/North Sumatera	1	1	1	1
Riau	16	16	16	16
Jambi	4	4	4	4
Kalimantan Selatan/South Kalimantan	2	2	2	2
Kalimantan Timur/East Kalimantan	6	9	13	14
Kalimantan Tengah/Central Kalimantan	1	1	1	1
Sulawesi Utara/North Sulawesi	22	22	22	22
NTT/East Nusa Tenggara	10	10	10	10
NTB/West Nusa Tenggara	11	14	18	18
Papua	8	8	8	8
Lampung	2	5	5	5
Batam	2	2	2	2
Gorontalo	0	0	2	2
TOTAL	**1,158**	**1,228**	**1,309**	**1,328**

TABLE 2.35. SALES OF SCHOOL BOOKS WRITTEN BY IKAPI MEMBERS (IDR)

	2013	2014
Copy available in Book Store	69.766 million	62.656 million
Total Price by Book Stores	4 trillion	5 trillion
Total Price as Project	3.30 billion	5.10 billion
Total Price for School Books	3 trillion	3 trillion
TOTAL	**7.33 trillion**	**8.51 trillion**

TABLE 2.36. MARKET SEGMENTS OF TYPES OF BOOKS

Rank	Subject and Code	2013	2014
		Percentage	Percentage
1	Children's Books 1001	22.31%	22.64%
2	Fiction and Literature 1002	12.88%	12.89%
3	Religion and Spirituality 2018	12.83%	12.85%
4	School Books Indonesia Curriculum 2019	10.93%	12.04%
5	Reference and Dictionary 2017	6.64%	6.43%
6	Business and Economy 2003	4.55%	4.60%
7	Self Improvement 2022	3.74%	3.60%
8	Social Sciences 2023	3.67%	3.55%
9	Cooking 2005	2.78%	3.27%
10	Computing and Internet 2004	2.67%	2.65%

The head of Indonesian Creative Economic Board Triawan Munaf said that the number of film viewers in cinemas is improving (Primus, 2018). He quoted the National Statistics Commission, stating that the number of domestic or national film viewers in cinema was up to 42.7 million viewers, from the 16 million viewers in 2015.

Music as entertainment, according to the Creative Economic Board as published online by musicprom.com, includes the development of music education, creation and/or composition, recording, promotion, distribution, sales, and music shows. It is reported that the Indonesian music industry faces problematic issues in terms of piracy and competition from imported music from Korea, Japan, and Western countries. Nevertheless, in terms of genre, Indonesian original music *Dangdut* is typical and has its own listener segments and shows. It is irreplaceable. Indonesian native music or *Musik Daerah* which is rich in diversity is popular across the archipelago.

2.3.16. Books and Literature

Based on data provided in IKAPI or Indonesian Association for Publishers' website dated 25 January 2018, the literacy rate in Indonesia is 93.4%, while the number of internet users is 71.19 million. According to a statement by the Indonesian Coordinating Ministry for Human Resources and Culture Development, Puan Maharani (Nadlir, 2018), the average frequency of reading for Indonesians is three to four times a week with 30 to 59 minutes per day. The average number of books read completely is around five to nine books per year.

The total members of IKAPI is 1,328 as of 25 January 2018. The number of the members improved from 2012 to 2015 (see Table 2.34).

The sales of school books produced and written by local IKAPI members in terms of copy and its price (in IDR) between year 2013 and 2014 have increased (see Table 2.35).

Table 2.36 shows the market segments of types of books in 2013 and 2014.

2.3.17. Mortuaries

The National Statistics Commission or BPS, does not provide any specific data on the number and condition of mortuaries in Indonesia. Nevertheless, the number of public hospitals, specialized hospitals, and community health centers or PUSKESMAS (situated in sub-districts) is well recorded between 2012 and 2013. By 2012, there are around 1, 608 state and private hospitals. These increased in 2013 to 1,725. General hospitals are mostly found in the province and district and/or municipality's capitals. Specialized hospitals also increased from 475 in 2012 to 503 in 2013. Specialized hospitals are commonly situated in the capitals of provinces. Community health centers increased from 9,510 in 2012 to 9,655 in 2013.

Mortuaries are usually integrated with hospitals, but not all hospitals have mortuaries. Only private general hospitals are commonly known to have mortuaries. It is very rare to find state-owned general hospitals that have mortuaries. Some of the mortuaries in Indonesia include

TABLE 2.37. NUMBER OF VILLAGES/URBAN VILLAGES BY TYPES OF ENVIRONMENTAL POLLUTION

Provinces	Water Pollution	Soil Pollution	Air Pollution	No Pollution
Aceh	350	63	713	5,499
Sumatera Utara	449	65	2,076	3,800
Sumatera Barat	144	19	674	421
Riau	318	17	1,537	262
Jambi	384	24	379	891
Sumatera Selatan	279	44	218	2,801
Bengkulu	189	9	98	1,270
Lampung	222	17	248	2,237
Kepulauan Bangka Belitung	152	55	33	208
Kepulauan Riau	28	4	51	339
DKI Jakarta	54	2	17	200
Jawa Barat	1,131	118	833	4,327
Jawa Tengah	932	183	1,123	6,823
DI Yogyakarta	44	4	415	21
Jawa Timur	759	104	1,589	6,450
Banten	251	43	239	1,141
Bali	82	5	55	595
Nusa Tenggara Barat	122	27	79	940
Nusa Tenggara Timur	53	14	89	3,145
Kalimantan Barat	717	100	217	1,264
Kalimantan Tengah	523	51	167	970
Kalimantan Selatan	445	60	220	1,440
Kalimantan Timur	249	45	131	720
Kalimantan Utara	59	4	27	410
Sulawesi Utara	140	12	116	1,609
Sulawesi Tengah	125	21	57	1,812
Sulawesi Selatan	176	25	233	2,667
Sulawesi Tenggara	73	29	113	2,095
Gorontalo	72	64	41	585
Sulawesi Barat	22	6	43	585
Maluku	57	13	26	1,006
Maluku Utara	46	15	67	1,079
Papua Barat	31	8	26	1,512
Papua	108	31	48	4,717
INDONESIA	8,786	1,301	11,998	63,841

Source: BPS, 2015b

Budi Luhur, Jelambar, Grand Heaven, Mortuary Husada, San Diego Hills, KWK Funeral Service, Oasis Lestari, and Santo Michael Pontianak. Mortuaries are increasingly being managed by private companies, social foundations, and clan unions (for the Chinese). Mortuary services are expected to increase in the future because of the population density and limited spaces in residences.

2.4. ENVIRONMENTAL IMPACTS

Waste Disposal

Indonesia is the second world's biggest contributor to plastic waste thrown in the ocean. As noted by Hans Nicholas Jong in *The Jakarta Post* dated 9 October 2015, an average person in Indonesia produces 0.7 kilo of trash per day. That makes 175,000 tons of trash produced per day by the total population of Indonesia which is 250 million. Improperly managed waste disposal produces air, odor, and groundwater pollution in surrounding areas.

Trash disposal sites will not be able to accommodate the increasing amount of wastes produced by the population. Although it can be a cause for emergency, waste management can also be a big opportunity for businessmen and entrepreneurs in the environmental sector. Business opportunities can be explored in converting waste into energy, fertilizers, and in the production of machinery and infrastructure for recycling.

Air Pollution

Air pollution in Indonesia is caused by carbon dioxide (C02) emissions, haze and forest fires, and peat land fires. For the last 10 years, haze resulting from forest and peat fires have also affected neighboring countries like Malaysia, Brunei, and Singapore (Armandhanu, 2018).

"Most air pollution comes from energy use and production," says John Walke, director of the Clean Air Project which is part of the Climate and Clean Air Program of the NRDC. "Burning fossil fuels releases gases and chemicals into the air." And in an especially destructive feedback loop, air pollution not only contributes to climate change but is also exacerbated by it. "Air pollution in the form of carbon dioxide and methane raises the earth's temperature," Walke says. "Another type of air pollution is then worsened by that increased heat: smog forms when the weather is warmer and there's more ultraviolet radiation." Climate change also increases the production of allergenic air pollutants including molds (thanks to damp conditions caused by extreme weather and increased flooding) and pollen (due to a longer pollen season and more pollen production).

Outdoor air pollution is a mix of chemicals, particulate matter, and biological materials that react with each other to form tiny hazardous particles. It contributes to breathing problems, chronic diseases, increased hospitalization, and premature mortality (Sanford, 2008). According to Greenpeace Indonesia, Greater Jakarta area is overwhelmed by poor air quality, with high levels of health-deteriorating pollutants that exceed standards set by the World Health Organization. Jakarta is one of the most polluted cities in the world, with an Air Quality Index (AQI) of 182. Because of the air pollution, the country spent IDR 50 trillion to make air worth breathing (Juniman, 2018).

Air pollution worsens environmental and health conditions such as asthma and several diseases such respiratory infections and coronary artery disease. The haze and smoke caused by carbon dioxide emissions generated from vehicles, forest fires, and peat land fires can have long-lasting impacts on the environment.

The number of private cars and motorcycles in Indonesia is steadily increasing. The government is still struggling with the expansion of public transportation to provide services to commuters as well as to curb carbon dioxide emissions. Alternative energy sources such as biodiesel, electric, and solar should be applied to transportation sooner to replace fossil fuels.

Land clearing for plantations should be stopped. However, land clearing through burning is the cheapest method according to business and investor's point of view. Addressing air pollution and carbon emissions from oil palm plantation need concerted efforts from several other ministries and stakeholders, particularly the Ministry of Forest and Environment of Indonesia and the Indonesia Peat Land Commission. Indonesia must draft a climate change act and a mitigation plan for air pollution and carbon emissions. Broader engagement of the private sector, CSOs, communities, and government stakeholders should be carried out during the drafting and implementation of policies to address air pollution and carbon dioxide emissions.

2.5. ANALYSIS OF CONSUMPTION PATTERNS IN INDONESIA

The Indonesian people's consumption could be classified into food and non-food. The consumption of food could be divided into main and supplementary food. Non-food consists of other living needs, such as energy, transportation, communications, housing, etc.

Most Indonesians consume rice, corn, and sago for their daily food. However, the portions might be different in terms of quantity. For instance, people of the eastern part of Indonesia might consume less rice because they might consume more corn or sago. The people of Papua consume more sago than rice for their everyday food. The people of Maluku, NTT may consume sago and corn more than rice. On the other hand, people in the western part, such as Kalimantan, Java, Sumatra, and so forth, will consume more rice.

"Indonesia used to be self-reliant on food. However, Indonesia has started to encounter problems in producing food, mainly rice, to fulfill the needs of its population."

Indonesia used to be self-reliant on food. However, Indonesia has started to encounter problems in producing food, mainly rice, to fulfill the needs of its population. Indonesia frequently imports rice from Thailand and Vietnam. The government always announce that rice production is enough for the population. However, the price of rice keeps on increasing. One of the ways to stabilize the price is by importing.

In order to increase food production, the government carried out actions such as (1) seedling engineering for higher yield, (2) giving incentives (low taxes or free from taxes for certain period of time) to the private sector to encourage them to invest in agriculture, and (3) encouraging farmers to cultivate rice. In 2017 the Indonesian Army prepared rice paddies in collaboration with local farmers.

Huge plantations, such as oil palm, rubber, and other commercial crops, have caused both good and bad effects. One the one hand, people had opportunities to develop new sources of income, but on the other hand, the large areas for plantations decreased land (fertile) for paddy (rice) cultivation and also destroyed habitats for animals and water sources.

In order to reduce land and forest destruction, the Minister of Agriculture and the Minister of Forestry and Environment issued several regulations on the issuance of permits, land management, and forestry and environment management. Oil palm permits were also reviewed to determine if the operations of the owners are causing environmental destruction (Instruksi Presiden tentang Kelapa Sawit, 2018.

2.6. CONCLUSIONS AND RECOMMENDATIONS

The Indonesian government attempts to stabilize consumption through regulations issued by the President, or by ministers and provincial officials. However, fluctuations in the prices of oil, palm oil products, rubber, and food in the international market negatively affected the implementation of government regulations. Farmers always hope for good prices of agricultural products such as rubber, pepper, and livestock. However, the prices of these commodities can drop.

Despite the increase of prices of basic commodities, the household consumption of food, electricity, petroleum, and some meat significantly increased. Price increases are triggered by the increase in the price of production costs, like transportation, services, and materials.

The current administration of President Joko Widodo is implementing measures towards sustainable consumption. These actions include building infrastructure for agriculture, reviewing of permits of oil palm plantations and protecting forests for water resource conservation, among others.

The matter of sustainable consumption and production is a concern of all citizens. There should be a close cooperation amongst the government, CSOs, and communities. All the parties should have their roles in achieving the target of sustainable consumption and production (SCP). This study can be the starting point to recognize and understand what SCP in Indonesia is like.

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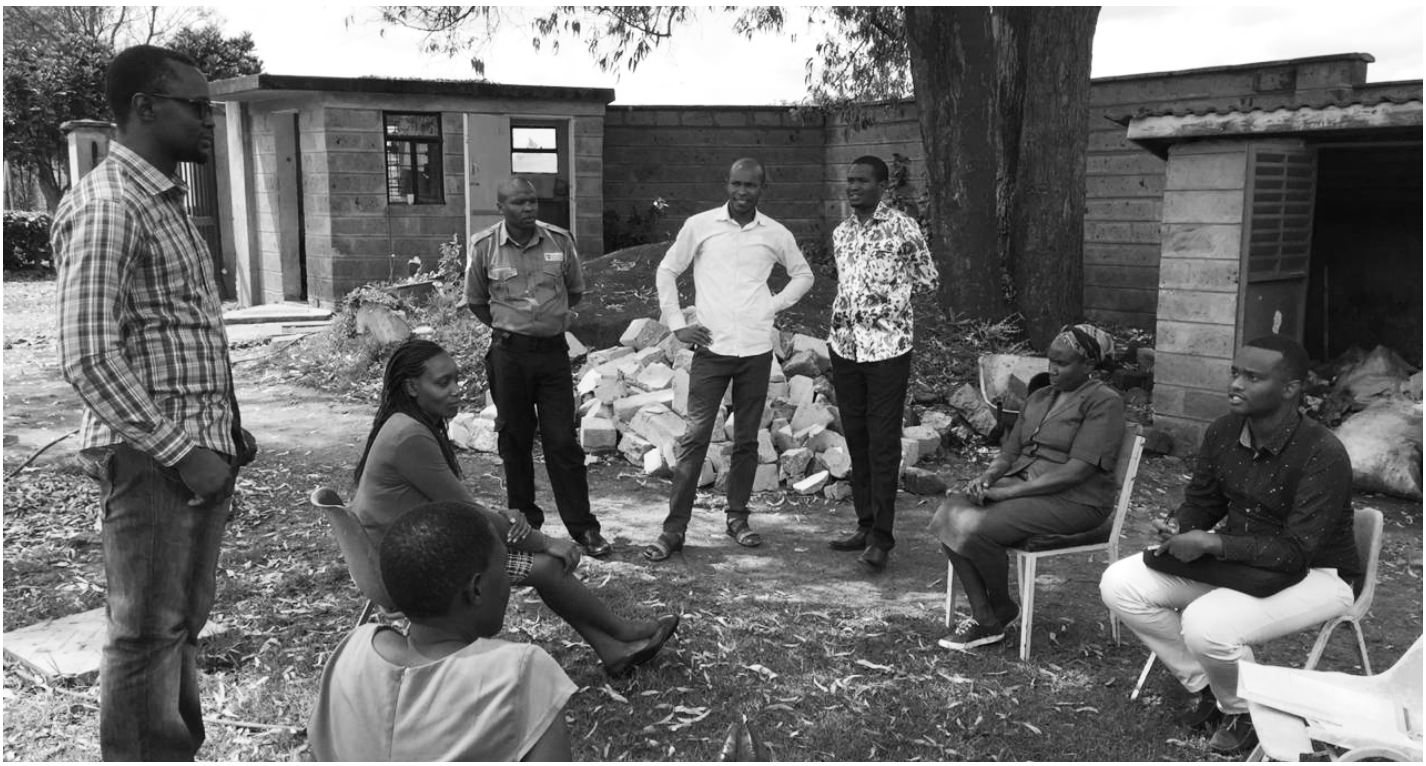
3 KENYA



3.1. INTRODUCTION

Sustainable consumption and production (SCP) is included in the agenda of the Sustainable Development Goals (SDGs). The rate of anthropogenic environmental destruction calls for cautious usage of natural resources. The current trend of natural resource utilization and depletion is something that everyone needs to be concerned about. It needs special attention from citizens around the globe in order to keep the earth's resources from being depleted. According to the Oslo Symposium (1994), sustainable consumption is the "the use of goods and services that respond to basic needs and bring a better quality of life , while minimizing the use of natural resources, toxic materials and emissions future" (International Institute for Sustainable Development – Reporting Services Division [IISD Reporting Services], n.d., sec. 1.2).

This study on SCP was conducted at the national level, with focus group discussions in Nairobi, Gatundu, and Machakos in Kenya. The study seeks to contribute to advancing the discourse and actions critical to the attainment of people-powered, sustainable consumption and production that would benefit the people and the planet. The study also seeks to gather suggestions and thoughts from ordinary Kenyans on what they aspire for their country, especially when it comes to the aspect of sustainability.

The study appraised current policies and actions including a review of the macroeconomic policy environment promoting or hindering sustainable consumption;

identified strengths, gaps, and challenges faced in the design and implementation of macroeconomic policies; drew lessons; and came up with policy and practical recommendations that built on local the knowledge and experiences of living sustainably.

The study engaged students, representatives from civil society organizations, members of social justice centers, workers, farmers, and hawkers through interviews, questionnaires, and focus group discussions to determine their understanding of SCP in the Kenyan context and determine if there exists a pattern of incoherent and/or unsustainable consumption in Kenya, or not.

3.2. POLICIES AND INITIATIVES RELATED TO SUSTAINABLE CONSUMPTION AND PRODUCTION IN KENYA

The legal foundation for pursuing SCP in Kenya can be traced to the country's constitution. Section 4(42) of the Kenyan Constitution (2010) stipulates that every person has a right to a clean environment. This includes the right to have the environment protected.

Kenya's shift towards sustainable consumption and production is guided by the country's Green Economy and Strategy and Implementation Plan (GESIP) 2016-2030. The GESIP "is geared towards enabling Kenya to attain a higher economic growth rate consistent with the Vision 2030, which firmly embeds the principles of sustainable development in the overall national growth strategy" (Government of Kenya, 2016, p. 3). The document aims to aid Kenya's transition to sustainability in the following thematic areas: sustainable infrastructure, building resilience, sustainable natural resource management, resource efficiency, and social inclusion and sustainable livelihoods. The implementation of the GESIP is guided by the principles of SCP, equity and social inclusion, resource efficiency, polluter-pays-principle, precautionary principle, and good governance.

The GESIP recognized that the Vision 2030's aim to uplift populations from poverty to middle class category will be good for prosperity but can increase the pressure on natural resources. Kenya will work towards evaluating the production of both services and goods to enable households and also the industry to shift towards sustainable consumption and production.

While the document does not further discuss in detail how to achieve SCP, some of the objectives under the thematic areas reflect this purpose. For example, under the sustainable infrastructure thematic area, the GESIP aims to improve the mass transport system to promote mobility as well as reduce vehicular emissions, enhance water and sanitation services, increase the share of renewable energy in the energy mix, and promote green buildings. Under the sustainable resource management thematic area, the GESIP aims to promote sustainable natural resources restoration and community participation in sustainable land management. The document also aims to apply market based instruments such as the Payment for Ecosystem Services (PES) in natural resources management, and also to promote sustainable extractive industries through adopting best practices such as the Extractive Industry Transparency Initiative (EITI), emphasizing local content, and ensuring value addition at the source of raw materials. Under the resource efficiency thematic area, the Kenyan government will focus on energy and water use efficiency, and manage waste as a resource through effective waste management practices and promoting voluntary resource efficient and cleaner production at the industry level. Under the social inclusion and sustainable livelihoods thematic area, the Kenyan government aims to create green jobs, promote green innovation and technology development, and reduce environmental risks through enforcement of environmental laws and standards, building capacity on environmental management, and promoting the use of indigenous knowledge systems.

Vision 2030 upon which the GESIP is anchored, is Kenya's long-term development blueprint which aims to transform the country to a "a newly-industrialising, middle income country providing a high quality of life to all its citizens in a clean and secure environment" (About Vision 2030, n.d., para. 1). Vision 2030 has economic, social, and political pillars which are anchored on macroeconomic stability; continuity in governance reforms; enhanced equity and wealth creation opportunities for the poor; infrastructure; energy; science, technology and innovation (STI); land reform; human resources development; security as well as public sector reforms (Government of Kenya, 2007). It identified six priority areas as key to Kenya's economic growth and development. These are tourism, agriculture and livestock, wholesale and retail, manufacturing, businesses process outsourcing and financial services. Sustainable consumption and production is not mentioned in the document. However, environmental protection through initiatives such as solid waste management, reduction of plastic bag usage, and mapping of land cover and use are included in the document. Even the Second Medium

Term Plan (MTP) 2013-2017 for the Vision 2030 does not mention SCP but includes statements on aligning the plan to the SDGs, as wells as initiatives on environmental protection. The Second MTP also mentions "the growth strategy will also benefit from exploitation of "green growth" opportunities such as the use of carbon credits (especially in reforested catchment towers), clean energy use in geothermal, hydro, wind and solar power, the promotion of natural products initiatives, promotion of resource efficiency and clean production systems" (p. 10).

During the 2017 High Level Political Forum, Kenya presented its Voluntary National Review (VNR) of its implementation of the SDGs. For SCP, the report mentions that the Kenya National Cleaner Production Center provided technical assistance to the industrial sector to adopt cleaner production technologies and built the capacity of industries in reducing raw material and energy wastage by improving the efficiency of their production systems and equipment. Additionally in the extractive industry, Kenya has approved the Mining Policy[1] (2016) and the Mining Act[2] which emphasize sustainable mining. The private sector on the other hand promoted SCP through initiatives under the SWITCH Africa Green Project. These include the use of biodegradable materials in production and responsible consumption of habit-forming goods such as alcohol. The Kenyan government also reported challenges to implementing SCP. These are: inadequate physical and social infrastructure in slums and informal settlements, rapid urbanization, rapid population growth, and proliferation of informal settlements.

Other policies related to SCP are listed and described below:

- **National Environmental Policy** - This policy aims at improving the quality of life for both the present and future generations among the Kenyan citizenry through the sustainable management and use of environmental and natural resources. Additionally, the policy aims to provide the framework for an integrated approach in planning and sustainable management of Kenya's environmental and natural resources, effectively coordinate and manage environmental and natural resources, and strengthen governance in the contesting of natural resources. According to the policy, every person has a right to a clean and healthy environment and places the responsibility of safeguarding and enhancing the environment on each citizen.

- **National Environmental Management Policy (NEMA)** - This is the framework on environmental management and conservation. The provisions of this Act are implemented through Environmental Impact Assessments (EIAs), Public Complaints Committee, National Environmental Tribunal, County Environmental Committee and the National Environmental Action Plan.

- **Environmental Management and Coordination Act (2009)** - This Act aims at providing an institutional framework for environmental management in Kenya. Additionally the Act establishes institutions whose responsibility is environmental monitoring.

- **Climate Change Act (2016)** - This Act has provisions for enhanced mainstreaming of responses to climate change. It further provides mechanisms and measures for the achievement of low carbon development including enhancing the capacity for Kenya as a country to adapt to the impacts of climate change.

- **Draft Agricultural Policy (2015)** - The objective of this policy is to harness resources for improved agricultural output in partnership with the private sector, which is expected to provide financing and insurance systems within the agricultural sector, dissemination in relation to research findings, as well as conservation of biodiversity of crops, livestock, and fish. Policies within the agricultural sector include government decisions that influence the stability of input and output prices, public investments that affect agricultural production, as well as costs and revenues including agricultural resources.

- **National Trade Policy (2017)** - The aspirations of this policy are poverty eradication and sustainable economic development through provision of opportunity for expanded markets, income generation and distribution, and increased employment and competitiveness. The policy recognizes the importance of trade in services as key in overall economic development. Additionally, the policy seeks to unleash Kenya's potential targeting domestic, regional, and global markets through multilateral, regional integration, and bilateral trade arrangements.

  The policy's general objective is to facilitate Kenya's transformation into a competitive export-led

1 http://www.mining.go.ke/images/PUBLISHED_MINING_POLICY_-_Parliament_final_.pdf
2 http://kenyalaw.org/kl/fileadmin/pdfdownloads/Acts/MiningAct_No12of2016.pdf

economy, enhance regional integration, and widen participation in both domestic and international trade. The specific objectives of the policy are:

- the pursuit of a more open, competitive and export-oriented policies that are compatible with the Country's National development objectives;
- the creation of an enabling environment for trade and investment to thrive; and,
- the promotion of Counties as centers of trade and investment.

The principles of the policy are as follows:

- National and County Government joint efforts in the development of both domestic and international trade;
- creating opportunities for equal participation in trade through entrepreneurial development, giving priority to the socially and economically disadvantaged groups in society;
- provision of an enabling environment with a view to developing and nurturing a private sector that is capable of competing at global level;
- pursuit of bilateral, regional, and multilateral trade initiatives;
- mitigating any adverse effects of practices by the country's trading partners by invoking and implementing trade defense measures and when appropriate, taking into account multilateral disciplines in the area;
- efficiency and prudent resource mobilization and utilization;
- coordinated approach to formulation and implementation of trade policies; and,
- strengthen capacity to engage in, and advocate for Kenya's interests in, and during trade negotiations through improved organizational coordination and leadership, including at preparatory stage.

The Kenya National Chamber of Commerce is a body that facilitates the bulk of trading activities in Kenya. The roles played by this body include entrepreneurial development to facilitate the growth of the Kenyan economy; creating an enabling environment for the business sector, employment, and wealth creation; protection of industrial interests; development of commercial and investment interests; as well as influencing policies and strategies to achieve the best economic climate for diverse stakeholders (International Centre for Trade and Sustainable Development [ICTSD], 2017).

- **Kenya Health Policy (2012)** - The aim of the policy is to contribute to economic development as stated in the Vision 2030 and at the same time, enable the realization of fundamental human rights as contained in the Kenyan Constitution. The policy focuses on ensuring equity, people centeredness, and participatory approach including efficiency, multispectral approach, and social accountability in the delivery of health care services. The policy aims to ensure equitable allocation of government resources to reduce disparities in health status, increase the cost effectiveness and cost efficiency of resource allocation and use, continue to manage population growth, enhance the regulatory role of government in all aspects of health care provision, and create an enabling environment for increased private sector and community innovation in health service.
- **Draft Education Policy (2012)** - The policy aims to establish a national system of education, fostering national unity and economic self-determination, accelerating industrial and technological development and life-long learning, and re-aligning education to the Constitution of Kenya.

3.3. ECONOMIC OVERVIEW OF KENYA

Kenya's gross domestic product (GDP) continuously increased from 35.72 billion USD in 2008, to 58.11 billion USD in 2017 (Table 3.1)

According to the Kenya National Bureau of Statistics (KNBS), Kenya's economy expanded by 5.7% in the first quarter of August compared to 4.8% in the same quarter in 2017 (Figure 3.1.). KNBS further noted that this growth could be attributed to improved weather conditions, a boost in business, and consumer confidence during the aftermath of the 2017 general elections. Sectors which recorded significant growth included recovery activities in agriculture, wholesale and retail trade, manufacturing, and real estate. Financial services

TABLE 3.1. KENYA GDP 2008-2017 (IN BILLION USD, CONSTANT 2010)

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Kenya	35.72	36.90	40.00	42.44	44.38	46.99	49.51	52.34	55.41	58.11

Source: World Bank, 2019

and insurance, transport and storage, construction, electricity supply, restaurants and accommodation, quarrying, and mining slowed down. However, robust performance was noted in transport and communications.

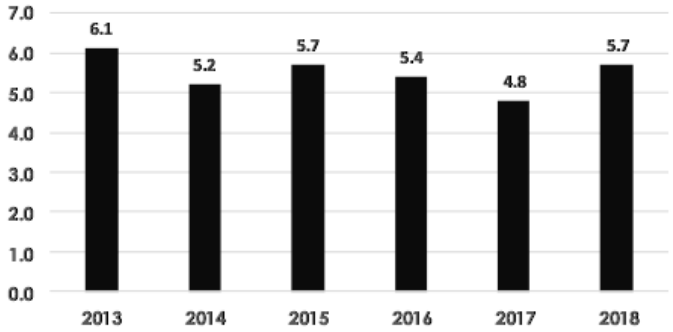
Data by the World Bank (Statista, 2018) reveal that the services sector continue to account for the largest share of the GDP (Figure 3.2) and the largest provider of employment from 2007 to 2017 (Figure 3.3), followed by agriculture, and industry.

Kenya's overall balance of trade constantly suffers from deficits. In 2013, the balance of trade was -10.5 billion USD, -12.4 billion USD in 2014, -10.1 billion USD in 2015, -7.9 billion USD in 2016, and -10.9 billion USD in 2017 (Focus Economics, n.d.). In 2016, Kenya's main exports are tea (23%), cut flowers (14%), and coffee (4.7%). These and other main vegetable product exports in 2016 amount to 2.56 billion USD, or slightly more than half of the total value of exports in 2016 (4.7 billion USD) (Observatory of Economic Complexity [OEC], n.d.). Meanwhile, leading imports in 2016 are machines (3.09 billion USD), textiles (1.89 billion USD), vegetable products and foodstuffs (combined value of 1.6 billion USD), mineral products including petroleum (1.49 billion USD), chemical products (1.47 billion USD), metals (1.41 billion USD), transportation equipment (1.39 billion USD), and plastics and rubbers (1.02 billion USD) (OEC, n.d.).

In a research by Boulanger, Dudu, Ferrari, Causape, and Proietti (2017), analysis on Kenya's trade data reveal that overall, the country's economy is dependent on imports to meet its needs, especially on manufactured and industrial goods, petroleum products, and minerals (Figure 3.4). In 2012, the cereal import dependency ratio of Kenya is 32.7% (FAO, 2018c).

According to the World Bank's data, Kenya's population in 2017 is 49.7 million of which 50.3% is female. Since the 1960s, the percentage of rural population has gone down from 92.6% to 73% in 2017. Correspondingly, the percentage of urban population in the same period increased from 7% to 27%. This contributed to the rise

FIGURE 3.1. FIRST QUARTER GDP GROWTH RATES



Source: KNBS, 2018

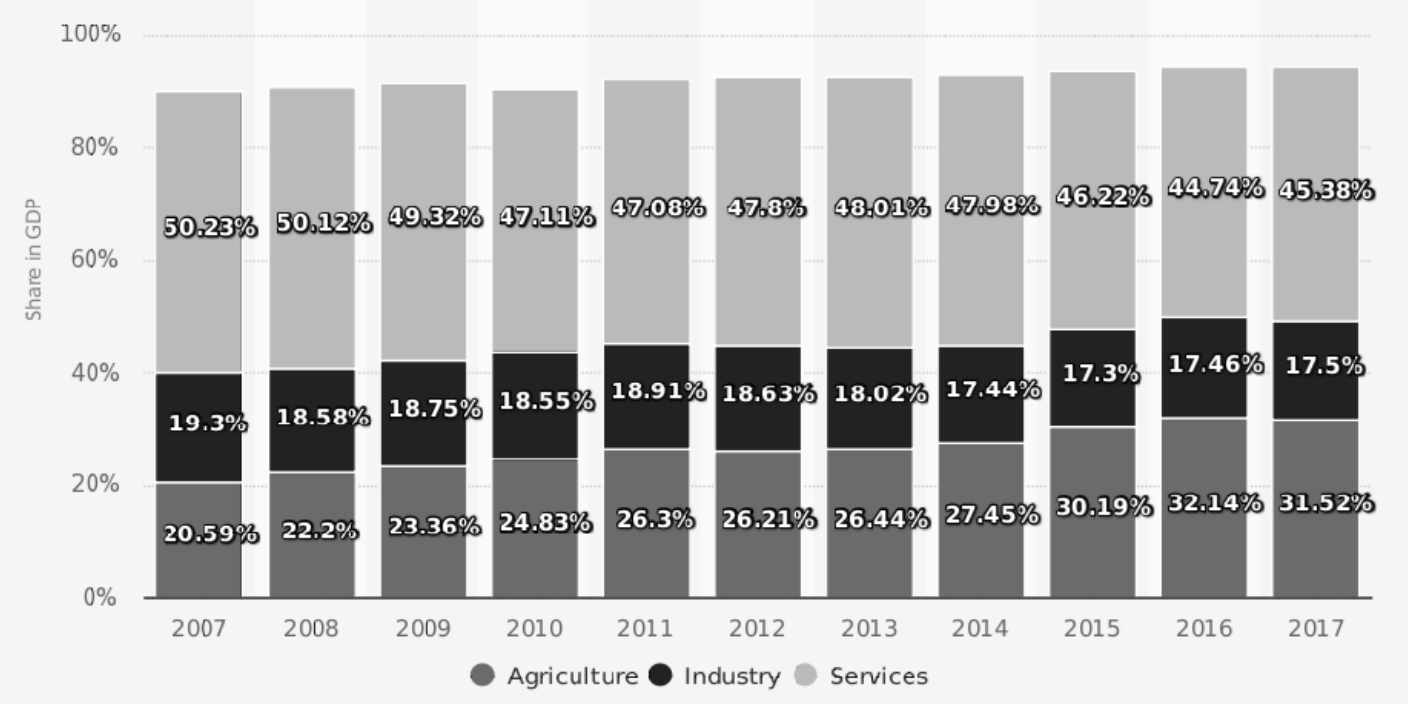
of slums in urban areas. In 2014, 56% of the urban population in Kenya lives in slums (World Bank, n.d.).

Estimates in 2017 reveal that Kenya's population is quite young, with 40.02% belonging to the age group 0-14 years, 19.15% belonging to the age group 15-24 years (Index Mundi, 2018.). The dependency ratio of young people is estimated at 71% in 2017 according to the World Bank's data.

Kenya's labor force is at 19.3 million in 2017 while the labor force participation rate of ages 15-64 years old is at 65.9% (World Bank, n.d.). Unemployment rate is at 11.5% of the total labor force in 2017. Rates for unemployment among the female labor force is higher at 15.3%, compared to the 7.9% of the male labor force. Youth unemployment (ages 15-24) is at 26.2% in 2017 (World Bank, n.d.).

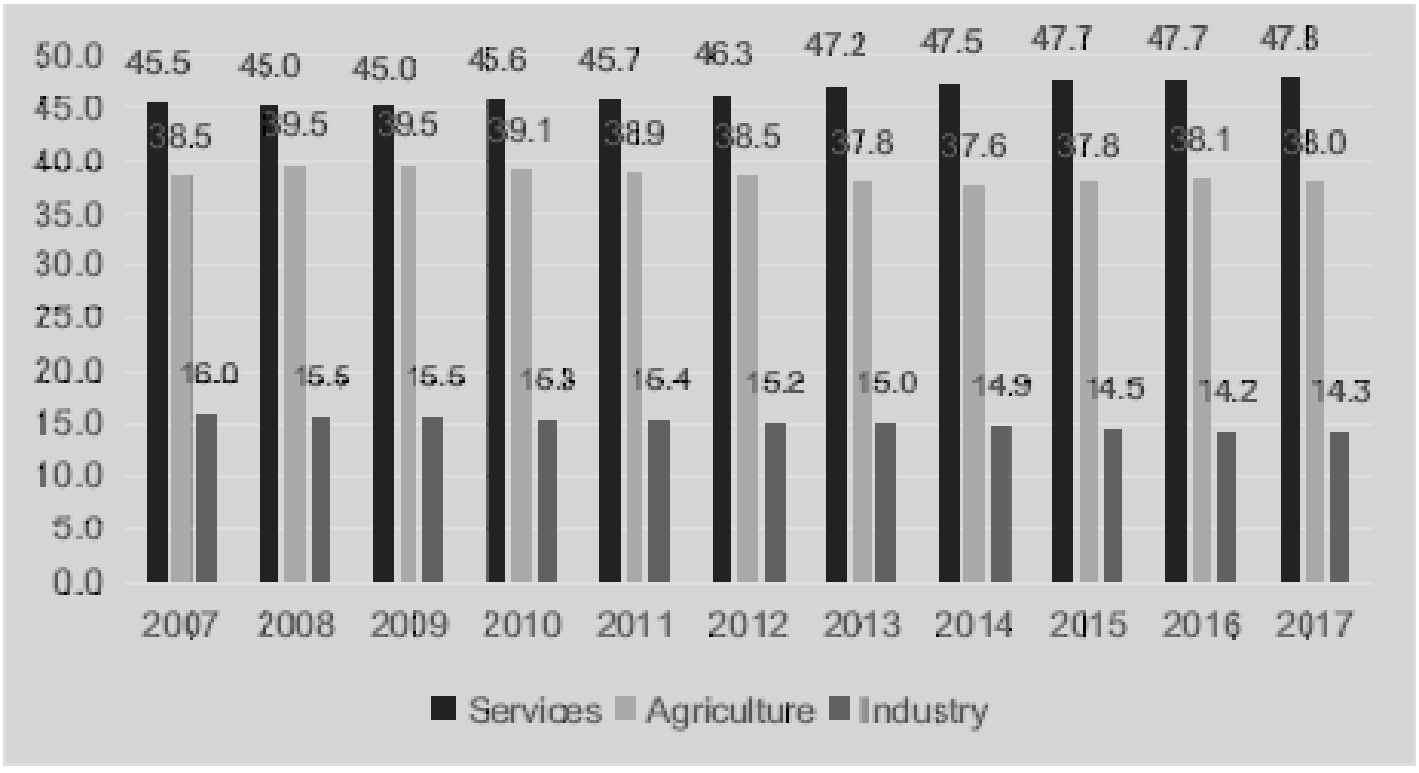
Various challenges have been identified within the labor and employment sector, including high population growth, lack of proper coordination and implementation of mechanisms to address unemployment due to weak policies, legal, and institutional frameworks. Further challenges include the lack of timely labor market information, unavailability of data on existing skills within the country, lack of linkages between training institutions and industry, low registration at the National Industrial Training Authority, outdated trade testing and, lack of up-to-date infrastructure.

FIGURE 3.2. SHARE OF ECONOMIC SECTORS IN THE GROSS DOMESTIC PRODUCT FROM 2007 TO 2017



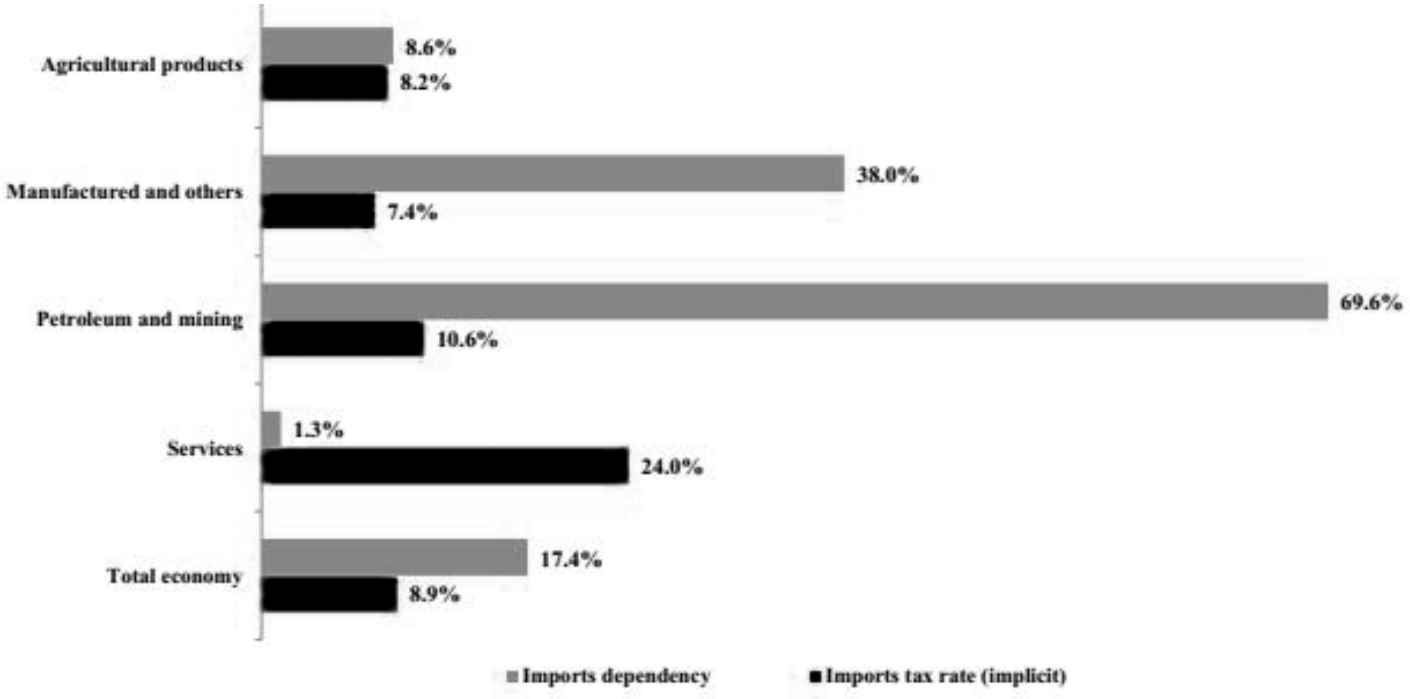
Source: Statista, 2018

FIGURE 3.3. SHARE OF ECONOMIC SECTORS IN EMPLOYMENT FROM 2007 TO 2017



Source: World Bank

FIGURE 3.4. IMPORTS DEPENDENCY



Source: Boulanger et al., 2017

In 2015, 36.8% of Kenya's population (47.24 million) lived with 1.9 USD/day or less (2011 PPP). Poverty at national poverty lines was at 36.1% in 2015. In the same year, 66.2% of the population lived with 3.2 USD/day or less (2011 PPP). Rural and urban poverty were recorded at 51% and 33%, respectively, in 2009 (Kenya National Bureau of Statistics [KNBS] & Society for International Development [SID], 2013).

Households with many members tend to be poorer compared to those with fewer members (KNBS & SID, 2013). More than half (58.5%) of Kenyan households have between four to seven or more members, while 41.5% have three or fewer household members.

Inequality in Kenya is among the highest in the continent. Analysis conducted by the World Bank reveal that more than half or 62% of the country's wealth is controlled only by 8,000 people, or less than .02%, out of the more than 40 million population (Beegle, Christiaensen, Dabalen, & Gaddis, 2016 as cited in Boulanger et al., 2017).

3.3.1. Inflation

From January 2018, inflation increased marginally and this was a result of rising energy costs. The marked increase was 5.7% from 4.5% in December 2017. Prices of key food items consumed by Kenyans went up in January 2018 compared to December 2017. These items include *sukumawiki*[3] (11.3%), cabbages (10.2%), Irish potatoes (3.1%), tomatoes (1.5%), and fresh milk (0.8%). This price increase was attributed to the prevailing weather conditions being dry and sunny.

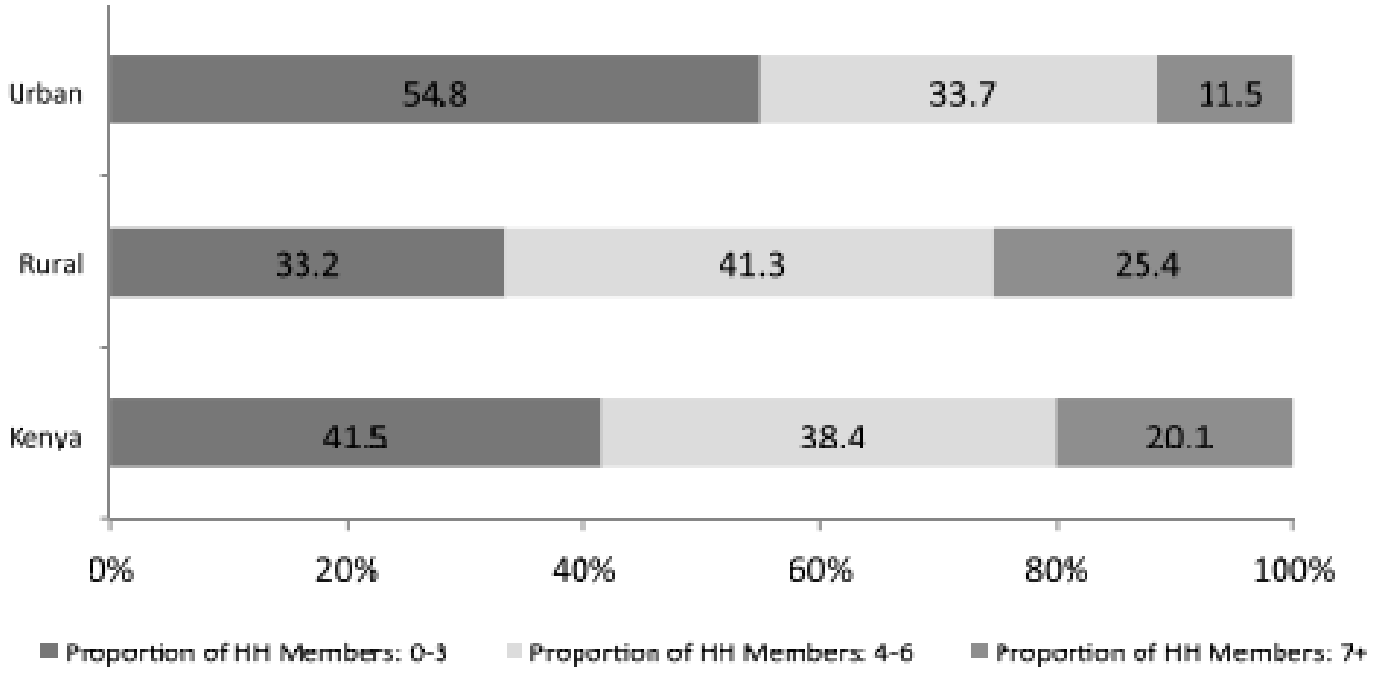
In the same period, the price of mangoes declined by 18.2% in January compared to December 2017. This was as a result of the bumper harvest of the previous year. Additionally, inflation in fuel prices increased by 6.1% from 5.4% in December 2017. This has been happening since July 2017 (Muchira, 2018). The increase in the price of fuel was as a result of the upward adjustment of pump prices and electricity charges (fuel, inflation, and forex costs) by the Energy Regulatory Commission.

3.3.2. Agriculture and Fisheries

Agriculture and fisheries grew by 5.2 % in the first quarter of 2018 compared to 1.0% in the similar period of 2017. This growth was attributed to favorable weather conditions during the 4th quarter of 2017 and the onset of long rains in early March 2018. However, the

3 Sukumawiki is a Swahili word for kales

FIGURE 3.5. PROPORTION OF HOUSEHOLD MEMBERS IN RURAL AND URBAN AREAS



Source: KNBS & SIDS, 2013, p.6

performance of fisheries was lower in the first quarter of 2018. Additionally, the volume of horticultural produce rose except for vegetables, which declined by 2.9%. On the other hand, the volume of cut flowers and fruits exported increased by 12.4% and 15.3% respectively, in the same period.

Kenya is an agricultural country. As part of the greater East Africa region, food security challenges in the region are related to small-scale subsistence production, high dependence on food aid, and low levels of agricultural production for specific commodities, capacity, and resource degradation (Onyango, Otung, Watundu, & Ulwodi, 2014).

According to Trading Economics, 48.55% of Kenya's land is allocated for agriculture. Arable land stands at 5.8 million hectares whereas cultivated lands are 27.45 million hectares. Additionally, land under cereal production stands at 2.81 million hectares whereas land under permanent crop land is 0.9312%. Land under irrigation in Kenya is 0.037% of the entire land in Kenya. Most of agriculture is rain-fed. Irrigated agricultural lands are only 10,100 hectares.

A World Food Program (WFP) research on food security in Kenya in 2016 revealed that although agriculture is the second biggest contributor to its GDP, it could not fulfill the population's demand for food. The highest malnutrition rates are mostly in East Pokot (5.8%), Mandera (5.2%), Samburu (3.8%), and West Pokot (3.2%) (Dos Santos & Nyamamu, 2017). These are the counties that have witnessed and experienced extreme deterioration in nutrition and food security.

Land is the most important natural resource that Kenya is endowed with. It is crucial for economic, social, political, and cultural development (Republic of Kenya, 2007). Additionally, land is the main source of livelihood as well as material wealth due to land being the deposit within which many natural resources in the country are found. Secure access, proper land planning, and equitable distribution remain very important elements for food and nutrition security, foreign investments, growth, and development of industries, source of employment for millions of Kenyan citizens, as well as a source of foreign exchange. However, according to Habitat for Humanity (n.d.), 68% of Kenyans do not have land documentation or tenure security.

On environmental pollution, agriculture in Kenya contributes to 86.94% percent of total emissions, wherein methane emissions linked to agriculture stands at 53.9%.

3.3.3. Manufacturing Sector

In the first quarter of 2018, the manufacturing sector in Kenya grew by 2.3% compared to 1.3% in the same quarter of 2017. Examples of areas recording this growth included processing of canned fruits, processing of wheat flour and maize meal, manufacture of bakery products, soft drinks as well sugar manufacture.

In the non-food sub sector, the growth was felt in areas such as manufacture of leather products and galvanized sheets. Despite this performance, a drop was observed in the manufacture of cement and assembly of motor vehicles. Furthermore, in the same period (first quarter of 2018), the construction sector grew by 7.8%. This shows that from January to March 2018, more buildings were under construction, which meant that more land was being utilized to accrue either rent, or for domestic purposes through housing provisions.

3.4. RESOURCE CONSUMPTION IN KENYA

3.4.1. Energy

Available data from the World Bank show that as of 2014, Kenya's consumption of renewable energy was at 75.5% of the country's total energy consumption while fossil fuel energy consumption for the same year was at 17.15%.

Estimates as of November 2014 indicate that the total installed electricity capacity is 2,294.82 MW, of which 827 MW (36%) came from fossil fuels, 821 MW (35.8%) from hydropower, 598 MW (26%) from geothermal, 26 MW (1.1%) from co-generation, and 25.5 MW (1.1%) from wind (Ministry of Energy and Petroleum [MoEP] & SE4All, 2016). In its website, Sustainable Energy for All (SE4All) reported that only 56% of the population has access to electricity in 2016. Access rates are lower in rural areas (39.3%) compared to urban areas (77.6%). SE4All for all also reported that for the same year, 80% of the Kenyan population (38.8 million out of 48.5 million) relied on biomass for cooking and heating.

However, the World Bank noted that in 2016, only 13% of the population has access to clean fuels and technologies for cooking. The Kenya Integrated Household Budget Survey (KIHBS) for 2015/16 reported that firewood, charcoal, kerosene, and liquefied petroleum gas (LPG) are the main sources of fuel of households. Usage of firewood is higher among rural households. Meanwhile urban households rely most on kerosene, LPG, and charcoal for cooking (Table 3.3.). For lighting, most Kenyan households rely on electricity connections from the main grid (Table 3.4). However, only 17% of the rural households have access to the main grid and rely more on paraffin tin lamps, solar energy, and paraffin lanterns for lighting. On the other hand, more than half of the urban households (73%) have access to the main grid.

The consumption of biomass fuels contributes to indoor pollution which causes 14,300 death per year according to estimates by the World Health Organization (WHO) in 2004 (World Health Organization [WHO], 2009). According to the Kenya Action Agenda on Sustainable Energy for All (MoEP & SE4All, 2016), the government intends to ensure that at least 57.7% percent of households country wide have access to improved cook-stoves by 2030.

3.4.2. Fresh Water

Latest available FAO estimates indicate that Kenya has around 30.7 billion cubic meters of renewable water resources (Food and Agriculture Organization [FAO], 2017). World Bank data as of 2010 show that annual freshwater withdrawal is at 3.22 billion cubic meters (increased from 2.32 billion cubic meters in 2003). In 2010, agriculture accounted for 59.26% of fresh water withdrawals, industries for 4%, and households for 37% (FAO, 2016).

As of 2015, 63% of the population has access to improved source of drinking water (FAO, 2016b). The percentage of rural population with access to improved source of drinking water increased from 49.9% in 2007 to 56.8% in 2015. On the other hand, the percentage of urban population with access to improved source of drinking water decreased from 84.6% in 2007, to 81.6% in 2015 (FAO, 2016b).

3.4.3. Food

In 2017, Kenya's top agricultural produce includes sugar cane, fresh cow's milk, maize, chicken eggs, potatoes, cassava, and fresh camel's milk (Table 3.5.). According to KNBS data in 2014, Kenyan's diet is mainly composed of cereals, milk, starchy roots, fruits, vegetables, and pulses (Table 3.6). Estimates made by Boulanger et al. (2017) show that cereal account for 43% of energy intake, while

TABLE 3.2. ENERGY STATISTICS

Series	2010	2012	2014	2016
Access to electricity (% of population)	19.2%	27.2%	36%	56%
Urban (% of urban population)	58.2%	67.1%	68.4%	77.6%
Rural (% of rural population)	6.7%	9.6%	12.6%	39.3%
Access to clean fuels and technologies for cooking (% of population)	8%	9.9%	11.8%	13.4%
Population, total	40.3 Million	42.5 Million	44.9 Million	48.5 Million
Renewable energy consumption (% of total final energy consumption)	76.3%	78.5%	75.5%	-
Renewable electricity output (% of total electricity output)	69.1%	74.8%	81.5%	85%
Electric power consumption (kWh per capita)	154.1	156.8	171.1	175.9

Source: Sustainable Energy for All, 2019

TABLE 3.3. PERCENTAGE DISTRIBUTION OF HOUSEHOLDS BY MAIN SOURCE OF COOKING FUEL 2015/16

County/ Residence	Firewood	Electricity	Liquified Petroleum Gas (LPG)	Biogas	Kerosene	Charcoal	Straw Shrubs Grass	Animal Dung	Agricultural Crop Residue	Other	Number of Households ('000)
National.....	54.6	1.0	13.4	0.2	14.0	14.6	0.0	0.1	0.2	1.6	11,415
Rural.....	84.3	0.3	2.5	0.2	2.3	8.9	0.0	0.0	0.3	0.9	6,442
Urban.....	16.1	2.0	27.6	0.2	29.0	21.9	0.0	0.1	0.0	2.4	4,972

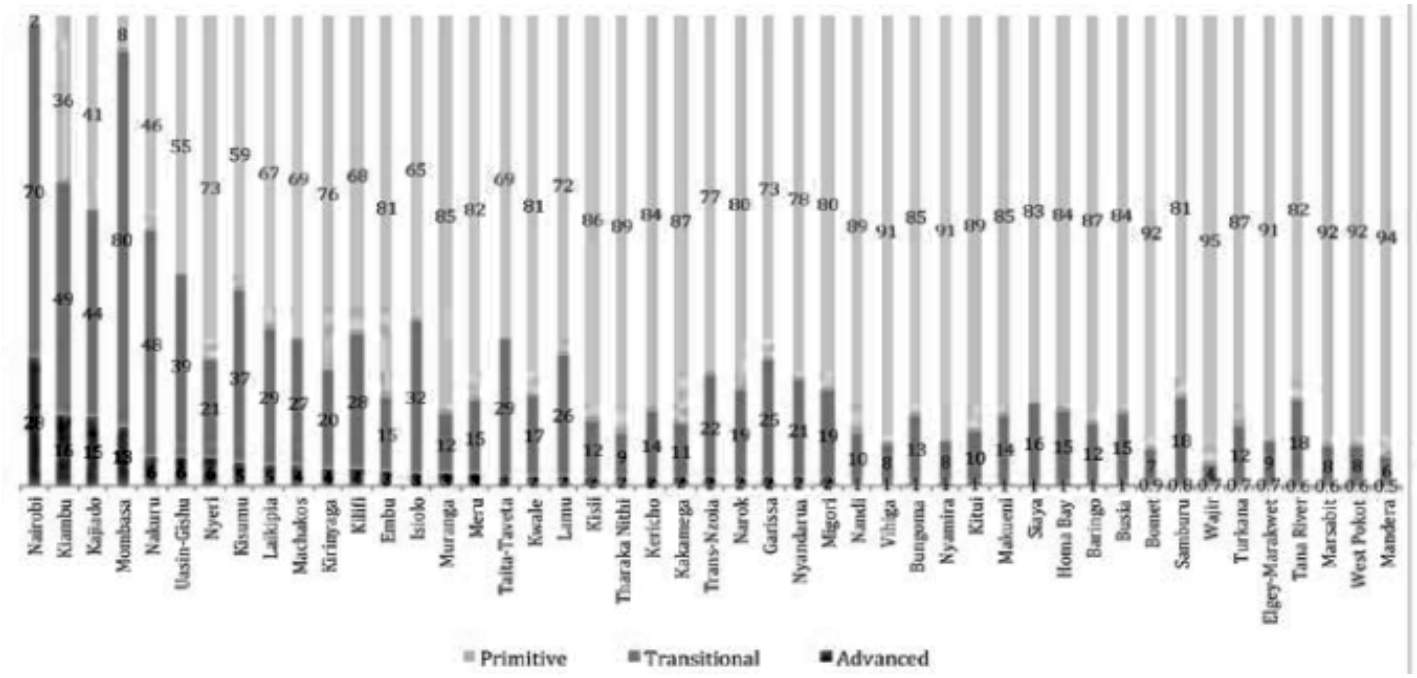
Source: KNBS, 2018, p.55

TABLE 3.4. PERCENTAGE DISTRIBUTION OF HOUSEHOLDS BY MAIN SOURCE OF LIGHTING FUEL 2015/16

Residence/ County	Electricity connection from Mains	Gene-rator	Solar Energy	Paraffin Lantern	ParaffinTin lamp	Paraffin Pressure Lamp	Fuel wood	Gas lamp	Battery Lamp/ Torch	Candles	Biogas	Other	Not Stated	Number of Households ('000)
National.....	41.4	0.5	14.1	15.7	19.3	0.2	1.6	0.0	4.8	0.9	0.0	1.1	0.3	11,415
Rural.....	17.1	0.5	21.7	20.6	27.7	0.3	2.7	0.0	7.3	0.3	0.0	1.4	0.2	6,442
Urban.....	73.0	0.4	4.2	9.2	8.5	0.1	0.2	0.0	1.5	1.7	0.0	0.6	0.5	4,972

Source: KNBS, 2018, p. 54

FIGURE 3.6. COOKING FUEL BY COUNTY



Source: KNBS & SID, 2013, p. 36

pulses account for 11.3%. The main sources of protein also come from cereals (36.4%) and pulses (24.2%) as compared to animal products (25.8%).

The proportion of pulses and oil, maize, and grains in the food consumption of rural households is larger compared to urban households. On the other hand, the proportion of meat, fruits, vegetables, and dairy in the food consumption of urban household is higher than rural households (Figure 3.8).

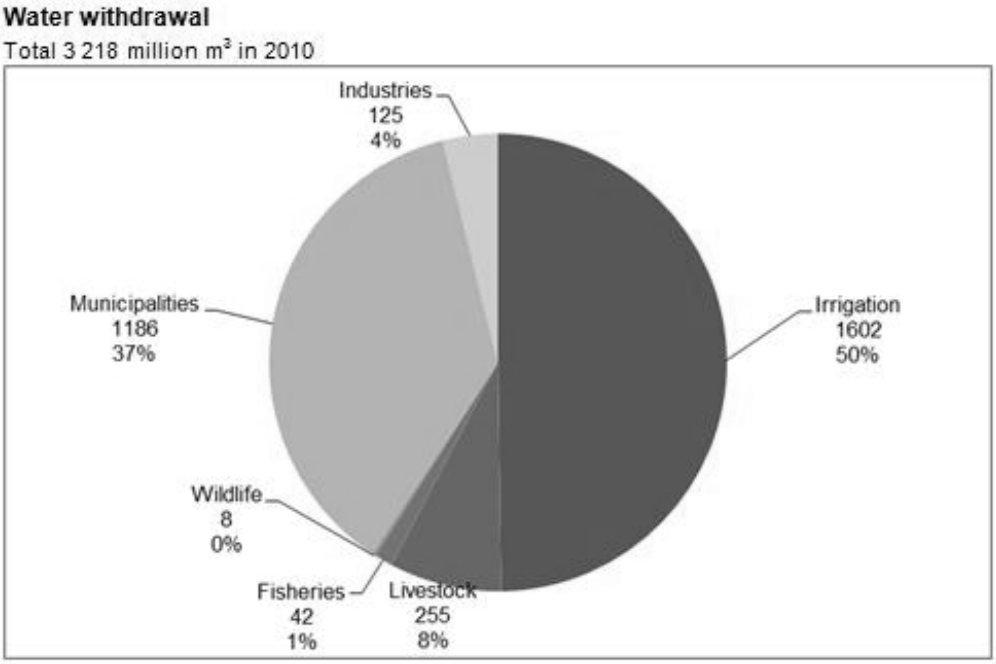
Disaggregation for income terciles reveal that the highest income tercile spend more (in monetary value) on food and consume more in terms of calories from carbohydrates, fat, and protein than the poorest and medium income terciles. However, the proportion of own-produced food in the total food consumption of the highest income tercile is significantly lower than the poorest and medium terciles (Table 3.7).

In 2018, the Global Hunger Index reported that Kenya ranked 77th out of 119 countries in terms of levels of hunger and undernutrition. Kenya's score of 23.2 indicates that the country suffers serious levels of hunger (von Grebmer et al., 2018). Although this is an improvement from its previous score of 36.5 in the year 2000, severe droughts, torrential rains, conflict and forced migration, and food price inflation being experienced by countries in East Africa threaten to reverse the improvements. FAO data reveals that more than a quarter of the population, or 31.8% of Kenyans experienced food insecurity in 2014-2016, and 35.6% in 2015-2017 (FAO, 2018c). The prevalence of undernourishment in 2014-2016 is 22.5% and 24.2% in 2015-2017. Although these values reflect an improvement from 33.2% in 2001-2003, the equivalent total number bounced back to more than 11 million people in 2015-2017 (see Table3.8).

3.4.4. Housing

According to Habitat for Humanity, "the housing deficit in Kenya stood at 2 million in 2012 and continues to grow at the rate of over 200,000 units a year" (Habitat for Humanity, n.d.). In the Nairobi metropolis alone, the deficit in 2017 is 1.9 million units (Cytonn, 2017). Meanwhile, 70.7% of the housing demand comes from the lower income segment of persons who can afford rent of KShs 18,112 per month on average. Prices of houses appreciated by 3.8% compared to 7.8% in 2016. Rental yield remained at 5.6 indicating a sustained demand for rental properties (Cytonn, 2017). In 2014, 56% of the urban population in Kenya lived in slums (World Bank, n.d.). Habitat for Humanity (n.d.) on the other hand notes 60% of the population living in informal settlements.

FIGURE 3.7. FRESH WATER WITHDRAWAL BY SECTOR



Source: FAO, 2016a

TABLE 3.5. TOP AGRICULTURAL PRODUCE 2017 (IN TONNES)

Crops	2017		Livestock	2017
Sugar cane	4,751,609		Milk, whole fresh cow	3,560,702
Maize	3,186,000		Eggs, hen, in shell (number)	1,587,787
Potatoes	1,519,870		Milk, whole fresh camel	876,224
Cassava	1,112,000		Meat, cattle	588,693
Beans, dry	846,000		Milk, whole fresh goat	256,000
Mangoes, mangosteens, guavas	772,680		Eggs, hen, in shell	79,389
Bananas	742,000		Meat, camel	72,784
Cabbages and other brassicas	690,622		Milk, whole fresh sheep	66,600
Sweet potatoes	667,274		Meat, goat	63,663
Vegetables, fresh	607,197		Meat, chicken	35,090
Tea	439,857		Meat, sheep	33,431
Tomatoes	283,000		Meat, game	31,959
Pineapples	204,850		Honey, natural	18,090
Watermelons	201,720		Meat, pig	12,953
Pigeon peas	201,289		Meat, rabbit	2,799
			Beeswax	2,503

Source: FAO, 2018a; FAO, 2018b

TABLE 3.6. FOOD BALANCE SHEET 2014

Products	DOMESTIC SUPPLY (1000 MT)					DOMESTIC UTILIZATION (1000 MT)						PER CAPUT SUPPLY			
												PER YEAR FOOD	PER DAY		
	Prod.	Imports	Stock changes	Exports	Total D.S.	Feed	Seed	Processed	Waste	Oth.Util.	Food		Calories	Proteins	Fats
	1000 Metric Tons											Kg	units	grams	grams
Grand total													2257	66	44
Vegetable prod.													2000	49	28
Animal prod.													256	17	16
Cereals (excl. beer)	4394	2387	545	85	7240	113	80	355	618	0	5055	118	977	24	6
Starchy roots	3892	1	0	5	3888	0	104	2	311	0	3471	80.8	201	2	0
Sugar crops	6478	0	0	0	6478	0	0	4150	0	0	2328	54.2	42	0	0
Sugar & Sweeteners	572	179	-20	19	712	0	0	34	0	0	678	15.8	153	0	0
Pulses	874	7	433	1	1313	0	10	0	134	0	1168	27.2	255	16	1
Treenuts	33	0	0	6	27	0	0	0	1	0	23	0.5	4	0	0
Oilcrops	179	9	0	16	172	10	2	82	8	0	71	1.6	23	1	2
Vegetable oils	35	536	0	80	491	0	0	0	0	258	232	5.4	130	0	15
Vegetables	2214	115	0	228	2100	0	0	0	223	0	1948	45.3	27	1	0
Fruits	3530	57	0	252	3335	0	0	6	370	0	3034	70.6	113	1	1
Stimulants	495	5	5	500	4	0	0	0	0	0	10	0.2	0	0	0
Spices	256	3	0	3	256	0	0	0	0	0	256	6	55	2	3
Alcoholic beverages	553	7	0	2	558	0	0	0	0	0	557	13	19	0	0
Meat	435	1	0	8	428	0	0	0	0	0	530	12.3	64	5	5
Offals	76	0	0	0	76	0	0	0	0	0	76	1.8	5	1	0
Animal fats	17	4	0	1	20	0	0	13	0	3	4	0.1	2	0	0
Milk (excl butter)	4078	26	0	11	4093	17	0	347	327	0	4218	98.2	173	9	9
Eggs	71	0	0	0	71	0	5	0	11	0	56	1.3	4	0	0
Fish & sea food	175	37	0	23	189	0	0	0	0	0	192	4.5	8	1	0
Miscellaneous	18	7	2	14	13	0	0	7	0	3	3	0	1	0	0

Data source: Extracted by Kenya National Bureau of Statistics, 2015

Source: Boulanger et al., 2017, p. 69

The KIHBS for 2015/16 reported that at the national level, more than half of households own their house, while 35.4% pays rent. Home ownership is higher in rural areas than urban areas (Table 3.9).

At the national level, the main materials used for walls are bamboo with mud/cow dung (32%), followed by stone with lime/cement (16.7%), and cement finish (15.8%) (Table 3.10). For roofing, majority of the households in Kenya use corrugated iron sheets (Table 3.11).

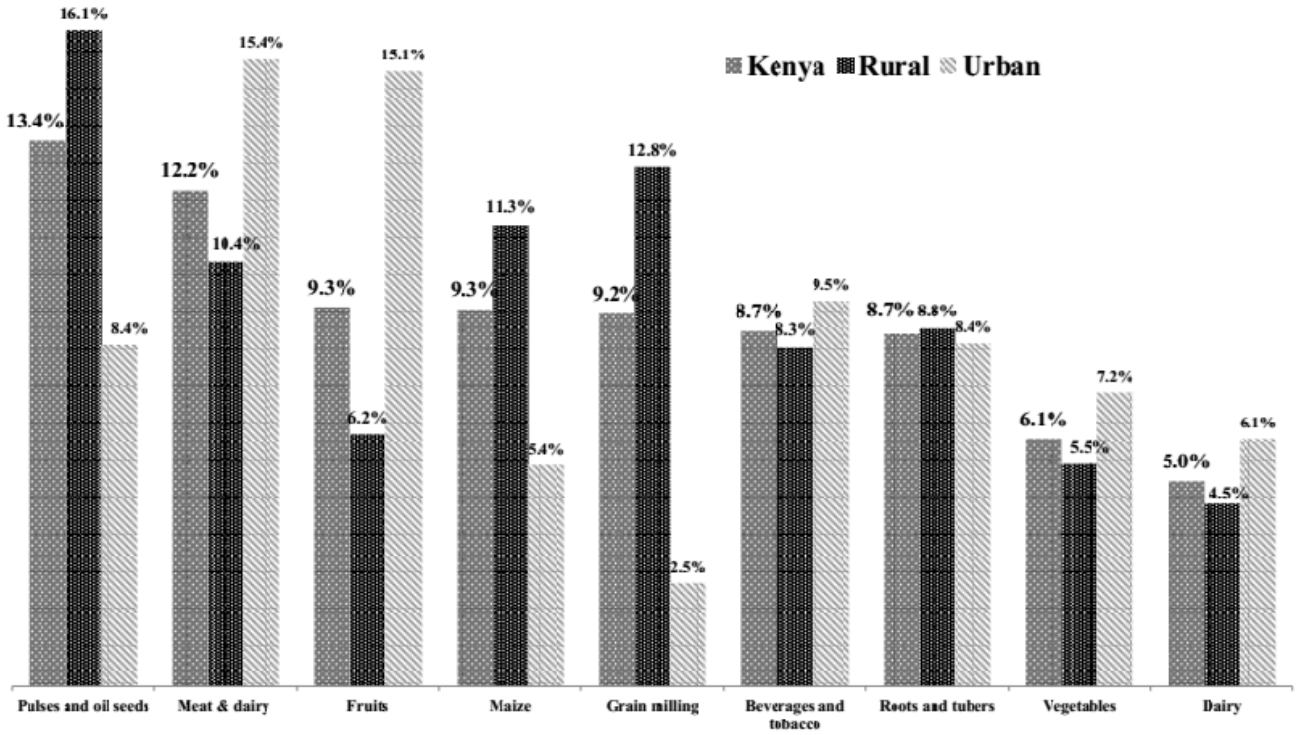
3.5. HOUSEHOLD CONSUMPTION

Income affects what a consumer buys. The higher the income, the broader the consumers' purchasing power and the likelihood of purchasing more expensive goods and services. As noted by Diaz-Olvera, Plat, and Pochet (2008), income or the lack of it, also influences a household's mode of transportation. Thus, the less the income a household has, the less likely they will own a car, and therefore, will likely use other modes of transportation. The income of an individual or household therefore influences how they buy.

As noted by Musyoka, Kavoi, and Omiti (2014), rural and urban households in Kenya have different patterns of consumption. Urban households source more than 96% of their food from markets, compared to 75% for rural households.

The KIHBS 2015/16 reported that at national level, food occupies 53% of household expenditures (Mwangi, 2018). In rural areas, food comprises 64.7% of household expenditures. Meanwhile, food expenditures in peri-urban

FIGURE 3.8. PRINCIPAL FOOD COMMODITIES CONSUMED AS SHARE OF FOOD CONSUMPTION 2014



Source: Boulanger et al., 2017, p. 18

TABLE 3.7. FOOD CONSUMPTION BY INCOME TERCILES 2014

	Unit	Income Terciles		
		Poorest	Medium	Highest
Total consumption in monetary value	LCU/person/day	28.83	67.40	236.73
Food consumption in monetary value	LCU/person/day	21.11	39.65	81.02
Dietary energy consumption	kcal/capita/day	1,251.67	1,891.28	2,691.35
Protein consumption	g/capita/day	35.12	54.71	81.47
Carbohydrates consumption	g/capita/day	215.74	320.11	433.53
Fat consumption	g/capita/day	26.96	42.92	68.61
Share of food consumption in total income (Engel ratio)	%	75.39	59.51	43.18
Share of dietary energy consumption from protein	%	11.23	11.56	12.11
Share of dietary energy consumption from fat	%	20.63	21.51	23.69
Share of Dietary Energy Consumption from total carbohydrates and alcohol	%	68.15	66.93	64.20
Share of purchased food in total food consumption (in dietary energy)	%	56.43	59.82	61.34
Share of own produced food in total food consumption (in dietary energy)	%	15.03	16.37	9.03
Share of food from other sources in total food consumption (in dietary energy)	%	27.53	21.65	23.88
Share of food consumed away from home in total food consumption (in dietary energy)	%	1.01	2.16	5.75

**LCU=Local currency unit*
Source: FAO, 2014

TABLE 3.8. NUMBER OF UNDERNOURISHED IN KENYA 2001-2017

	2001-2003	2002-2004	2003-2005	2004-2006	2005-2007	2006-2008	2007-2009	2008-2010	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017
Number of people undernourished (million) (3-year average)	11	11.3	11	10.2	9.8	9.7	9.9	9.9	9.7	9.6	9.4	9.3	9.6	10.6	11.7
Prevalence of undernourishment (3-year average) (%)	33.2	33	31.3	28.2	26.4	25.6	25.4	24.5	23.5	22.5	21.6	20.8	20.8	22.5	24.2

Source: FAO, 2018c

TABLE 3.9. PERCENTAGE DISTRIBUTION OF HOUSEHOLDS BY HOUSING TENURE 2015/16

Residence/ County	Owner Occupier	Pays Rent/ Lease	Pays no rent		Not Stated	Number of Households ('000)
			Has consent of Owner	Squatting		
National.....	59.5	35.4	4.8	0.2	0.2	11,415
Rural.....	85.2	9.7	4.8	0.2	0.1	6,442
Urban.....	26.1	68.6	4.8	0.1	0.4	4,972

Source: KNBS, 2018, p. 32

TABLE 3.10. PERCENTAGE DISTRIBUTION OF HOUSEHOLDS BY MAIN WALL MATERIAL OF THE MAIN DWELLING 2015/16

Residence/ County	Stone with lime/ cement	Bricks	Cement blocks	Cement finish	Wood/ Planks/ Shingles	[a]Adobe (Covered and uncovered)	Corrugated iron sheets	[b]Bamboo with mud, cow dung	Stone with mud	[c]Cane, palm trunks, grass reeds	[d]Plywood, cardboard, reused wood and others not specified	Not Stated	Number of Households ('000)
National.....	16.7	8.1	1.6	15.8	8.6	2.2	8.3	32.0	0.9	3.2	2.4	0.3	11,415
Rural.....	8.1	8.0	1.1	6.2	12.9	3.0	3.9	47.3	1.1	5.0	3.2	0.2	6,442
Urban.....	27.8	8.1	2.2	28.3	3.1	1.2	14.0	12.0	0.7	0.9	1.4	0.4	4,972

Source: KNBS, 2018, p. 38

TABLE 3.11. PERCENTAGE DISTRIBUTION OF HOUSEHOLDS BY MAIN ROOFING MATERIAL OF MAIN DWELLING 2015/16

Residence/ County	Grass/ *Makuti*	Cow Dung / Mud	Corrugated Iron Sheets	Tin Cans	Asbestos Sheet	Concrete	Tiles	Other	Not Stated	Number of Households('000)
National.....	8.5	0.9	81.7	0.1	0.8	6.7	0.5	0.7	0.3	11,415
Rural.....	13.6	1.3	83.2	0.1	0.3	0.2	0.1	0.8	0.2	6,442
Urban.....	1.8	0.2	79.6	0.0	1.3	15.1	1.0	0.5	0.4	4,972

Source: KNBS, 2018, p. 39

households and core urban households are 58% and 36.6% respectively (Figure 3.9).

World Bank data in 2010 report that at national level, food and beverages (55.4%) has the highest share in household consumption, followed by transport (8.24%), clothing and footwear (8.21%), and housing (6.23%). Disaggregation by consumption segment reveals that food occupies more than half (67.31%) of the household consumption in the lowest segment and almost half (48.58%) in the low segment. Meanwhile, food comprises less than half of the household consumption in the middle and higher segments. Households in the higher consumption segment allot a significantly higher proportion of their expenditures on health as compared to those belonging to the lowest, low, and middle segments (Table 3.12).

3.6. ENVIRONMENTAL PRESSURES

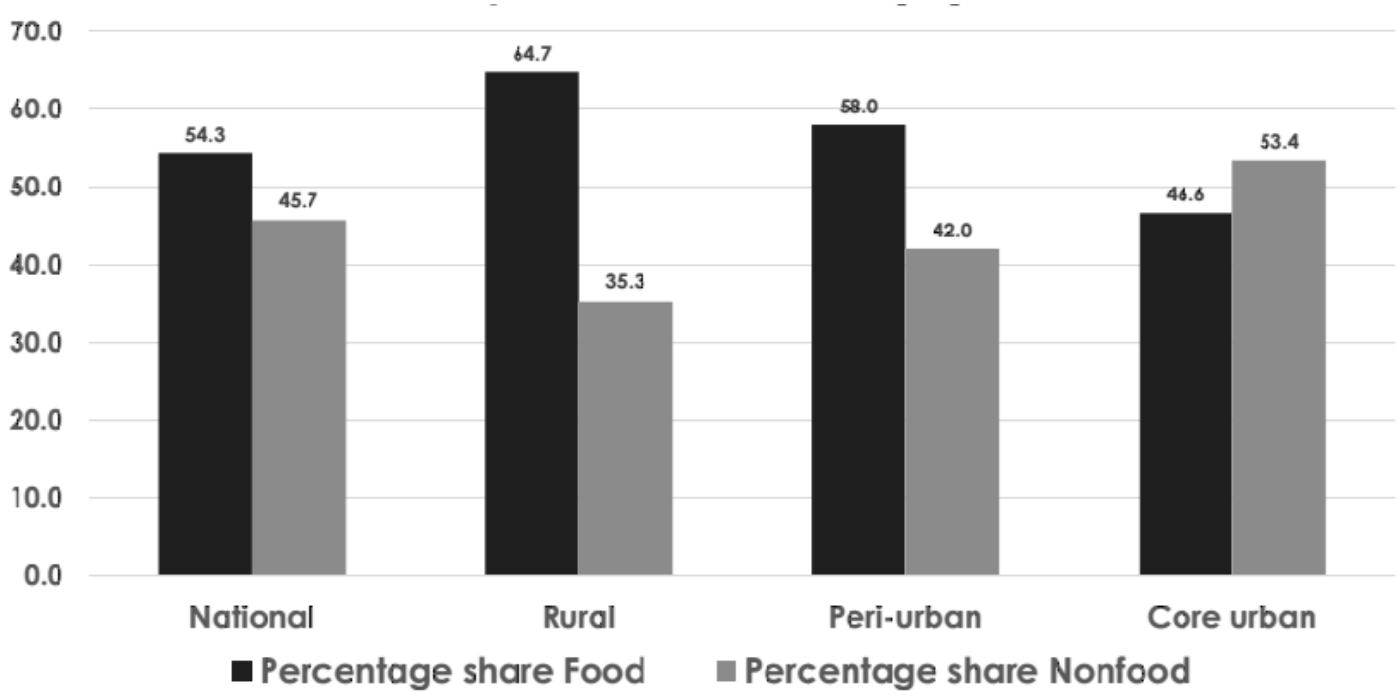
Kenya is susceptible to natural disasters and this is due to the negative impacts of climate change. Drought is the single most disastrous natural hazard for Kenya leading to damages. Between 2008 and 2011, Kenya lost around 11.3 billion USD because of droughts. The livestock sector was badly hit, accounting for 72% of total damages and losses. Environmental problems in Kenya include biodiversity loss and pollution, waste disposal challenges and deforestation. Other challenges include salination which affects 50% of the soils in Kenya. Water bodies such as lakes are also affected by siltation and overfishing.

Kenya's overall rank in the Environmental Performance Index of 2018 is 130 out of 180 countries. The country ranks 145th in terms of environmental health, 130th for clean household fuels, 112th for air quality, and 178th for water and sanitation. The country's scores for air pollution worsened from its baselines. From the baseline score of 45.09 (100=perfect score), the 2018 score for overall air pollution is 29.04, sliding Kenya down to rank 151 from the baseline of 95.

According to the 2011 Poverty and Environment Indicators report of Kenya:

> *"The environment is under immense pressure from an increasing population and natural resource alterations associated with the development process. Kenya's important environmental components include forest, freshwater, wetlands, coastal and marine, mountains, arid and semi-arid lands (ASALs), grasslands and agricultural land.*
>
> *Forest ecosystems are being converted to other uses, which has adverse environmental effects on long-term sustainability of forest ecosystems and endangers the country's water supplies since the five major water*

FIGURE 3.9. SHARE OF FOOD AND NON-FOOD IN HOUSEHOLD EXPENDITURES 2015/16



Source: Mwangi, 2018, p. 38

TABLE 3.12. SHARE OF EACH SECTOR IN HOUSEHOLD TOTAL CONSUMPTION, BY CONSUMPTION SEGMENT

Sector, Category or Product	Consumption Segment				
	All	Lowest	Low	Middle	Higher
Food and Beverages	55.42%	67.31%	48.58%	31.49%	25.95%
Clothing and Footwear	8.21%	7.83%	9.02%	8.69%	5.43%
Housing	6.23%	2.62%	9.35%	12.25%	10.63%
Energy	4.22%	4.12%	4.51%	4.20%	3.20%
Transport	8.24%	3.81%	9.04%	20.81%	22.33%
Water Utility	0.94%	0.89%	0.96%	0.95%	1.44%
Health	2.87%	2.22%	2.75%	2.61%	12.67%
Personal Care	1.90%	1.67%	2.32%	1.96%	1.31%
ICT	2.93%	1.40%	4.12%	5.87%	4.89%
Financial Services	0.17%	0.06%	0.14%	0.62%	0.49%
Others	8.87%	8.07%	9.21%	10.55%	11.67%

Consumption Segments
Lowest—below $2.97 per capita a day
Low—between $2.97 and $8.44 per capita a day
Middle—between $8.44 and $23.03 per capita a day
Higher—above $23.03 per capita a day
SourceL World Bank, 2010

> *towers are located in forested lands. Many freshwater ecosystems have been degraded by impoundment, excessive abstraction, land use changes and pollution.*
>
> *Wetlands are also being drained for agricultural use at an alarming rate. Other threats to wetlands are degradation of catchments areas, pollution and unsustainable harvesting practices.*
>
> *Coastal and marine ecosystems are under increasing threat from urbanization, poor waste management, shoreline modification, pollution (from land-based and other sources), overexploitation of marine living resources, oil and gas exploration, use of destructive fishing methods, invasive alien species, and effects of climate change"*
>
> -Ministry of State for Planning, National Development, and Vision 2030, 2011, p. xiv

Kenya, which has an estimated forest cover of only 7.4%, is facing fast deforestation at the rate of 5,000 hectares per year. This can lead to cutting down water availability to around 62 million cubic meters and an economic loss of more than 19 million USD (Ministry of Environment and Forestry [MEF], 2018).

In 2018, a taskforce was created by the Kenyan Government to look into the forest resources management and logging activities in Kenya. At the end of the investigation, the task force reported that "illegal squatters, the changing lifestyle of forest dwelling communities, the abuse of the Plantation Establishment and Livelihood Improvement Scheme (PELIS), unclear forest zonation, the introduction of irregular settlements and large-scale public infrastructure developments" (MEF, 2018, p. 6) contributed to the destruction of forests, along with illegal logging which usually targets cedar trees. The report also called for the accountability of the Board and Management of the Kenya Forest Service "which has been unable to stem and in some instances have directly participated in, abated, and systemized rampant corruption and abuse of office, [by] so doing they have overseen wanton destruction of our forests, have systematically executed plunder and pillaging of [Kenya's] water towers..." (MEF, 2018, p. 6).

According to the 2016 Land Degradation Assessment, 61% of Kenya's total land area is at risk of high land degradation while 27.2% is at the risk of very high degradation (Ministry of Environment and Natural Resources [MENR], 2016). Although land degradation is caused by both natural and human actions, the anthropogenic causes pose the greater threat. These include "unsustainable land management practices, over-cultivation, overgrazing, poor land husbandry, and excessive forest conversion," (MENR, 2016, p. iii-iv).

The levels of pollution continue to increase and adversely affect the poor and the marginalized. For example the Dandora Dumpsite, the largest dumpsite in Kenya, is still located in Nairobi's Eastlands where majority of the poor live despite decades of calls for its relocation. Mass construction on riparian areas continues unabated due to increase in real estate investments.

Solid waste management is becoming a problem due to rapid urbanization. Kenya produces around 4 million tons of solid waste per year, which is expected to double by year 2030 (Haregu, Ziraba, & Mberu, 2016). Nairobi alone produces 3,000 tons of solid waste per day, only about half of which is collected. Although Kenya has a National Solid Waste Management Strategy, the lack of institutional capacity, i.e. infrastructural, financial and human resources, is preventing its effective implementation.

Among the initiatives by the national government to lessen solid wastes is to ban the use, manufacture, and importation of all plastic bags used for commercial and household packaging. The ban was made effective six months after the release of the Gazette Notice No. 2334 on 28, February 2017 by the Cabinet Secretary of the Ministry of Environment and Natural Resources (National Environment and Management Authority [NEMA], 2017). Violators can be fined not less than 2 million Ksh. and not more than 4 million Ksh., or can be imprisoned for a term of not less than one year but not more than four years, or can be both fined and imprisoned at the same time. However, smuggling of plastic bags into Kenya from other countries, job losses in the manufacturing of plastics, compliance by poor communities, and alternatives are some of the challenges that need to be addressed in the implementation of the ban.

3.7. RESULTS FROM FOCUS GROUP DISCUSSIONS

3.7.1. Focus Group Discussion Participants

The researchers conducted focus group discussions with participants from the basic sectors (workers, students, farmers, hawkers, and professionals), social justice centers, and civil society organizations (CSOs) in order to obtain preliminary data on these groups' understanding of sustainable consumption and production.

The CSOs and social justice movements that participated in the discussions were: Kiambiu Social Justice Centre, Ukweli Party, Gatundu North Organic Farmers Association, and Muvuti Organic Farmers Association.

Individual participants in the FGDs were chosen from among communities and groups connected with the local civil society organizations and social justice centers, and random individuals from the Tangaza University College and University of Nairobi.

Table 3.13 describes the profile of the discussion participants.

3.7.2. Results from Focus Group Discussions

3.7.2.1. Understanding of Sustainable Consumption and Production

The FGD participants pointed out the need to conserve resources for future generations. They link sustainability with the future generations' ability to produce and consume the same resources, and as being sensitive to over-exploitation of natural resources.

Some view production and consumption as linked with the availability of enough goods for the population to use, and the purchasing power of the people, which is related to income levels. Students, workers, CSOs posit that to attain SCP, production of goods must be "limited" or properly managed with policies in order to prevent the over-exploitation of natural resources.

Overall, everyone agreed that production must be balanced with consumption to attain sustainability.

3.7.2.2. Factors affecting Consumption and Production Patterns

FGD participants across different sectors identified the following factors that affect consumption and production patterns: needs of the population, affordability and purchasing power of the people, trends (such as fashion), technological advancement, availability of goods, and lifestyles. The last factor, lifestyle, is particularly common among students. They incur debts to buy goods that they cannot afford to follow latest trends and lifestyles beyond their means.

TABLE 3.13. PROFILE OF FGD PARTICIPANTS

Category	Gender	Age Range (No.)	Monthly Income (Ksh)	Monthly Expenditure
Workers	Male- 6 Female- 3 Undisclosed-0	18-27- 4 28-37 - 4 38-47- 1 48-57 - 0 Above 57- 0	< 5,000- 0 5,000-14,999- 7 15,000-24,999- 2 25,000-34,999-0 35,000-44,999-0 45,999-54,999-0 55,000-64,999-0 65,000 and > -0	< 5,000- 0 5,000-14,999- 7 15,000-24,999-2 25,000-34,999-0 35,000-44,999-0 45,999-54,999-0 55,000-64,999-0 65,000 and > -0
Students	Male- 5 Female- 5 Undisclosed- 0	18-27- 7 28-37 - 2 38-47- 1 48-57 - 0 Above 57- 0	< 5,000- 8 5,000-14,999- 1 15,000-24,999-1 25,000-34,999- 0 35,000-44,999-0 45,999-54,999-0 55,000-64,999-0 65,000 and > -0	< 5,000-0 5,000-14,999- 9 15,000-24,999-1 25,000-34,999-0 35,000-44,999-0 45,999-54,999-0 55,000-64,999-0 65,000 and > -0
Hawkers	Male- 6 Female- 3 Undisclosed- 2	18-27- 3 28-37 - 1 38-47- 0 48-57 - 0 Above 57-0 Undisclosed - 7	< 5,000- 0 5,000-14,999- 10 15,000-24,999- 1 25,000-34,999- 0 35,000-44,999-0 45,999-54,999-0 55,000-64,999-0 65,000 and > -0	< 5,000- 0 5,000-14,999- 10 15,000-24,999- 1 25,000-34,999- 0 35,000-44,999-0 45,999-54,999-0 55,000-64,999-0 65,000 and > -0
Farmers	Male- 6 Female- 4 Undisclosed- 0	18-27- 0 28-37- 0 38-47-0 48-57 - 8 Above 57- 2	< 5,000- 0 5,000-14,999-0 15,000-24,999-0 25,000-34,999-0 35,000-44,999-0 45,999-54,999-0 55,000-64,999-0 65,000 and > -0 unrecorded - 10	< 5,000- 0 5,000-14,999-0 15,000-24,999-0 25,000-34,999-0 35,000-44,999-0 45,999-54,999-0 55,000-64,999-0 65,000 and > -0 unrecorded -10
Professionals (academe)	Male- 2 Female- 0 Undisclosed- 0	18-27- 0 28-37- 0 38-47-0 48-57 - 1 Above 57- 1	< 5,000- 0 5,000-14,999-0 15,000-24,999-0 25,000-34,999-0 35,000-44,999-0 45,999-54,999-0 55,000-64,999-0 65,000 and > - 2	< 5,000- 0 5,000-14,999-0 15,000-24,999-0 25,000-34,999-0 35,000-44,999-0 45,999-54,999-0 55,000-64,999-0 65,000 and > - 2
CSOs	Male- 10 Female- 7 Undisclosed- 0	18-27- 15 28-37 - 2 38-47- 0 48-57 - 0 Above 57- 0	< 5,000- 0 5,000-14,999- 16 15,000-24,999-0 25,000-34,999- 1 35,000-44,999-0 45,999-54,999-0 55,000-64,999-0 65,000 and > -0	< 5,000- 0 5,000-14,999- 16 15,000-24,999- 0 25,000-34,999- 1 35,000-44,999- 0 45,999-54,999-0 55,000-64,999-0 65,000 and > -0

TABLE 3.13. PROFILE OF FGD PARTICIPANTS

Category	Gender	Age Range (No.)	Monthly Income (Ksh)	Monthly Expenditure
Social Justice Centers	Male- 10 Female-7 Undisclosed-0	18-27- 17 28-37 - 0 38-47-0 48-57 - 0 Above 57- 0	< 5,000- 0 5,000-14,999- 17 15,000-24,999- 0 25,000-34,999- 0 35,000-44,999- 0 45,999-54,999- 0 55,000-64,999- 0 65,000 and > - 0	< 5,000- 0 5,000-14,999- 17 15,000-24,999- 0 25,000-34,999-0 35,000-44,999-0 45,999-54,999-0 55,000-64,999-0 65,000 and > -0

Among farmers, the production of food is affected by capital, availability and affordability of inputs, market and pricing, and value addition.

CSOs in particular identified the following factors that affect consumption and production patterns: government policies, corruption, insecurity, trade regulations, capital, and technology. Additionally, the availability of land, natural resources, as wells as human resources also affect production and consumption.

3.7.2.3. Challenges to Sustainable Consumption and Production

FGD participants across all sectors identified affordability of goods as one of the challenges to SCP. Access to basic goods is made difficult by the imposition of higher taxes by the government. The proliferation of low quality, and even fake products, hurt consumers especially those from low-income groups.

For farmers, challenges to pursuing SCP include the small size of the land that they own and its low productivity, lack of sufficient capital and inputs, and lack of access to technology.

3.7.2.4. Paths Towards Sustainable Consumption and Production

Managing and improving local production of goods for local consumption were identified across all sectors as among the means to achieve SCP. CSOs and social justice centers stressed that actions are needed to build local capacity to produce sufficient, affordable, and high quality goods for local consumption; and eradicate dependence on imports. CSOs encourage buying locally to support local producers such as farmers and craftsmen.

CSOs, social justice centers, and workers pointed out the importance of improving infrastructure such as transportation not only to lower production costs, but also to protect the environment while meeting people's needs for mobility. These actions must be accompanied by legislation to set product quality standards to address the proliferation of low quality and fake goods in the market. Moreover, Kenya's trade agreements must be reviewed to ensure that these are indeed beneficial to the people.

Students mentioned that innovation and technology are also important in achieving SCP. Workers emphasized that policies that protect the environment and guarantee the people's health must be implemented.

On lifestyle change, all sectors agree that education towards conscious consumption is needed. Consumers must learn discipline in budgeting and buying only what is needed. Social justice centers suggested collective action such as pooling funds and setting up kitchen gardens to support the needs for quality and affordable food.

3.8. RESULTS FROM KEY INFORMANT INTERVIEWS

Key informant interviews with the academe were also conducted to gather their opinion regarding SCP in Kenya. Dr. Oriare Nyarwath of the University of Nairobi is knowledgeable on Kenyan socio-economic realities. Dr. Reginald Nalugala from Tangaza University College on the other hand is an expert on environmental studies in African settings.

3.8.1. Thoughts on the Consumption and Production Patterns in Kenya

Both key informants agree that agriculture is the base of Kenya's economy, whose main crops are coffee, tea, and corn. However, there is no or minimal value addition to these crops, which both agree must be addressed by the government in order for the sector to grow. Being an agricultural country, there are more people in the rural areas than urban areas, which dictate the consumption and production pattern. Agricultural production is targeted towards commercial crops (coffee and tea), but consumption is predominantly food and other mostly imported products.

Kenya "...is moving towards individual and capitalist mode of consumption," especially in the urban areas, which "creates negative competition" and "negative values." This is also because of the growing middle class. Dr. Nalugala describes it as: "the lifestyle of the Kenyan middle class is a life of consumerism, they consume a lot of junk food and do not care about their health. Their success is determined by the material things they have and things they can show." This observation is shared by both professors. "For those who have the means, there is a tendency to over-consume because it (i.e. over-consumption) is more or less a class recognition but [also] a matter of psychological disposition and identity."

Dr. Nyarwath commented on Kenya's dependence on imports because of the lack of local processing industries in Kenya. The local production of goods is not sufficient to satisfy people's needs, hence the need to import. High taxation and the cumbersome business licensing process are among the impediments to the development of local industries.

The above described consumption and production patterns are far from sustainable. According to the key informants, SCP should be able to "add to the quality of life of the people" while "[conserving] natural resources".

3.8.2. Mechanisms Toward SCP

While Kenya has good policies, these alone cannot guarantee their effective implementation. Dr. Nyarwath emphasized the importance of providing proper infrastructure to support policy implementation, and educating the public in order to effect behavioral change. The plastic ban in Kenya was good, but according to Dr. Nyarwath, it was not done properly. Authorities should have educated the public on how to comply with

the plastic ban. Moreover, mechanism and facilities for recycling should be built to support the implementation of the law.

Dr. Nalugala questioned the effectiveness of policies that were made without the involvement of the common people. According to him, "the people. a.k.a the common wanainchi, are not involved in policy-making... hence sustainability will not be achieved if it does not involve the people." He advocates good governance wherein people must be involved in policy-making and implementation in order to shift to SCP.

3.8.3. Alternatives or Replacement to the Current Production and Consumption Process/Patterns in Kenya

Both key informants emphasized the need to veer away from a fossil fuel-based system to more sustainable renewable energy sources. Dr. Nalugala said that "to tackle global warming, we need scientists who can devise ways of mitigation, e.g. through green energy, solar energy etc. We really need to enhance our skills to reduce the impacts of global warming. Aside from agriculture, we can also focus on the issue of waste or wastage. Waste recycling can be a lucrative business, our recycling capacity here is still low. Waste management skills and knowledge are necessary, we need to know how to mobilize communities and see the needs of particular areas, which leads us back to sector-led research."

"Ten years after the launch of the Vision 2030 in 2008, improvement has been observed in Kenya's poverty rates and hunger rates. However challenges to improving the quality of life for most Kenyans and shifting to SCP remain inadequately addressed."

Dr. Nalugala also emphasized the need to develop skills in the area of engineering and ICT to support the local industry. He added that, "land...is a very valuable commodity which is an important issue in Kenya's development. We need to strengthen our agricultural and local industries, encourage rural production, create linkages, and even create our own philosophies on consumption and production because we cannot just live a lifestyle of consumerism and continue with it... [we need to] improve the skills of agricultural workers/ farmers and create opportunities for upcoming agriculture entrepreneurs."

Dr. Nalugala mentioned the need to revisit and reevaluate the colonial Swynnerton Plan of 1954[4] , which is still in effect today. Kenyans can achieve a better quality of life by feeding the agricultural economy with knowledge and labor. It can be further strengthened by land acquisition from industrial plantations, and distribution to Kenya's farmers who typically own small tracks of land with low productivity.

Young people must also be encouraged to take up farming. According to Dr. Nyarwath, "farm production is going to die if young people do not take up farming, hence [the necessity to] make farming popular for young people." Dr. Nyarwath also mentioned the need to make appropriate technology for harvesting rainwater and for converting agricultural waste to biogas more accessible to rural communities. Commenting on the daily diet of Kenyans, Dr. Nyarwath believes that the rise of meat consumption among the affluent must not become a model of consumption among Kenyans because of its cost, and negative impacts on health and the environment.

Dr. Nyarwath advocates building a self-sufficient local economy through pursuing industrialization that will create local jobs, provide people's needs, while taking care of the environment. He laments the lack of processing facilities for coffee and fish in the country. Moreover, tea plantations and processing centers are owned and controlled by multinational corporations (MNCs). Trade and investment policies must be reviewed and revised in order to support this industrialization, as well as to prevent the collapse of local industries. For example, the local textile industry, which boomed in the 70s, collapsed due to the entry of second-hand clothing in Kenya.

4 The 1954 Swynnerton Plan was a colonial agricultural policy developed by Roger Swynnerton. It aimed to develop agriculture in Kenya. However, it was also used to defeat Mau Mau Uprising. The Sywnnerton Plan also "reorganized African land relations and farming toward exclusive, private male ownership, and export cash-crop production," (Brownhill, 2009).

According to Dr. Nyarwath, the government also needs to avoid unequal investment agreements in the minerals sector that do not support national industrialization and local job creation.

3.9. CONCLUSION

Kenya's Vision 2030 aims to lift the quality of life of its citizens through achieving a newly industrializing middle-income country status, while at the same time, manage its resources and conserve its environment. Ten years after the launch of the Vision 2030 in 2008, improvement has been observed in Kenya's poverty rates and hunger rates. However challenges to improving the quality of life for most Kenyans and shifting to SCP remain inadequately addressed.

Kenya's economic liberalization policies has the placed the country's balance of trade in constant deficit. Overall, the country's economy is dependent on imports to meet its population's needs.

Inequality in Kenya is among the worst in the continent. Data from the UNDP in 2017 indicate that the incomes of Kenya's richest 20% is 11.5 times more than the incomes of the poorest 20%. More than a quarter of the population or 36.8% lived on 1.9 USD a day or less. At a threshold of 3.2 USD/day, the percentage of people living in poverty increases to 66.2%. Although agriculture has the second largest share in the GDP (31.52% in 2017) and the second largest provider of employment (38%), rural poverty is rife at 55%, indicating widespread poverty among food producers.

Poverty affects the quantity and quality of consumption among the population. Data on energy, water, and food consumption patterns reveal that the poor have less access to these resources compared to the rich. The quality of consumption also differs. As demonstrated by the fuel consumption data, the poor has less access to clean fuel for lighting and cooking, exposing them to air pollutants that cause sickness and death.

Policies in place to protect the environment from the ill-effects of resource extraction as the country aims to increase its economic growth also face challenges such as rapid population growth and urbanization, inadequate funding and infrastructure, lack of institutional capacity, and corruption. The impacts can be seen in Kenya's low environmental performance scores.

Results from the FGD reveal that the participants have a basic understanding of SCP. Participants are concerned not only about meeting people's needs and improving their quality of life, but also on protecting the environment. Although consumption patterns are largely determined/limited by incomes, they are also affected by lifestyle choices, influenced by what one of the key informants identified as "individual and capitalist mode of consumption" that creates negative competition (as opposed to community cooperation) and negative values which attach consumption to class recognition and identity.

While recognizing the need for education towards changing behaviors and lifestyles, the FGD participants and key informants also emphasized the need to change production patterns in order to address unsustainable consumption. CSOs, social justice centers, and the key informants advocate for local-self sufficiency. For the key informants, this means pursuing national industrialization which is mindful of protecting the environment while creating jobs and raising the standard of living of the population, especially the poor. This will be supported by developing local agriculture and supporting local farmers, developing local processing industries, and producing more ICT professionals and engineers. The key informants, as well as the CSOs and the social justice centers, called for reviewing and revising national policies, including the Swynnerton Plan and Kenya's trade and investment agreements, in order to support local self-sufficiency. The need for better policy-making and implementation through involving the common people in the decision-making processes, improving access to appropriate technology, and providing infrastructure was also recognized.

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4 PHILIPPINES

4.1. INTRODUCTION[1]

The need to shift to sustainable patterns of production and consumption in order to ensure the survival of the planet as well as the people has been formally recognized by global leaders and other stakeholders for 25 years already. It was first collectively recognized during the Rio Earth Summit in 1992, which produced the Agenda 21 that guided action plans towards sustainable development. Chapter 4 of the Agenda 21 specifically tackles the global unsustainable patterns of production and consumption, and developing national policies and strategies to encourage change. On June 2012, global leaders and other stakeholders adopted the 10-year Framework of Programs on Sustainable Consumption and Production Patterns (10YFP) during the Rio+20 conference. This global framework aims to improve international cooperation and fast track both developed and developing countries towards SCP patterns. In 2015, the Sustainable Development Goals (SDGs) were adopted. SCP is in Goal 12: Ensure sustainable consumption and production patterns. One of the targets of Goal 12 is the implementation of the 10YFP.

"The frameworks of these agreements are too focused on encouraging business efficiency through incorporating environmental friendly practices without exacting accountability from businesses for their contributions to unsustainable production and consumption in the first place. "

Despite the recognition of the need to shift to SCP and the several agreements produced, the environment is in much worse condition, with a threat of runaway climate change to boot. Part of the problem is that these agreements are non-binding. Success relied on the political will of world leaders and other stakeholders to shift to SCP. However, the much deeper problem is the inability of the agreements to address the structural barriers that prevent countries from shifting to SCP. The frameworks of these agreements are too focused on encouraging business efficiency through incorporating environmental friendly practices without exacting accountability from businesses for their contributions to unsustainable production and consumption in the first place. These agreements also fail to recognize the need to address unequal power structures within and between societies and countries that promote unsustainable production and consumption.

The Philippines is among the countries that adopted SCP-related agreements. It has mainstreamed these agreements, particularly the Agenda 2030, into its

1 This research is informed by statistical data from the government, academic researches, and also independent think-tanks. A focus group discussion was conducted with the organizations below in order to verify the data. Results from the FGD were used to revise some of the sections of the research, including Section 4.9: Struggles for Sustainable Consumption and Production and Section 4.10: Recommendations for Future Studies.

- Asia Pacific Research Network
- Center for Environmental Concerns
- Climate Change Network for Community-based Initiatives
- IBON International
- IBON Foundation
- Pesticide Action Network-Asia Pacific

Philippine Development Plan (PDP) 2017-2022. It has implemented programs and projects through the help of the 10YFP and the Switch Asia Program supported by the European Commission. It is also signatory to the Paris Agreement which calls for reductions of greenhouse gas (GHG) emissions. However, the country's thrusts for economic development as embodied in the PDP, its economic structure, and its environmental protection performance indicate that the country's development is unsustainable.

This paper aims to review the Philippines' production, distribution, and consumption patterns and their impacts on the environment and the people; as well as the different policies and programs on SCP and how well they fare on pushing the country towards the needed transformation to SCP.

4.2. REVIEW OF GOVERNMENT RESPONSES TO PROMOTE SCP

The Philippines does not have specific policies and laws on SCP. However, it has formulated and implemented policies and other initiatives related to sustainable consumption and production since the early 1980s. In 1987, the Philippines drafted the Philippine Strategy for Sustainable Development (PSSD), which was then presented at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, Brasil. After several consultations to revise the document, the Philippine Agenda 21 was launched. The country is a signatory to the Kyoto Protocol and has a national Climate Change Act that guides the country's adaptation and mitigation efforts.

The Philippines also has several environmental laws that are related to promoting SCP. Several projects on SCP have been implemented through the European Union's SWITCH-Asia Program and the 10 YFP.

4.2.1. Philippine Agenda 21

The Philippine Agenda 21 (PA 21) localized the international Agenda 21 document of the Rio 1992 Conference. It was adopted in 1996 through the Memorandum Order No. 399. Unlike the previous PSSD which mainly focused on the environmental and economic pillars of sustainable development, the PA 21 attempted to address the social dimension of sustainable development through its introduction of "ecosystem-based" and "people-centered" approach. The PA 21 is guided by 15 SD principles, namely, Primacy of Developing Full Human Potential; Holistic Science and Appropriate Technology; Cultural, Moral, and Spiritual Sensitivity; Self-Determination; National Sovereignty; Gender Sensitivity; Peace, Order, and National Unity; Social Justice, Inter-, Intra-Generational, and Spatial Equity; Participatory Democracy; Institutional Viability; Viable, Sound, and Broad Based Economic Development; Sustainable Population; Ecological Soundness; Biogeographical Equity and Community-Based Resource Management; and Global Cooperation (Tarradell, 2004).

The Enhanced PA 21 was released in 2002 after the World Summit on Sustainable Development. The document noted the following: the rise of globalization was not conducive to sustainable development, civil society must identify what they can commit to contribute towards sustainable development, and government departments must be oriented towards sustainable development. The Enhanced PA 21 focused on five goals: poverty reduction, social equity, empowerment and good governance, peace and solidarity, and ecological integrity. It retained the following areas of concern for interventions: forests, biodiversity, coastal/marine, freshwater resource, agriculture and farmlands, mining, urban (city, industry, waste, energy) (Environment Management Bureau [EMB], n.d.).

The Philippine Council for Sustainable Development (PCSD) led the implementation of the two PA 21. It is composed of representatives of government bodies, civil society organizations (CSOs), and the business sector. The National Economic Development Authority (NEDA) served as the secretariat for the council.

Although the impacts of unsustainable production and consumption are recognized in the PA 21 and its enhanced version, the activities undertaken focused more on resource efficiency, implementing environmental laws, and environmental conservation. The results of the assessment of the PA 21 which were reported during the Rio+20 conference indicate that all areas of concern maintained their levels of unsustainability. Moreover, the PCSD was hobbled by the lack of dedicated resources to implement its mandate. It also suffered from regime changes that also came with increased government support for economic goals that harm sustainable development. During the Arroyo regime for example, the PCSD lost the national prominence that it had during the Ramos regime (NEDA, 2012). Civil society organizations also criticized the body as ineffective in

TABLE 4.1. SCP-RELATED PRIORITIES IN THE NCCAP

5.Climate-friendly industries and services	NCCAP prioritizes the creation of green and eco-jobs and sustainable consumption and production. It also focuses on the development of sustainable cities and municipalities	**Ultimate Outcome:** Adaptive capacity of communities, resilience of natural ecosystems, and sustainability of built environment to climate change enhanced.	
		Intermediate Outcome: 1. Climate-smart industries and services promoted, developed and sustained	Enabling environment for the development of climate-smart industries and services created.
			Eco-efficient production adopted by industries.
			IEC and capability building program for climate-smart industries and services developed.
		2. Sustainable livelihood and jobs created from climate-smart industries and services.	Increased productive employment and livelihood opportunities in climate-smart industries and services.
		3. Green cities and municipalities developed, promoted and sustained	Infrastructures in cities and municipalities climate-proofed.
			CC adaptive housing and land use development implemented.
			Ecological solid waste management implemented towards climate change mitigation and adaptation.
6. Sustainable energy	NCCAP prioritizes the promotion and expansion of energy efficiency and conservation; the development of sustainable and renewable energy; environmentally sustainable transport; and climate-proofing and rehabilitation of energy systems infrastructures	**Ultimate Outcome:** Successful transitions toward a climate-smart development.	
		Intermediate Outcome: 1. Nationwide energy efficiency and conservation program promoted and implemented.	Government Energy Management Program (GEMP) implemented.
			Increased in the private sector and community participation in energy efficiency and conservation.
		2. Sustainable and renewable energy (SRE) development enhanced.	National renewable energy program and technology roadmap based on RA 9513 and its IRR developed and implemented.
			Off-grid, decentralized community-based renewable energy system to generate affordable electricity adopted.
		3.Environmentally sustainable transport promoted and adopted.	Environmentally sustainable transport strategies and fuel conservation measures integrated in development plans.
			Innovative financing mechanisms developed and promoted.

Source: CCC, 2011, pp. 91-112

TABLE 4.2. SCP IN THE PDP 2017-2022 (NEDA, 2017, P.328)

Promote sustainable consumption and production. The government will develop and implement SCP policies and initiatives, particularly practices and technologies that will facilitate the attainment of both economic goals and environmental standards. In particular, the following strategies will be pursued to strengthen SCP promotion:

- Formulate a "polluters pay" policy and implement corresponding measures;
- Establish a sustainable market for recyclables and recycled products;
- Strengthen the certification and establish information systems for green products and services;
- Strengthen the implementation of Philippine Green Jobs Act;
- Promote green procurement in the public and private sectors;
- Strengthen the promotion, development, transfer, and adoption of eco-friendly technologies, systems, and practices in the public and private sectors by increasing access to incentives and facilitating ease of doing business and other related transactions, among others (see also Chapters 9, 10, 14 and 19);
- Intensify the use of renewable energy and increase its share in the energy mix;
- Promote the conduct of a GHG inventory in the public and private sectors.

changing unsustainable government policies such as trade liberalization, the mining code, the environmental code, and the ancestral domain law (Isberto, 1998).

4.2.2. Kyoto Protocol and the Climate Change Act of the Philippines

The Philippines is among the first signatories to the United Nations Framework Convention on Climate Change (UNFCCC) which it ratified in 1994. It also signed the Kyoto Protocol in December 1999, but only ratified it in 2003. The Kyoto Protocol is a legally binding agreement which aims to lower GHG emissions in order to mitigate climate change. Under the Protocol, industrialized countries or Annex-I countries have to reduce their collective emissions of GHGs by 5.2% compared to the year 1990. To contribute to GHG emissions reductions, the Philippines promoted clean development mechanism (CDM) projects. As of 2012, there are 82 registered CDM projects in the country.

The Climate Change Act was signed into law on July 2009, which created the Climate Change Commission (CCC). The CCC was mandated to come up with the Framework Strategy and Program on Climate Change and the National Climate Change Action Plan (NCCAP) which was finally released in 2011. Out of its seven priorities[2], priority number five on climate-friendly industries and services, and priority number six on sustainable energy, are directly related to SCP (See Table 4.1). Actions for SCP are focused on resource efficiency and clean production. Similar to the PA 21, the NCCAP does not also address incoherences with other policies such as the destructive impacts of mining (Center for Environmental Concerns-Philippines [CEC], 2011).

4.2.3. The Philippines Development Plan 2017-2022 (PDP 2017-2022)

The PDP 2017-2022 is the country's medium term economic development plan, which is guided by the Ambisyon 2040 and anchored on the 10-Point Socioeconomic Agenda of the Duterte administration. The plan also takes into account its commitments to international agreements, including the Agenda 2030 and the SDGs.

Promoting SCP is specifically mentioned under Chapter 20: Ensuring Ecological Integrity, Clean and Healthy Environment, Subsector Outcome 2: Environmental quality improved. Under this chapter, the government intends to protect the environment through strict implementation of environmental protection laws, developing sustainable resource-based industries such as community-based agro forestry, eco-tourism, developing access benefit sharing of wealth from genetic resources, and institutionalizing ecosystem valuation. To promote SCP, the government intends to follow the actions listed in Table 4.2.

Effectiveness in the implementation of these actions remains to be seen. Moreover, the impacts on the environment and people's welfare of the government's plan to remove barriers to foreign investments by revising the Constitution, increasing foreign investments in retail trade and services, as well as facilitating the easier participation of foreign firms in government procurement, must be monitored.

2 Food security, water sufficiency, ecological and environmental stability, human security, climate-friendly industries and services, sustainable energy, knowledge and capacity development.

TABLE 4.3. SOME PHILIPPINE LAWS ON THE ENVIRONMENT RELATED TO THE SCP

Philippine Environmental Impact Statement System (PEIS) of 1978 (Presidential Decree 1586)	A Decree providing the legal and procedural framework for conducting Environmental Impact Assessments (EIA) for projects likely to have significant environmental impact. This has been updated by several DENR administrative orders.
Toxic Substance and Hazardous and Nuclear Waste Control of 1999	This Act shall cover the importation, manufacture, processing, handling, storage, transportation, sale, distribution, use and disposal of all unregulated chemical substances and mixtures in the Philippines, including the entry even in transit, as well as the keeping or storage and disposal of hazardous and nuclear wastes into the country for whatever purposes.
Clean Air Act of 1999	An Act providing for a comprehensive air pollution control policy and a national Program to prevent, manage, control, and reverse air pollution through both regulatory and market based instruments
Ecological Solid Waste Management Act of 2000	An Act setting up a national program for managing the transfer, transport, processing, and disposal of solid waste. It calls for a phasing out of open dump sites and converting them into sanitary landfills.
Government Procurement Act of 2002.	An Act providing for the modernization, standardization and regulation of the procurement activities of the Government and for other purposes
Clean Water Act of 2004	The Act aims to protect the country's water bodies from pollution from land-based sources (industries and commercial establishments, agriculture and community/ household activities). It provides for a comprehensive and integrated strategy to prevent and minimize pollution through a multi-sectoral and participatory approach involving all the stakeholders.
Executive Order 301 of 2004.	An Order for establishing a Green Procurement Program for all Departments, Bureaus, Offices and Agencies of the Executive branch of the Government.
Biofuels Act of 2006	An Act establishing the framework for the promotion of the use of biofuels in road transport (biodiesel and gasoline blended with bioethanol).
Renewable Energy Act of 2008	An Act establishing the framework for the accelerated development of renewable energy resources.
Climate Change Act of 2009	An Act establishing the Climate Change Commission, tasked to coordinate, monitor and evaluate programs, and action plans.
Philippine Green Jobs Act of 2016	An act promoting the creation of green jobs, granting incentives, appropriating funds therefor. The State shall identify needed skills, develop training programs, and train and certify workers for jobs in a range of industries that produce goods and render services for the benefit of the environment, conserve natural resources for the future generation, and ensure the sustainable development of the country and its transition into a green economy. In recognition of the participation of individuals and business enterprises in jobs creation, the State shall provide incentives therefor.

4.2.4. SCP-Related Environmental Laws

Several laws were enacted to protect the country's environment and natural resources, and provide support for SCP initiatives (Table 4.3).

However, aside from the insufficient resources to implement the laws, effective implementation is also prevented by incoherence with economic priorities. For example, despite the existence of the Clean Air Act, the Renewable Energy Act, and the Climate Change Act, the Philippines still relies much on coal as source of energy, which produces pollutants and GHGs. The promotion of mining under the government of President Gloria Macapagal Arroyo (June 2001-June 2010) through the Mining Act of 1995 also largely contradicts policies on climate change.

The frameworks of these laws also present problems for SCP. For example, the Biofuels Act was criticized by progressive groups as it supports biofuel plantations that heavily use pesticides and water resources (Bayan, 2009 as

TABLE 4.4. SCP PROJECTS IN THE PHILIPPINES

Name of Project	Period	Implementing Organizations	Places of Implementation	SCP Practice	Brief Project Description
Philippines Only					
Green Philippines Islands of Sustainability (GPIoS) *(Switch Asia)*	2009–2013	VSB-Tech Univ Ostrava, GrAT, AREC, ASSIST, ECCP	Metro Manila, CALABARZON	Cleaner production, resource efficiency	GPIoS initiative that aims to reduce the pollution level caused by SME's located in Metro Manila and the linked CALABARZON region. The key objectives of GPIoS are to minimize the environmental impacts caused by SME's in the target region by adopting preventive environmental production and to integrate sustainable growth, social progress and environmental protection within the businesses of participating companies
SMART Cebu *(Switch Asia)*	2009–2013	SEQUA, EFA, ECCP, ADFIAP	Ceb	Cleaner production, eco-design	The project aimed increase the competitiveness of SMEs in the home and lifestyle industries and to contribute to a cleaner environment of the Cebu region of the Philippines. The project assisted partner organisations in moving to cleaner production processes. Three of Cebu's home and lifestyle industry sectors now receive assistance on how to convert to cleaner production and to develop new lines of eco-friendly products
Zero Carbon Resorts *(Switch Asia)*	2009–201	GrAT, PCSD, PSA-CIEMAT, ASSIST	Palawan	Resource efficiency, 3R (reduce, replace, redesign)	The project sought to enable tourism SMEs, such as hotels and resorts, to provide their energy services in an efficient, cost effective, and environmentally sound way. By providing the SMEs in Palawan and other parts of the Philippines with the access to energy-saving measures and new green technologies, the dependence on fossil fuels could be lessened. The project applied the 3R strategy: Reduce-Replace-Redesign
Increasing the Uptake of High Efficiency Motors (HEMs) and Drive Systems in Philippine Industries	2014-201	IIEE, ICASEA, ASSIST, ECCP, ADFIAP, AS	Various area	Cleaner Productio	This Project aims to increase energy efficiency of the electricity-intensive industries and achieve reduction in electricity consumption, and to reduce contribution of industries in greenhouse gas (GHG) emissions. Specifically, it aims to increase the deployment of more efficient electric motors and drive systems in Philippine industries
The Birdhouse El Nido - A Business Case for Eco-Tourism and renewable energy	29/03/2018-30/11/2018	The Birdhouse El Nido ESTEL Magazine	Palawan	Cleaner production, resource efficiency	To further its eco-credentials, this hotel will be used as a business case for solar energy. To leverage the influence of The Birdhouse, ESTEL Magazine will be used as a platform to market the business case for solar energy and will create other campaigns using the solar case as a model. ESTEL seeks to be a voice for Eco-Sustainable Tourism in El Nido but given the cutrrent status of El Nido sits as Eat, Sleep Tour El Nido

TABLE 4.4. SCP PROJECTS IN THE PHILIPPINES

Name of Project	Period	Implementing Organizations	Places of Implementation	SCP Practice	Brief Project Description
The Coron Initiative		Society for Sustainable Tourism and Development	Palawa	Cleaner production, resource efficiency, environmental conservation	Tourist arrivals to Coron have more than doubled in the past five years, reaching 178,000 in 2016 according to the Coron Municipal Office. The exponential increase of tourism, coupled with booming economic activity over recent years, have called for sustainability initiatives to prevent environmental consequences and bolster economic and infrastructure development.
Establishment and Implementation of Green Public Procurement (GPP) in the Quezon City Local Government for the Promotion of Sustainable Consumption and Production (SCP) in the Philippines (10YFP Trust Fund Project)	2016-201	PCEP-SD, Environmental Protection and Waste Management Department-Quezon Cit	Quezon Cit	Cleaner production, resource efficiency	Government spending accounts up to 15% of a country's gross domestic product. Such amount can greatly influence the consumption and production trends and increase the demand for green products. The project aims to pilot test the integration of sustainable consumption and production (SCP) initiatives into the local governance of Quezon City. This project is a 10YFP Trust Fund Project
With Other Countries					
Establishment of the ASEAN Energy Manager Accreditation Scheme *(Switch Asia)*	2010–2014	ASEAN Centre for Energy, ASD, ENPAP	Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Thailan	Energy efficiency accreditation	The overall objective of the project was to reduce energy consumption from the manufacturing industrial sector in ASEAN and to cut greenhouse gas emissions in ASEAN member countries. The Project had established the ASEAN Energy Management Scheme (AEMAS) through which it had trained and certified energy managers who then implemented sustainable energy management systems within their industries/companies
Promotion and deployment of energy efficient air conditioners in ASEAN *(Switch Asia)*	2013–2016	Europe Copper Inst, UNEP-DTIE, IIEE	Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Vietnam, Thailan	Energy efficiency	The project aims at increasing the market share of higher efficient ACs in ASEAN through harmonization of test methods and energy efficiency (EE) standards, adoption of common Minimum Energy Performance Standards (MEPS), and changing consumer purchasing attitudes in favor of energy efficient ACs

TABLE 4.4. SCP PROJECTS IN THE PHILIPPINES

Name of Project	Period	Implementing Organizations	Places of Implementation	SCP Practice	Brief Project Description
Female Entrepreneurship in Indonesia and the Philippines Sustainable Consumption and Production (SCP) of handwoven textile. *(Switch Asia)*	2013–201	Hivos, NTFP-E	Indonesia, Philippine	Sustainable consumption, eco-design	The project aims to promote sustainable consumption and production (SCP) of hand-woven eco-textiles in Indonesia and the Philippines by scaling up successful SCP practices throughout the market chain, and supporting the development of an enabling policy environment
Lead Paint Elimination Project *(Switch Asia)*	2011–201	IPEN, Arnika-Toxics & Waste Programme, EcoWaste Coalition	Bangladesh, China, India, Indonesia, Nepal, Philippines, Sri Lanka, Thailand	Eco-labelin	The project aims to promote sustainable production and consumption and contribute to global efforts aimed at the elimination of the production and sue of all decorative lead paints. Its overall objective is to reduce childhood lead poisoning in the eight participating countries by decreasing production and use of lead paint with a trend toward their elimination
Zero Carbon Resorts towards Sustainable Development of the Tourism Sector in the Philippines and Thailand *(Switch Asia)*	2014–201	GrAT, PCSD, PSA-CIEMAT	Philippines, Thailan	Resource efficienc	This project envisages going to the next level of energy efficiency towards a carbon neutral operation. With a clear focus on access to finance and match with Green Hotel Label certification as incentive, cross country exchange of best practices will be facilitated. The project aims to contribute to sustainable development of the tourism sector and its value chain in the Philippines and Thailand with a focus on reduction of resource consumption and CO2 emissions. It targets a critical mass of SMEs demonstrating the value of green tourism by increasing resource efficiency and using renewabl
Advance SCP: Advancing and Measuring Sustainable Consumption and Production (SCP) for a Low-Carbon Economy in Middle-Income and Newly Industrialized Countries	2015-201	DTI, GIZ, UN Environmen	Chile Ethiopia Indonesia Malaysia Morocco Peru Philippines Thailand	Eco-labelling, Consumer goods, Educatio	Advance SCP (2015-2018) is a PhP 153.9-million project that aims to reduce GHG emission through: promoting SCP policy framework supportive of low carbon economies; identification and development of related SCP NAMAs; providing incentives for producing more green goods; moving towards low-carbon economy through procurement policy; and moving towards low-carbon economy through specific standards. This project is geared towards increasing awareness, institutional support, and technical capacities to develop and strengthen sustainability information policies and tools in support of sustainable and low-carbon consumption and production patterns

TABLE 4.4. SCP PROJECTS IN THE PHILIPPINES

Name of Project	Period	Implementing Organizations	Places of Implementation	SCP Practice	Brief Project Description
Transforming tourism value chains for sustainable development	2017-202	UN Environment, WRAP (Waste and Resources Action Programme), UN Environment-DTU Partnership, The Travel Foundation	Dominican Republic, Mauritius, Philippines, Saint Luci	Resource efficienc	The project aims at reducing GHG emissions and improving resource efficiency in key tourism sector value chains with high resource use. Transforming the sector to low carbon, resource efficient operations, requires an increase in sustainable consumption and production (SCP) practices by businesses and tourists through more coherent actions in countries
Sustainable Tourism Training Program	201	Global Sustainable Tourism Counci	Africa, Asia / Pacific, Europe and Central Asia, Latin America / Caribbean, Middle East, North Americ	Sustainable consumption, eco-design, resource efficiency	The GSTC Sustainable Tourism Training Program (STTP) offered a number of 2- and 3-day intensive and interactive onsite training classes focused on the GSTC Sustainable Tourism Criteria, and engaged tourism industry professionals around the world through expert presentations and discussions on sustainable tourism best practices for businesses and destinations
Advance SCP: Advancing and Measuring Sustainable Consumption and Production (SCP) for a Low-Carbon Economy in Middle-Income and Newly Industrialized Countries	2016-201	UN Environment GIZ	Chile, Ethiopia, Indonesia, Malaysia, Morocco, Peru, Philippines, Thailan	Consumer goods, Educatio	The Advance SCP project supports the development and implementation of sustainability information systems (SIS) in eight emerging economies across three regions of the world: South-East Asia, Africa & Latin America; adapting itself to the varying circumstances of the pilot countries and their needs in terms of SCP. The SIS will form the basis for making informed consumption decisions and lead to lower greenhouse gas emissions and improved resource efficiency along the value chains
Establish Low Carbon Consumption and Production in Thailand, Indonesia and the Philippines ("SCP TIP")	2017-202	WWF Germany Climate Change Commission of the Philippines	Thailand, Indonesia, Philippines	Resource efficiency, cleaner productio	The project supports national governments in their development of NAMAs or related mitigation strategies in the agricultural, forestry or related sectors. Companies are encouraged to implement sustainable business models. Consumer awareness at the national level with regard to sustainable consumption and production (SCP) is raised by integrating stakeholders into discussion fora/ platforms and through information and communication campaigns

Source: oneplanetnetwork.org and Switch-Asia
http://www.oneplanetnetwork.org/initiatives?f%5B0%5D=sm_field_countries%3Ataxonomy_term%3A190#block-search-form--2
https://www.switch-asia.eu/projects

cited in Philippine Climate Watch Alliance & Center for Environmental Concerns-Philippines, 2009).

4.2.5. SPECIFIC SCP PROGRAMS IMPLEMENTED IN THE PHILIPPINES

Since the adoption of the 10YFP, several projects have been implemented in the Philippines to support its transition to SCP. A good number of these initiatives are supported by SWITCH-Asia, the largest program funded by the European Commission to promote SCP in Asia. Aside from the projects listed in Table 4.4, SWTICH-Asia also implemented a policy-support project from 2012-2017 that helped the Philippine Government in implementing SCP-related policies in the areas of clean energy, procurement and eco-labelling, and cross cutting SCP matters including clean air. From 2009-2017, SWITCH-Asia granted around EUR 17.95 million for various SCP initiatives in the country.

4.3. Macro-economic Profile of the Philippines

The Philippines' GDP continued to increase from 2013 to 2017 but at a much slower pace after peaking in the period of 2012-2013. GNI also increased but also followed the same contraction in terms of growth rates (Table 4.5a) Agriculture managed to grow at 4% in 2017 from a negative growth rate of -1.2% in 2016. However, its share to GDP, employment, and investments fell in the same period (Table 4.5b, Figure 4.1.)

Growth rates for the industry sector also fell after recovering in 2016 from a decline since 2013. Its contribution to GDP (34%) and employment (17.73%) improved from their 2013 levels. From 2013 to 2017, manufacturing had the highest share to GDP, employment, and investments under industry. The sector managed to grow from 5.8% in 2015 to 8.4% in 2017. In 2015, enclave manufacturing lead the subsector in terms of gross value added (GVA) and number of employment (see discussion on manufacturing).

Services remain the largest contributor to GDP and employment. However, growth also slowed down from 7.5% in 2016 to 6.8% in 2017. Industry players are claiming 1.4 million employment under information technology-business processing outsourcing (IT-BPO) (Kittleson Carpo, n.d.). In 2016, the contribution of IT-BPO to the GDP is around 17% and it is the second largest foreign exchange earner after the remittances from overseas Filipino workers (OFWs) (Shead, 2017). Revenues from the industry amounted to USD 25 billion in 2016 but were down to USD 23 billion in 2017 due to political setbacks and investment risks caused by Trump's stance against outsourcing (Kittelson Carpo, n.d.).

Balance of trade in goods and services show deficits (except for 2014 in trade in goods). IBON Foundation (2018) attributes this to the insufficiency of local production to support domestic needs. Main exports are products from enclaves which include electronic components, metal components, ignition and ignition wiring sets. In 2017, electric components composed 58% of the country's total value of exports. Agricultural products ranked 4th in exports, primarily bananas and coconut oil. Apparel and clothing accessories ranked 5th, and fishery products ranked 6th with tuna as the leading fish export (Annex 4.2). Main imports are also electronics, with electronic components for enclave manufacturing comprising 62% of the total value, while consumer electronics comprised 2%. The other main imports according to value are transport equipment, machinery and mechanical appliances, mineral fuels, base metals, electrical machinery, artificial resins, medical and pharmaceutical products, cereals, textiles and yarns, chemical products, paper products, feeds, metalliferous ores and metal scrap, and dairy products. (Annex 4.3).

The 2016 survey of business establishments in the Philippines revealed that 99.57% of the 915, 726 total enterprises are micro, small, and medium enterprises (MSMEs) (DTI, n.d.) (Figure 4.2). The top largest MSMEs are involved in (1) Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles with 420,638 establishments; (2) Accommodation and Food Service Activities with 119,718; (3) Manufacturing with 115,748 establishments; (4) Other Service Activities with 56,466 establishments; and (5) Financial and Insurance Activities with 39,925 establishments. These industries accounted for about 82.5% of the total number of MSME establishments (DTI, n.d.).

According to the DTI (n.d.), "MSMEs account for 25% of the country's total exports revenue. It is also estimated that 60% of all exporters in the country belong to the MSME category. MSMEs are able to contribute in exports through subcontracting arrangement with large firms, or as suppliers to exporting companies" (Exports contribution of MSMEs section, para. 8).

The latest estimates (2013) by the Commission on Filipinos Overseas put the total number of Filipinos

TABLE 4.5A. PHILIPPINES ECONOMIC AND SOCIAL INDICATORS

	2013	2014	2015	2016	2017
GDP (Constant 2000, in billion PhP)	6750.63	7165.48	7600.175	8122.74	8665.708
GDP Growth	7.1%	6.1%	6.1%	6.9%	6.7%
GNI (Constant 2000, in billion PhP)	8,152.21	8,640.20	9,143.15	9,755.09	10,394.85
GNI Growth	7.8	6	5.8	6.7	6.6
Inflation Rate	2.045%	3.157%	-0.587%	1.699%	2.321%
Investments (in million PhP)	754,032.52	755,911.67	686,866.14	685,952.50	911,290.63
Local (%)	*64%*	*75%*	*64%*	*68%*	*88%*
Foreign (%)	*36%*	*25%*	*36%*	*32%*	*12%*
Trade in Goods (Constant 2000, in billion PhP)	4919.43	5499.15	6065.446	7121.81	8560.61
Import	*2501.61*	*2744.13*	*3129.04*	*3871.84*	*4632.18*
Export	*2417.82*	*2755.02*	*2936.41*	*3249.97*	*3928.43*
Balance	*-83.79*	*10.88*	*-192.64*	*-621.87*	*-703.75*
Trade in Services (Constant 2000, in billion PhP)	1267.676	1383.393	1614.254	1791.971	2027.302
Imports	*660.852*	*731.849*	*855.229*	*916.995*	*1025.152*
Exports	*606.824*	*651.544*	*759.025*	*874.976*	*1002.15*
Balance	*-54.028*	*-80.305*	*-96.204*	*-42.019*	*-23.002*
Gini Coefficient			0.4439		
Population (in millions)			101.7		
Human Development Index	0.685	0.689	0.693	0.696	0.699
Employment Rate	92.7	92.8	93.7	94.5	94.3
Unemployment Rate	7.3	7.2	6.3	5.5	5.7
Underemployment Rate	19.8	19	18.5	18.3	16.1

figures might not add up due to rounding
Source, PSA OpenStat as of April 2018

FIGURE 4.1. SHARE OF ECONOMIC SECTORS TO GDP, INVESTMENT, AND EMPLOYMENT

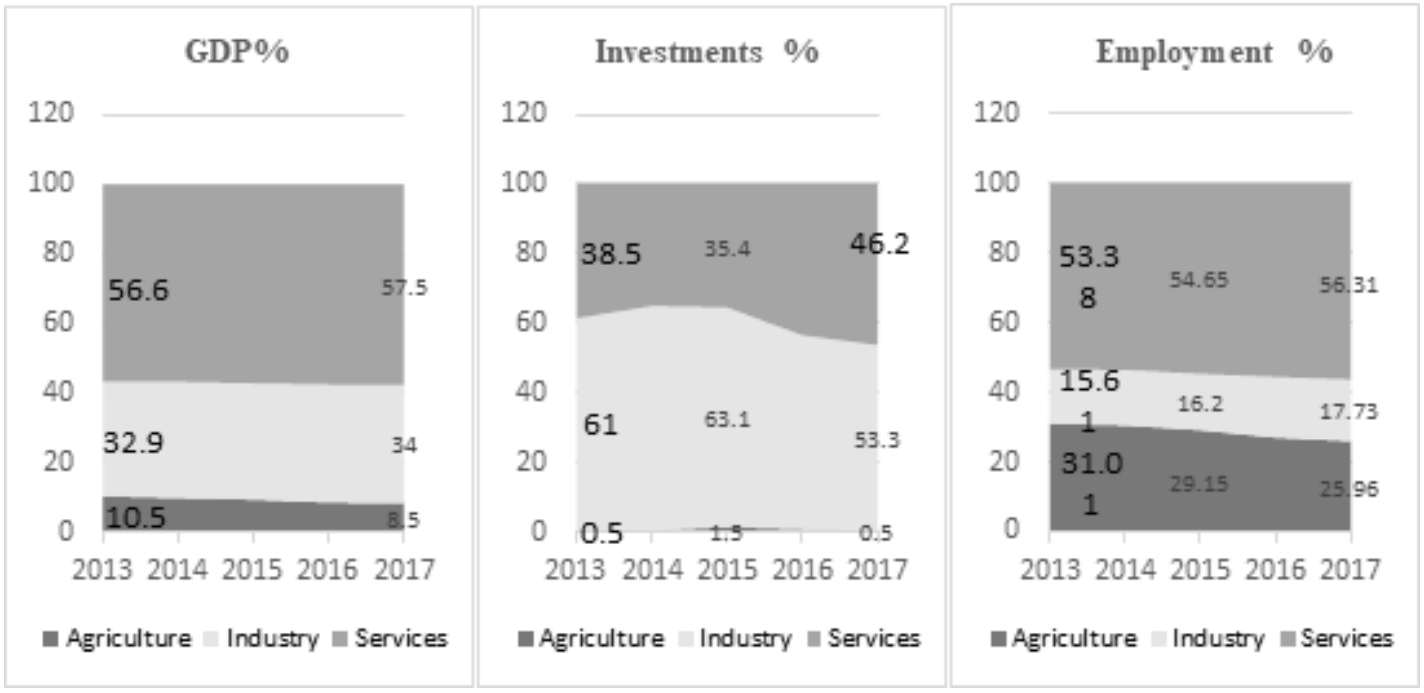


TABLE 4.5B. GROWTH RATE AND % OF GDP OF ECONOMIC SECTORS

	2013		2014		2015		2016		2017	
	% Growth Rate	% GDP	% Growth Rate	% GDP	% Growth Rate	% GDP	% Growth Rate	% GDP	% Growth Rate	% GDP
AGRI. HUNTING FORESTRY AND FISHING	**1.1**	**10.47**	**1.7**	**10**	**0.1**	**9.5**	**-1.2**	**8.7**	**4**	**8.5**
a. Agriculture and forestry	1.2	8.5	2.1	8.2	0.6	7.8	-0.6	7.2	5	7.1
b. Fishing	0.7	1.9	-0.2	1.8	-1.8	1.7	-4	1.5	-0.9	1.4
INDUSTRY SECTOR	**9.2**	**32.87**	**7.8**	**33.34**	**6.4**	**33.49**	**8**	**33.85**	**7.2**	**34**
a. Mining & Quarrying	1.2	1.08	12.1	1.14	-1.5	1.06	3.2	1.02	3.7	.10
b. Manufacturing	10.3	22.80	8.3	23.26	5.7	23.17	7.1	23.21	8.4	23.58
c. Construction	9.6	5.65	7.2	5.71	11.6	6	12.1	6.3	5.3	6.2
d. Electricity Gas and Water Supply	4.7	3.34	3.7	3.26	5.7	3.25	9	3.31	3.4	3.21
SERVICE SECTOR	**7**	**46.9**	**6**	**46.9**	**6.9**	**47.4**	**7.5**	**47.8**	**6.8**	**47.9**
a. Transport Storage & Communication	6	7.5	6.5	7.5	8	7.6	5.3	7.5	4	7.3
b. Trade and Repair of Motor Vehicles Motorcycles Personal and Household Goods	6.2	16.6	5.8	16.5	7.1	16.7	7.6	16.8	7.3	16.9
c. Financial Intermediation	12.6	7.1	7.2	7.2	6.1	7.2	7.9	7.2	7.6	7.3
d. R. Estate Renting & Business Activities	8.9	10.9	8	11.1	7.1	11.2	8.9	11.4	7.4	11.5
e. Public Administration & Defense; Compulsory Social Security	2.7	4.2	4.1	4.1	1.2	3.9	7.1	3.9	7.8	3.9
f. Other Services	5.2	10.3	4	10.1	8.3	10.3	7.5	10.4	6.4	10.3

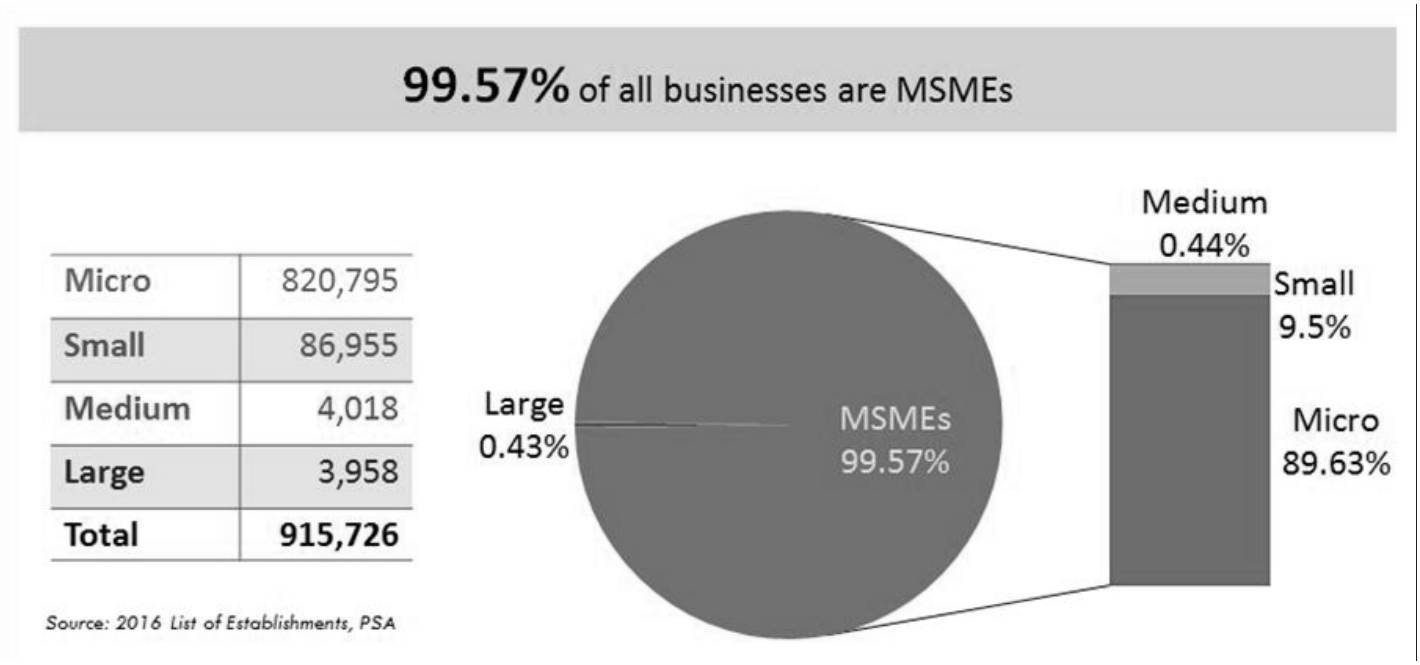
Source: PSA OpenStat

working and living abroad at 10.24 million. The amount of personal remittances increased from USD 25,369 million in 2013 to USD 31,288 million in 2017 (Annex 4.4). Remittances account for around 10% of the GDP, fueling household consumption (Annex 4.5) and growth in retail trade, banking and finance, and real estate (IBON, 2018).

Results of the last census in 2015 indicated that 21.6% of the population or some 21,927,009 are living below the annual per capita poverty threshold (PhP 21,753, or roughly a daily income of USD 1.25 a day). The 2015 National Census indicates that poverty incidence is higher among the basic sectors, especially the food producers. Poverty incidence among farmers was at 34.3% and fisherfolk at 34%. Poverty among women was at 22.5%, youth at 19.4%, and migrant and formal sector workers at 13% (PSA, 2017c).

Unemployment rates have improved according to official statistics. From 7.3% in 2013, unemployment was reduced to 5.7% in 2017. However, IBON Foundation (2018) estimates that in 2017, the actual unemployment rate is 9.2%. This figure still does not capture the whole picture of unemployment because unemployment figures do not count the 1-2 million workers who were discouraged, stopped looking for work, and dropped out of the labor force.

FIGURE 4.2. DISTRIBUTION OF ESTABLISHMENTS



Source: DTI, n.d.

FIGURE 4.3. PRIORITY SECTORS ACCORDING TO THE PDP 2017-2022

REGION	PRIORITY SECTOR [11]
I	coffee, cacao, processed fruits, processed meat, tourism
II	processed fruits, processed meat, coffee, furniture, cacao, agribusiness
III	bamboo, furniture, aerospace, processed meat, shipbuilding, aerospace
CALABARZON	auto, electronics, petrochemical, Information Technology and Business Process Management (IT-BPM), chemicals, aerospace
MIMAROPA	seaweed, cacao, rubber, coco coir, tourism
V	metal casting, coco coir, health care, agribusiness
VI	processed meat, processed shrimp, tourism
VII	seaweed/carrageenan, dried mangoes, furniture, IT-BPM, shipbuilding, tourism
VIII	processed meat, copper, processed marine, processed fruits, natural health products, agribusiness
IX	rubber, cacao, processed fruits (mango), coconut, agribusiness
X	rubber, bamboo, cacao, coco coir, coffee, agribusiness, tourism
XI	processed meat, seaweed/carrageenan, cacao, agribusiness, tourism
XII	rubber, palm oil, processed fish/aquamarine, tourism, agribusiness
Caraga	processed marine, palm oil, rubber, agribusiness
CAR	coffee, processed vegetables, aerospace, electronics, tourism
ARMM	coffee, rubber, cacao, palm oil, agribusiness

Source: NEDA, 2017, p. 131

4.4. REVIEW OF SOME PHILIPPINES POLICIES ON ECONOMIC DEVELOPMENT

PDP 2017-2022

The PDP 2017-2022 indicates plans to develop the economy through the development of MSMEs, improvement of ease of doing business, removing barriers to foreign investments and equity, accelerating infrastructure projects, boosting services exports, and developing priority sectors for cluster-based industrial approaches. These priority sectors are focused more on agricultural products for export, enclave manufacturing, and IT-BPO services (Figure 4.3). There is no mention of developing local industries.

According to IBON Foundation, the PDP has not veered away from market fundamentalism that has put the Philippine economy in a state of backwardness. The PDP does not address the need to develop agriculture and local industries which will create jobs and promote national industrialization. Instead, it blindly follows the path of globalization by developing the services sector which is oriented more towards foreign businesses rather than the local industries. Moreover, in promoting MSMEs either as a supplier or service provider to foreign investors, the PDP will further allow foreign corporations to maximize the country's natural resources and labor power by relegating the Philippines and Filipino producers to low-value added activities.

Economic Liberalization

After the colonial exploitation of the Philippines, the country's economy was subjected to neocolonial exploitation by the US through various agreements such as the 1946 US-RP Treaty of General Relations, Parity Amendment to the Philippine Constitution in 1947, Bell Trade Act 0f 1946, and Laurel-Langley Agreement of 1954. These were designed to give American corporations and citizens the same rights and privileges accorded to Filipinos, and protect US' access to Philippine resources and markets (IBON, 2016b).

The entry of the International Monetary Fund (IMF) and the World Bank (WB) in the 1950s signaled the start of the economic liberalization of the Philippines. Foreign exchange restrictions and import licensing requirements were dismantled in the 1960s. Export processing zones were set up in the 1970s. Following the 1980s debt crisis, tariff rates for imports and quantitative restrictions were reduced. The IMF programs of 1994-1997 and 1997-2000 paved the road towards oil deregulation, banking sector liberalization, a regressive and inequitable taxation system (including the EVAT), rice and corn import liberalization, retail trade liberalization, and power sector "reforms" (Nicolas, 2004). The WB on the other hand made its loans contingent to the policy reforms that the IMF promotes.

The liberalization, deregulation, and privatization policies promoted by the IMF-WB are complementary to the trade liberalization policies of the General Agreement on Tariffs and Trade (GATT) and the Word Trade Organization WTO) which the Philippines is a member of since 1979 and 1995, respectively. The country's participation in regional economic alliances under the Association of South East Asian Nations (ASEAN) and the Asia Pacific Economic Cooperation (APEC) further locked in globalization policies. For example, as part of its commitment to the ASEAN Free Trade Area (AFTA), the Philippines has eliminated almost 99% of all goods from ASEAN countries. In accordance to its commitment to the WTO to implement the Most Favored Nation (MFN), more than 50% of the Philippines tariff lines have MFN rates of 0% to 5%.

The Philippines has similar commitments under the individual ASEAN+1 free trade agreements (FTAs) and the Japan Philippines Economic Partnership Agreement (JPEPA). Currently, the Philippines is negotiating the Regional Comprehensive Economic Partnership (RCEP) with the ASEAN+6 and is seeking to come up with free trade agreements with the European Union (EU) and the US.

As mentioned previously, the PDP 2017-2022 aims to further liberalize the Philippine economy by removing barriers to foreign investments which the government hopes will attract more foreign investments to the country.

According to IBON Foundation, economic liberalization worsened the backwardness of the Philippine economy as well as poverty. For example, trade liberalization removed protection from local agriculture and farmers. The low import tariffs combined with low subsidy for agriculture resulted in the decline of agriculture as shown in its continuous drop in the share to GDP, investment, and employment. Poverty among food producers is also prevalent (see discussion on poverty under Section 4.3) Meanwhile the industry sector remains underdeveloped. Almost all (99.57%) of the enterprises in the country

belong to the micro, small, and medium enterprises sector, indicating a lack of heavy industries.

4.5. MATERIALS FLOW ACCOUNTING

In 2017, university researchers Martinico-Perez, Schandl, Fishman, and Tanakawa[3] conducted a materials flow accounting for the Philippines to examine economic growth and its environmental pressures from 1980 to 2014. Results of their study show that economic policies, trade liberalization, and globalization from the 1980s to the 2000s shifted the Philippines from agricultural production and manufacturing to a services-led economy. This shift has actually caused an increase in materials efficiency and contributed to a level of decoupling economic growth from resource-use because services require less capital and less materials input.

However, the results for domestic materials consumption also showed a shift from biomass-based consumption to non-renewable-based materials consumption due to increase in the extraction of metallic and non-metallic mineral-ores and fossil-fuels. These results imply negative impacts on the environment, which is supported by the deteriorating results of the Philippines in the 2018 Environmental Performance Index (see Section 4.7).

The results for materials footprint analysis imply that much of the primary production of materials in the Philippines is for other countries through exports, which has economic and environmental consequences (Martinico-Perez, et al., 2018). According to the researchers, "some material consumption occurs for consumers abroad (through exports) meaning materials available for domestic consumption and wellbeing are even lower, suggesting a low overall material standard of living" (Martinico-Perez, et al., 2018, p. 162). The constant negative trade balances imply that the country is dependent on imports to satisfy its material needs.

3 Marianne Faith G. Martinico-Perez and Hiroki Tanikawa-Graduate School of Environmental Studies, Nagoya University, Japan; Heinz Schandl-Graduate School of Environmental Studies, Nagoya University, Japan and Commonwealth Scientific and Industrial Research Organisation (CSIRO), Australia; Tomer Fishman-Center for Industrial Ecology, Yale University, United States

4.6. PRODUCTION, DISTRIBUTION, AND CONSUMPTION PATTERNS

This chapter attempts to describe the production, distribution, and consumption patterns in key resources, economic subsectors, and services.

4.6.1. Land

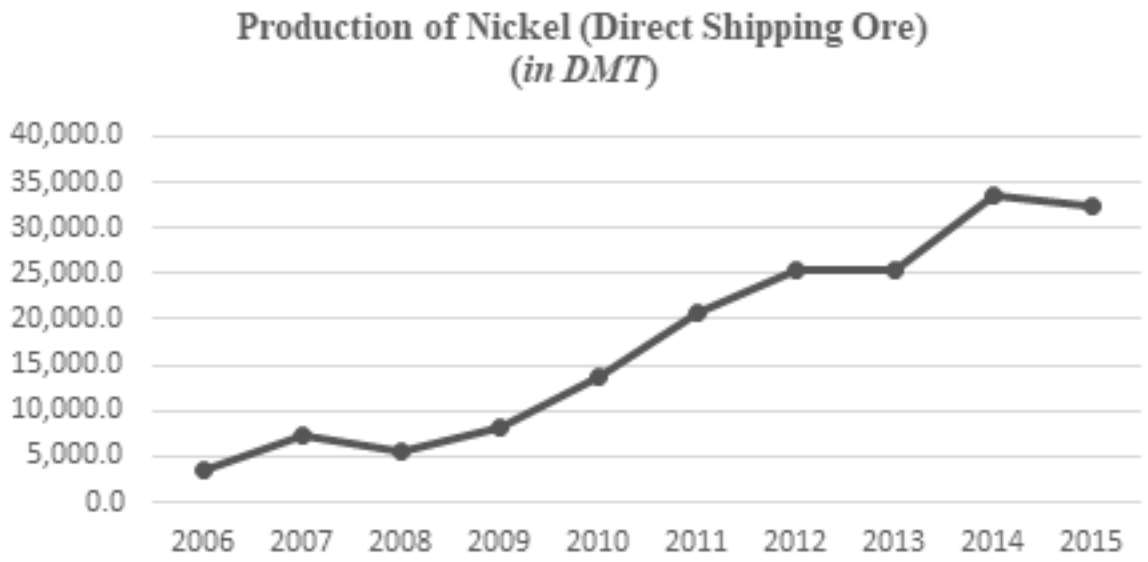
The Philippines has a total land area of 300, 000 km^2 or 30 million hectares. The most recent statistics classified 14.19 million hectares as alienable and disposable land, 15.8 million hectares as forest land, 3.27 million hectares as established forest reserves, 10.056 million hectares as timberlands, 1.34 million hectares as national parks, 1.26 million hectares as military and naval reservations, 1.7 million hectares as civil reservations, and 9.11 million hectares as fishponds.

Although more than half of the total land area is classified as forest land and forest reserves, the forest cover of the Philippines is down to 6.84 million hectares (23%) as of 2010 from the 21 million hectares (70%) in 1990 (PSA, 2016a) (Annex 4.7). The most forested areas are located in Cagayan Valley, MIMAROPA (Mindoro, Marinduque, Romblon, Palawan), Cordillera Administrative Region, Caraga Region, Central Luzon, and Eastern Visayas, which all have more than 500,000 hectares of forest cover.

According to government statistics in 2002, a total of 9.671 million hectares of land is used for agriculture. Arable land is around 4.936 million hectares, permanent cropland is around, 4.225 million hectares, and permanent meadows/pastures are about 0.129 million hectares (PSA, 2012). In 2012, total land area for agriculture was down to 7.19 million hectares. Permanent cropland was reduced to 3.329 million hectares, and permanent meadows and pastures were reduced to 0.044 million hectares (PSA, 2016b)

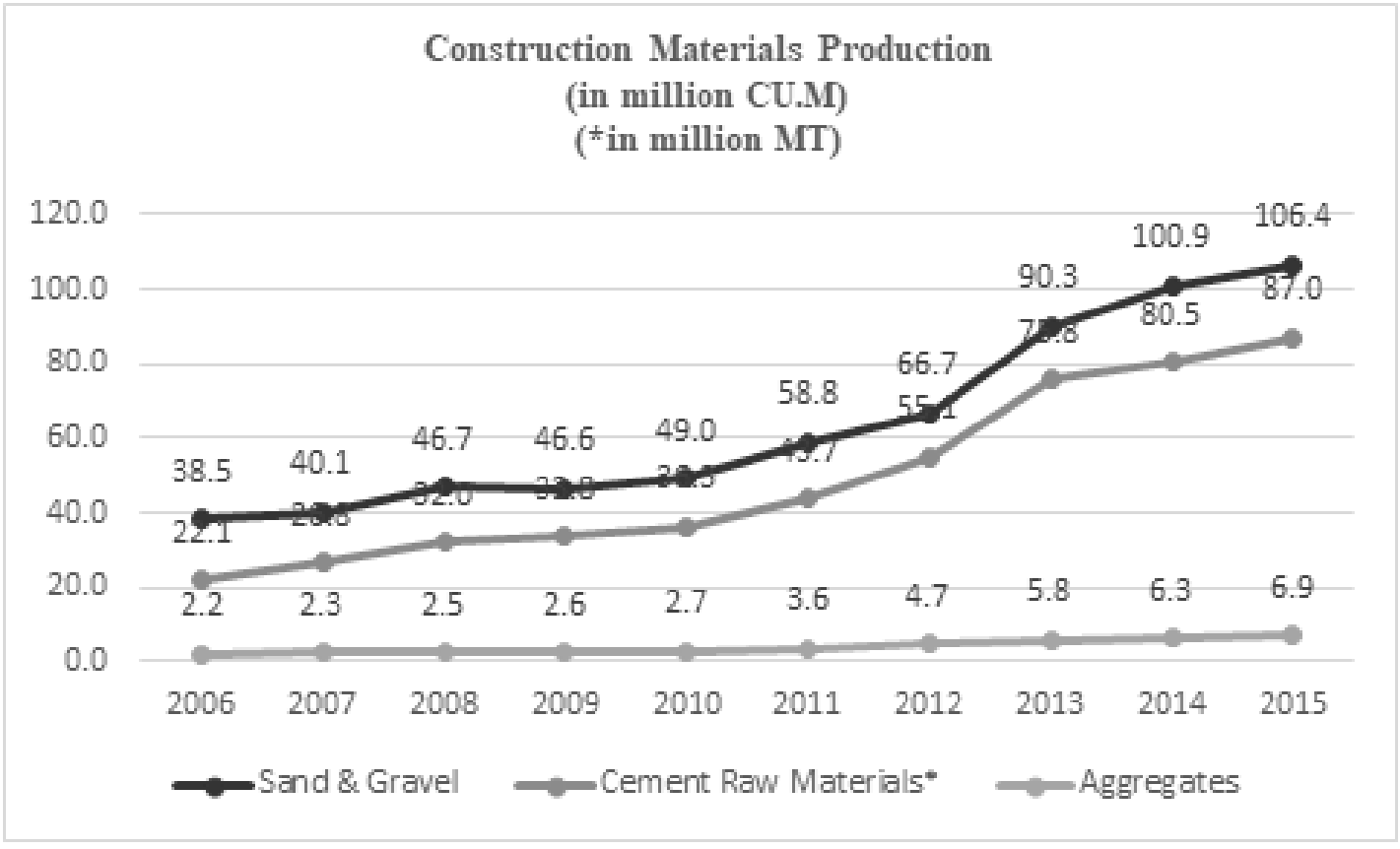
Despite three decades of supposed land reform, millions of peasants remain landless (IBON, 2017b). In 2017, the Department of Agrarian Reform reported that 93% of the remaining balance for land distribution are private agricultural land holdings. The former DAR Secretary Rafael Mariano proposed to conduct a comprehensive national survey of the agrarian reform beneficiaries (ARBs) to confirm if the ARBs are indeed still the owners of the land they were awarded (IBON, 2017b).

FIGURE 4.4. PRODUCTION OF NICKEL



Source: PSA, 2016a

FIGURE 4.5. PRODUCTION OF CONSTRUCTION MATERIALS



Source: 2016a

TABLE 4.6. ENERGY CONSUMPTION BY SECTOR

Energy Consumption by Sector (In MTOE)	2012	2013	2014	2015	2016
Total	25.82	27.22	28.64	30.99	33.53
Industry	5.81	6.31	6.53	6.75	7.45
Transport	8.36	8.65	9.13	10.56	11.42
Residential	8.22	8.44	8.49	8.73	9.03
Commercial	2.83	3.04	3.4	3.37	3.86
Agriculture,fisheries and forestry	0.32	0.35	0.35	0.4	0.45
Others	0.28	0.43	0.6	1.18	1.31

Source: PSA, 2018a

Meanwhile, large tracts of lands from 5,000 hectares up to more than 40,000 hectares are owned by wealthy comprador landlord families such as the Ayalas, Zobels, Cojuangcos, Roxas, and Yulos. Large tracts of lands are also being acquired by plantations, corporations, and landlords. Estimates by IBON(2017a) place more than 500,000 hectares of land under these types of acquisitions.

Land grabbing from indigenous peoples' territories is also carried out legally through laws such as the Expanded National Integrated Protected Areas System or RA 11038 (NIPAS) and Forestry Code (PD 705). The NIPAS aims to map and zone areas for preservation to protect the environment. However, it also limits the entry of indigenous peoples in their lands which have been declared watersheds and national parks. Meanwhile the Forestry Code declares that all lands 18% or over in slope are forest lands and not alienable of disposable. However, most indigenous people's claims on lands are in these types of lands (Molintas, 2004).

The financialization of agriculture enables foreign companies to control lands, agricultural production, and skirt laws restricting foreign ownership of land through acquiring investment funds in the Philippines (IBON, 2016a). Cargill is able to operate in the Philippines through this scheme since 1947. It started to acquire farmlands through Black River which in 2013, bought a 30.92% stake in local food company, Agrinurture Inc. (IBON, 2016a). Agrinurute Inc. has also partnered with Chinese agribusiness company Beidahuang in producing Chinese hybrid rice covering 2,000 hectares in Central Luzon (Grain, 2012). Meanwhile foreign corporations such as DOLE and Del Monte are exercising direct control of land and agricultural production through leasehold contracts with farmers. Together, they control up to 100,000 hectares of land in Mindanao for pineapple and banana production (IBON, 2016a).

The government has also been accused of land grabbing through setting up special economic zones. An example is the Aurora Pacific Economic Zone and Freeport which displaced farmers, fisherfolk, and indigenous peoples from 12,923 hectares of land in Casiguran, Aurora. The Clark Green City inside the Clark Special Economic Zone is set to displace thousands of indigenous Aetas. As of 2016, there are 348 special economic zones operating in the Philippines.

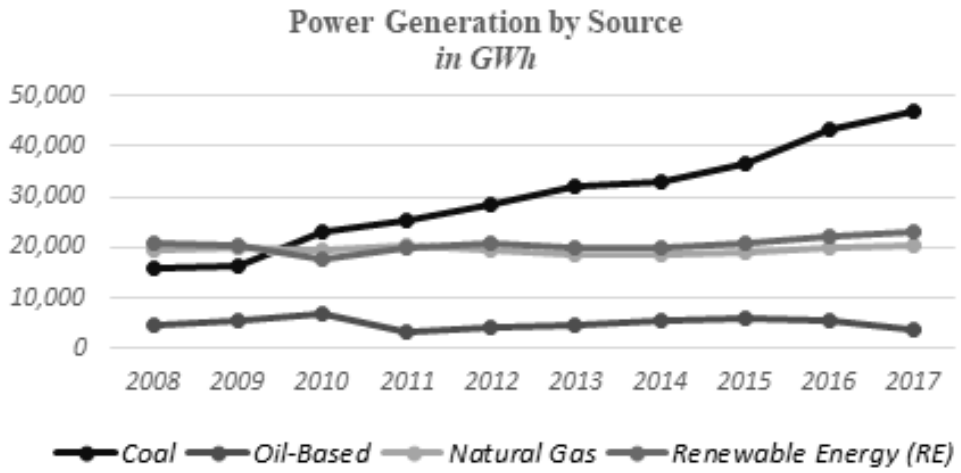
4.6.2. Minerals

The Philippines has significant deposits of gold, silver, copper, nickel, iron, chromite, cobalt, and manganese. Nine million hectares of Philippine land has high mineral potential. As of August 2018, 703,846. 67 hectares of land are under mining tenements (Mines and Geosciences Bureau [MGB], 2018).

In 2013, the Philippines accounted for 21% of the world production of nickel and around 5% of the world's cobalt (Fong-Sam, 2014). The production of nickel, as well as select construction materials continued to increase from 2006-2013 (Figures 4.4 and 4.5). According to the MGB, the value of gold production in 2017 reached PhP 45.73 billion, nickel at PhP 43.37 Billion, and copper at PhP 19.30 billion. Mineral exports amounted to more than PhP 217 billion in 2017. Among the primary destinations of exports are Australia, Canada, China, and Japan.

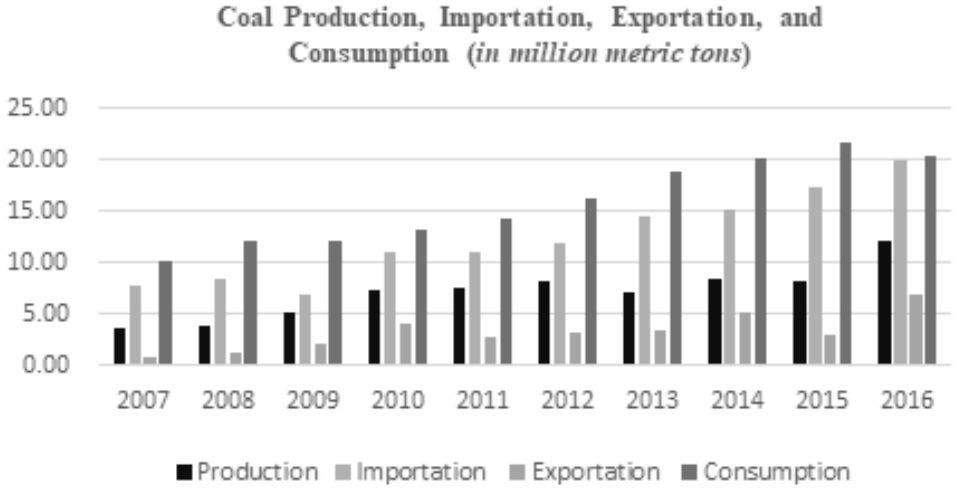
There are a total of 48 metallic mines, 61 non-metallic mines, and 3,389 small quarries and sand and gravel operations by the local government units (MGB, 2018). However, there are only five processing plants: two for gold, two for nickel, and one copper smelter. (MGB, 2018). Due to the lack of downstream industries, around 97% of the minerals produced in the Philippines is

FIGURE 4.6. POWER GENERATION BY SOURCE IN GWh



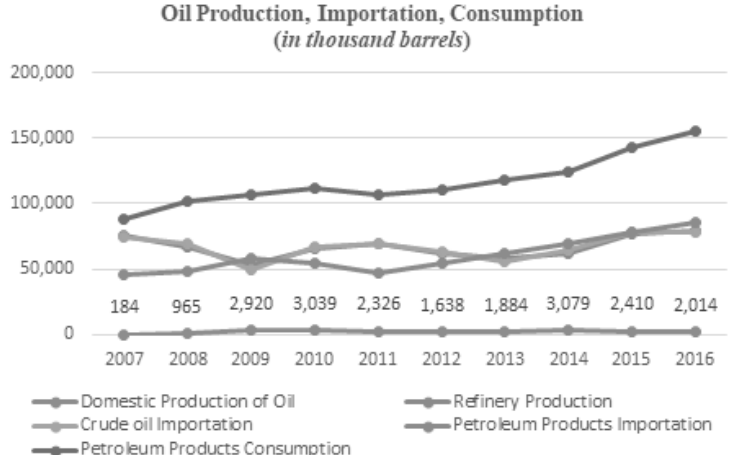
Source: Department of Energy [DOE], 2017a

FIGURE 4.7. COAL PRODUCTION, IMPORTATION, EXPORTATION, AND CONSUMPTION



Source: DOE, n.d.

FIGURE 4.8. OIL PRODUCTION, IMPORTATION, AND CONSUMPTION



Source: PSA, 2017a

FIGURE 4.9. HIGHEST AND LOWEST LEVEL OF ACCESS TO ELECTRICITY

Source: IRENA, 2017, p.14

exported to foreign industries for further processing into finished products (IBON, 2015).

From 2013-2017, mining and quarrying contributed to only between 1% to 1.08% to the total GDP of the Philippines. Taxes on mining companies are as low as 2%. Mining companies must also pay 1% of their gross production output to indigenous peoples in the lands where their operations are located.

To improve revenues from mining, a proposal to increase the taxes to 10% on gross revenues or 45%-55% on adjusted mining revenues, plus a percentage of windfall profit, which ever is higher, was made during the Aquino government (Chavez, 2017).

The Mining Act of 1995 allows 100% foreign ownership of mining assets and exploration permits. The biggest mining companies that operate in the Philippines come from Australia, Canada, China, Japan, Norway, Switzerland, and United Kingdom, and United States (IBON, 2015).

The Mining Act of 1995 has provisions for creating teams that will monitor the environmental compliance of mine operators. However, there are no specific guidelines on the composition of these teams and how they will be formed (CEC, 2018). Moreover, the lack of implementation of environmental protection mechanisms in mining have resulted into pollution and mining disasters. According to the Center for Environmental Concerns (2018), there were at least seven mining-related disasters which spilled millions of metric tons of mine waste in Benguet and Palawan in the past four years. The audit conducted by former Environment Secretary Gina Lopez revealed that more than half (68.29%) of the large scale mines in the Philippines violated environmental and social regulations (CEC, 2018).

4.6.3. Energy

Energy consumption in the Philippines rose steadily from 2012-2016 (see Table4.6). The largest consumption of energy comes from transportation. This is in part due to the easier process for car ownership which increased the number of cars on the road (see discussion under Section 4.6.8. Transportation). The country is still dependent on coal for energy for the last ten years (see Figure 4.6) (Annex 4.8).

Energy self-sufficiency was only 53.5% in 2015. The country is also largely dependent on importation of coal and oil. Production, importation, and consumption of coal rose steadily from 2007-2016 (see Figure 4.7) (Annex 4.9). Oil importation also increased to keep up with the increasing consumption of oil products (see Figure 4.8) (Annex 4.10).

The 2015 National Census revealed that 88% of households in the Philippines use electricity as source of lighting (Annex 4.11). Meanwhile, 8.4% use kerosene (gaas), 1.4% use solar lamps, and .95% use solar panels (Annex 4.12). The 2011 Household Energy Consumption Survey revealed that households using LPG for cooking were reduced from 52% in 2004 to 40.5% in 2011. Those using fuelwood were slightly reduced from 54.9% in 2004 to 54% in 2011. Charcoal users rose from 30.2% to 35.3%. Those using electricity rose from 13.8% to 17.5% (PSA, 2013).

As of 2016, household electrification was at 89.6%, leaving 2.36 million households without access to electricity. Other areas have access to electricity for only four to six hours a day (International Renewable Energy Agency [IRENA], 2017). Figure 4.9 shows the Philippine areas with most and least access to electricity. ARMM, which has the least access, is also among the poorest regions, with at least 59% of its population living below the poverty threshold (Gavilan, 2017).

The Electric Power Industry Reform Act (EPIRA) was enacted in 2001 with the aim of delivering affordable and reliable electricity to Filipinos. However, according to IBON Foundation (2017c), the electric supply remained expensive and unreliable. Moreover, the privatization of the energy industry strengthened monopolies and enriched corporations such as San Miguel Energy Corporation, Aboitiz Power, First Gen, Power Assets and Liabilities Management Corporation (PSALM), and Manila Electric Company (MERALCO).

According to the DOE (2017c), the Philippines also has the highest electricity rates among its neighbors in Southeast Asia. While both Philippines and Singapore charge industries PhP 5.84 per kwh, Philippines has higher commercial and household rates at PhP 7.49 per kw and PhP 8.90 kwh, respectively. Meanwhile, Singapore's rate for both commercial and household use is PhP 7.27. Indonesia, Malaysia, and Thailand enjoy lower rates because of government subsidies.

The EPIRA passed on the costs that private corporations should shoulder to electricity consumers through the Universal Charge (UC). These costs include the stranded cost which the National Power Corporation (NAPOCOR) acquired from the excess costs of electricity contracted from independent power producers (IPPs) over the actual cost of electricity in the market. Stranded debts are also from other onerous terms in NAPOCOR's contract with the IPPs in the 1990s (IBON, 2017c).

The Philippine Energy Plan of 2017-2040 (PEP 2017-2040) aims to (1) ensure energy security; (2) expand energy access; (3) promote a low carbon future; (4) strengthen collaboration among all government agencies involved in energy; (5) implement, monitor, and integrate sectoral and technological roadmaps and action plans; (6) advocate the passage of the department's legislative agenda; (8) strengthen consumer welfare and protection; (8) foster stronger international relations and partnerships (DOE, 2017b).

Although the PEP 2017-2014 intends to increase the installed capacity of renewable energy to 20,000 MW, it does not intend to move away from fossil fuels as it also aims to increase production of oil to 115.37 MMB and coal to 282 MMMT by 2040. It also pursues the development of the biodiesel and bioethanol industry through the Biofuels Act of 2006. Meanwhile, consumer welfare and protection do not go beyond information campaigns on energy saving and alternative fuels, which do not impact energy-policy making or pricing. The plan will also pursue bilateral and multilateral energy cooperation and facilitate free trade agreements on energy trade and services.

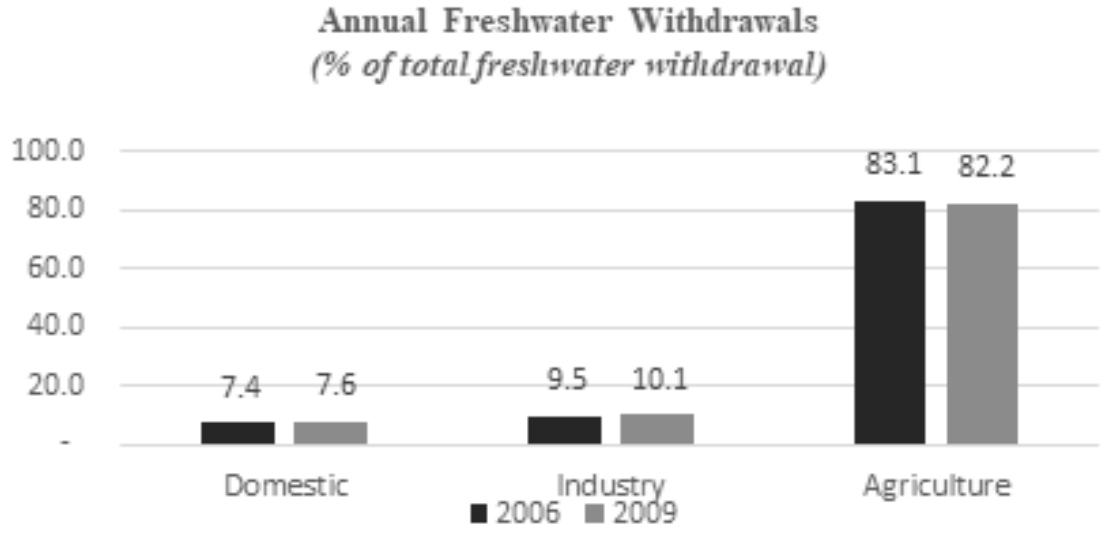
Meanwhile, green energy projects are being used to grab lands and evade land reform. ATN Philippines Solar Energy Group, Inc plans to install a 30–MW Solar Photovoltaic in a contested 256-hectare property in Rodriguez, Rizal. Rice farmers living in the property are resisting the project by asserting their rights to the land (Solar plant to replace rice lands in Rizal town, 2016). In 2016, the 50-MW Tarlac Solar Power Project (TSPP) which occupies around 500 hectares of land inside the disputed Cojuangco-Aquino-owned Hacienda Luisita, went online (Ayroso, 2015). The project is owned by German company Conergy, and Yuchengo companies PetroSolar Corporation and EEI Power Corporation.

4.6.4. Fresh Water

The Philippines has freshwater resources from 421 principal rivers, 79 natural lakes, and 50,000 km2 of ground aquifers (Riverbasin Coordinating Office as cited in Caparas, 2014). It has a total internal renewable freshwater resources of 479 billion cubic meters. Due to population increase, total internal renewable freshwater resources went down from 6,555.8 cubic meters in 1997 to 4,785.11 cubic meters in 2014. Annual withdrawal rates reached 78.89 billion cubic meters in 2006 and increased to 81.56 billion cubic meters in 2009. Agriculture uses the highest amount of percentage of water resources compared to industry and domestic use (see Figure 4.10).

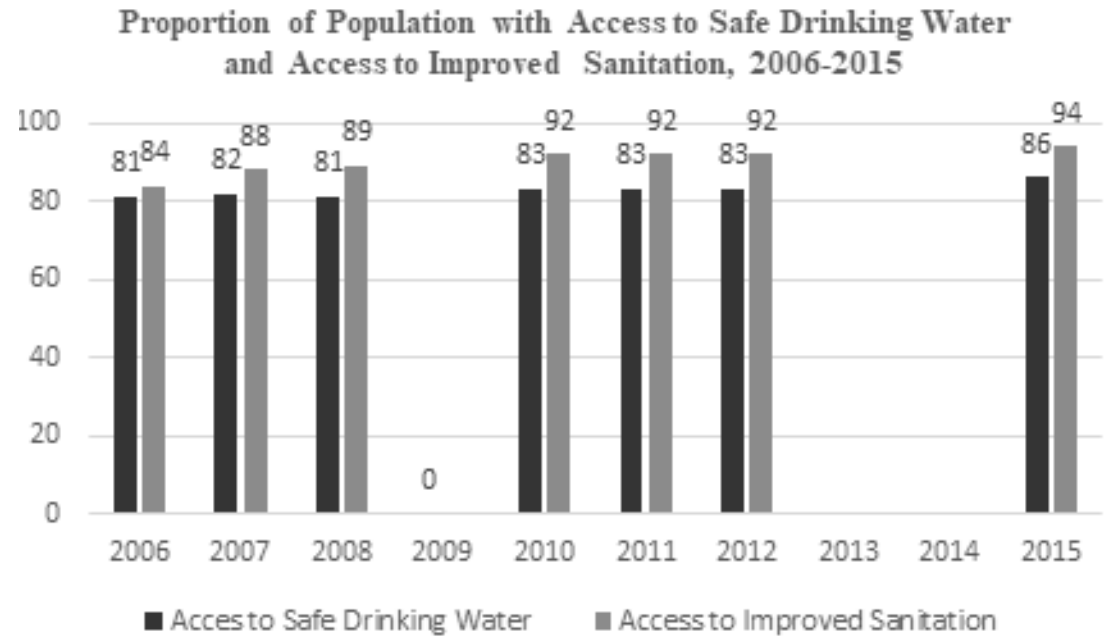
Access to safe drinking water is at 86% in 2015, and access to improved sanitation is at 94% in the same year (see Figure 4.11). Results of the 2015 National Census reveal that bottled water is the main source of drinking by 27.2% of the households in the Philippines, followed by own use faucet community water system (26%), shared

FIGURE4.10. ANNUAL FRESHWATER WITHDRAWAL RATES PER SECTOR



Source: FAO AQUASTAT, 2017

FIGURE 4. 11. PROPORTION OF POPULATION WITH ACCESS TO SAFE DRINKING WATER AND ACCESS TO IMPROVED SANITATION, 2006-2015



Source: ASEAN Secretariat, 2017

TABLE 4.7. PROPORTION OF POPULATION COVERED BY WATER SUPPLY AND IMPROVED SANITATION

Region	Water Supply Coverage	Improved Sanitation Coverage
Region 3 - Central Luzon	98.70%	81.98%
NCR - Metro Manila	93.70%	84.87%
Region 1 - Ilocos	92.20%	71.62%
Region 4A - Calabarzon	92.20%	88.04%
Region 11 - Davao	91.40%	69.93%
Region 8 - Eastern Visayas	90.00%	73.40%
Region 10 - Northern Mindanao	89.60%	80.08%
Region 2 - Cagayan Valley	88.30%	52.20%
Region 12 - Soccsksargen	87.20%	40.92%
CAR - Cordillera	86.50%	71.88%
Region 4B - Mimaropa	85.60%	71.56%
Region 7 - Central Visayas	85.20%	71.58%
Region 13 - Caraga	85.00%	77.00%
Region 5 - Bicol	80.40%	69.90%
Region 9 – Zamboanga Peninsula	77.30%	70.55%
Region 6 - Western Visayas	73.30%	72.05%
ARMM - Muslim Mindanao	48.00%	20.52%

Source: NEDA, 2018

faucet community water system (13%), and shared tubed/ piped deep well (12%) (PSA, 2018c) (Annex 4.13).

In a report released by NEDA in 2018, at least 12.32 % or 2.8 million of the country's 22.7 million families still have no access to safe water while 2.4% still do not have improved sanitation (see Table 4.7).

The NEDA started drafting the Philippine Water Supply and Sanitation Master Plan in 2017. There is no draft available yet to the public as of this writing.

In 1974, the National Water Resources Board (NWRB) was created through the Presidential Decree 424 and is governed by the Water Code of the Philippines (PD 1067). It is responsible for the formulation and development of policies on water utilization and appropriation, the control and supervision of water utilities and franchises, and the regulation and rationalization of water rates. In Metro Manila, water demand is primarily managed by the concession agreements between the Metropolitan Waterworks and Sewerage System (MWSS) and two private concessionaires Manila Water and Maynilad. The privatization of MWSS through the advice of the International Finance Corporation (IFC) in 1997 led to to higher prices of water (IBON, 2017d).

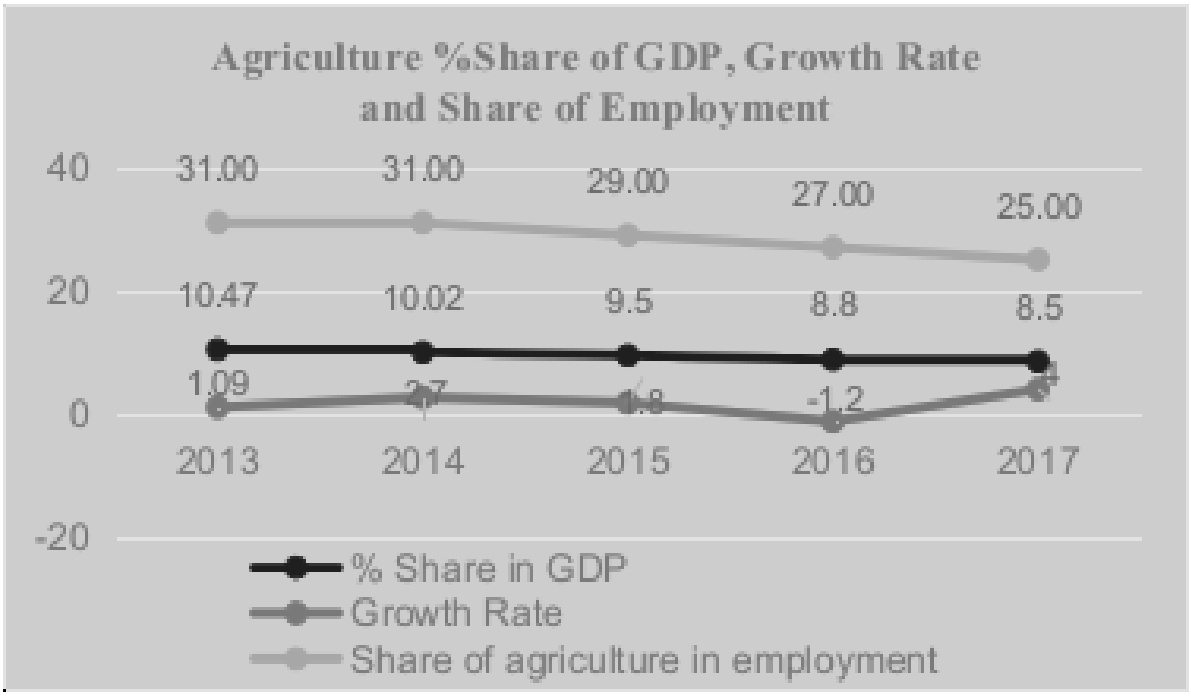
4.6.5. Agriculture

Gross value added (GVA) of agriculture fell from 10.47% in 2013 to 8.5% in 2017. Employment in agriculture declined from 2013-2017 (Figure 4.12). Wages also remain low (Figure 4.13). Government spending on agriculture remains low at 4%-5% of total government expenditures (Figure 4.14).

Major crops produced by the Philippines are rice, maize, coconut, sugarcane, banana, pineapple, coffee, mango, tobacco, abaca, peanut, mungbean, cassava, sweet potato,tomato, garlic, onion bulb, cabbage, eggplant, calamansi, and rubber. Sugar cane, palay, banana, corn, cassava, and pineapples are the country's top five crops in terms of volume and value (Annex 4.14)

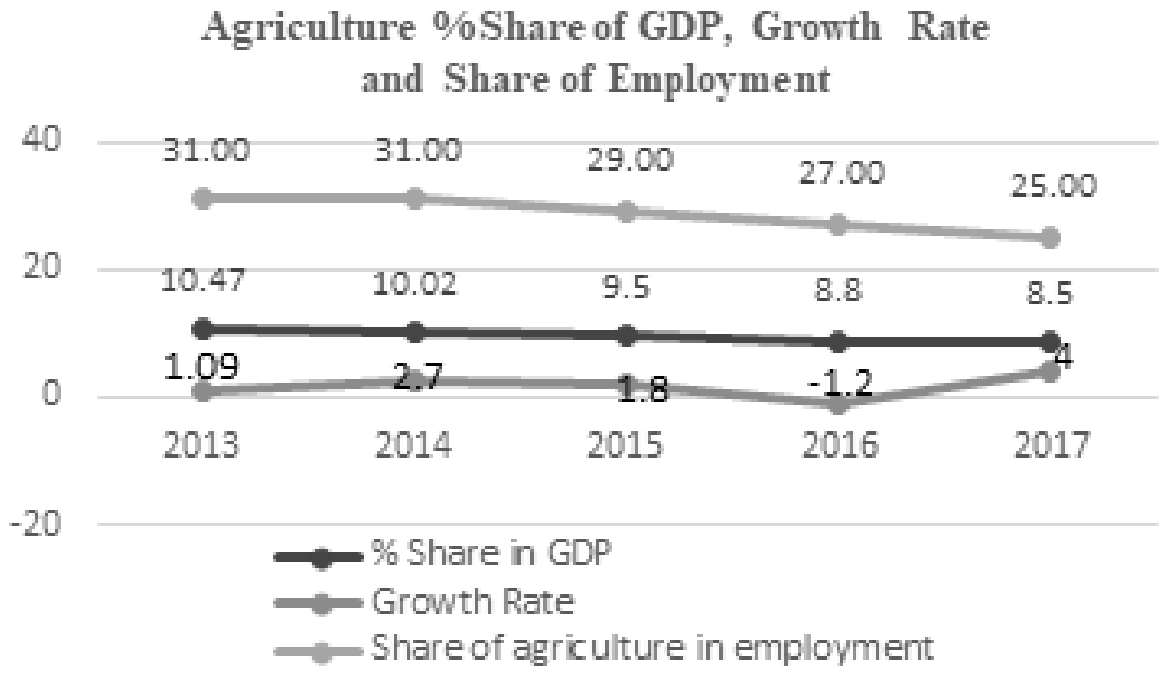
For livestock, the Philippines produces hog, chicken, chicken eggs, cattle, carabao, goat, duck eggs, duck, and dairy (in order of volume of production) (Annex 4.15).

FIGURE 4.12. GROWTH RATE, SHARE OF AGRICULTURE IN GDP AND EMPLOYMENT



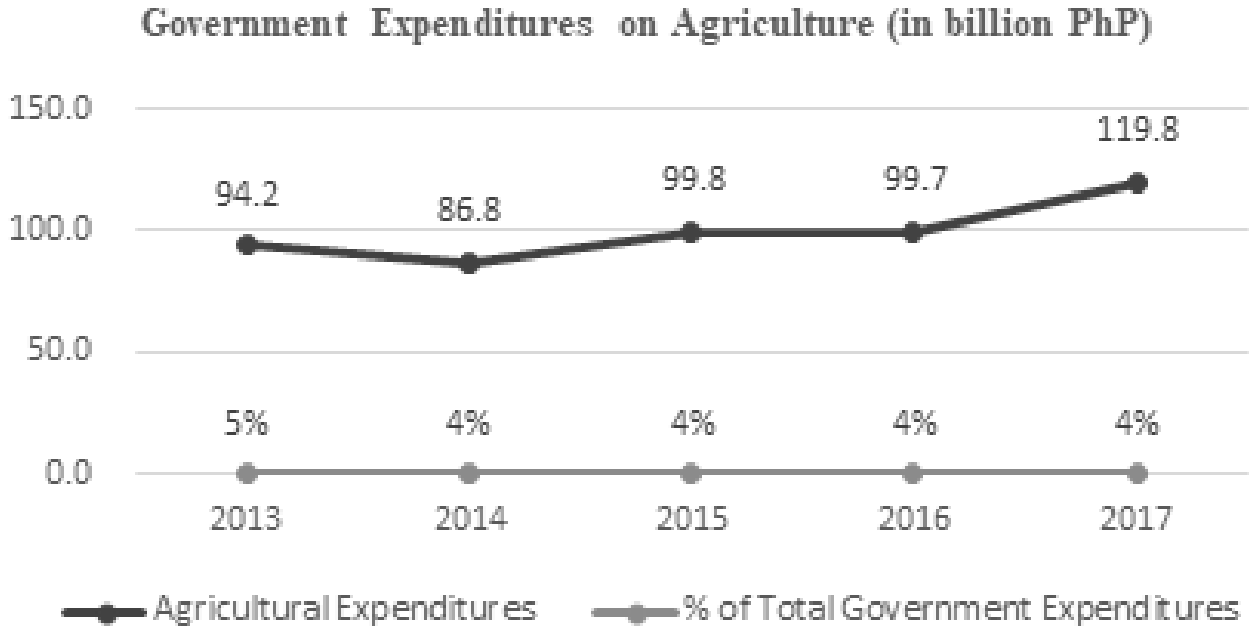
Source: PSA, 2018b

FIGURE 4.13. DAILY AGRICULTURAL WAGES



Source: PSA, 2018b

FIGURE 4.14. GOVERNMENT EXPENDITURES ON AGRICULTURE



Source: CountryStat

TABLE 4.8. AGRICULTURAL TRADE BALANCE, 2013-2017

	2013	2014	2015	2016	2017
Agricultural Exports (in FOB M US$)	6,400.03	6,542.95	5,131.85	5,280.24	6,579.51
Agricultural Imports (CIF M US$)	7,931.14	9,631.24	10,965.76	12,518.84	11,762.47
Trade Balance	-1,531.11	-3,088.29	-5,833.91	-7,238.6	-5,182.96

Source: PSA, 2018b

For fisheries, aqua culture produces almost 50% of total fish production, followed by marine and inland municipal fisheries, and commercial fisheries (Annex 4.16).

Top agricultural exports are coconut oil, fresh bananas, pineapples and products, tuna, and desicated coconut (Annex 4.17). Top destinations for agricultural exports are US, China, South Korea, and the EU. (Annex 4.17).

Overall self-sufficiency in major agricultural products in 2016 is at 86.47%. The country has 100% or more self-sufficiency for coconut, sugarcane, calamansi, papaya, pomelo, tomato, cabbage, eggplant, cassava, sweet potato, goat meat, chicken eggs, milkfish, tilapia, shrimp and prawns, crabs, and oysters. Rice and corn self-sufficiency is at 95.01% and 89.96% respectively. The country has the lowest self-sufficiency rates for the following products: coffee-31.89%, garlic-11.03%, onion-47.65%, peanuts-27.52%, and monggo-52.15% (Annex 4.18).

The Philippines imports agricultural products from other countries. High levels of agricultural imports caused deficits in trade balance (Table 4.8). The Philippines is among the top importers of rice from 2013 to 2017 (Annex 4.19). Top agricultural imports are wheat and meslin, soyabean oil/cake meal, milk and cream products, coffee, frozen bovine meat, manufactured fertilizer, and rice (Annex 4.20).

In terms of utilization, majority of domestic agricultural production is used domestically, with 5% directly exported. However, 50% of rubber production is exported. For food products, more than 50% of the gross supply of corn is used for animal feeds. (Annex 4.21).

In 2017, Mindanao produced 40% of the country's agricultural products (crops, livestock, poultry, and dairy). Luzon and Visayas produced the remaining 60% (30% each). In 2012, Mindanao produced 42% of the country's fisheries products while Luzon produced 40%, while Visayas produced the remaining 18%.

Fisheries in the Philippines is governed by the Fisheries Code of 1998 which has "provisions for the management and conservation of fisheries and aquaculture in the Philippines and the reconstitution or establishment of fisheries institutions both at the national and local level" (Ecolex, n.d.a). It was amended by Republic Act No. 10654 in 2014 in compliance with EU standards. The amendment aims to "to deter and eliminate illegal, unreported and unregulated (IUU) fishing. Amendments deal with several aspects of the above mentioned Code, specifying new management and conservation measures to conserve and manage living marine resources, fisheries and aquaculture in the Philippines and the reconstitution or establishment of fisheries institutions both at the national and local level" (Ecolex, n.d.b).

However, local fisherfolk group PAMALAKAYA (Pambansang Lakas ng Kilusang Mamamalakaya ng Pilipinas) criticizes the Fisheries Code and its amendment as anti-small fisherfolk. According to PAMALAKAYA, the "amended Fisheries Code under the Republic Act 10654 exacerbates the miserable condition of the already impoverished fisherfolk through the excessive fees and taxes" (PAMALAKAYA, 2017, para. 2). Under the amendment, even small scale and subsistence fisherfolk are required to pay hefty fees for the registration of themselves, their fishing boats, and gears. They are also required to report their fish catch at designated fish landing centers. Moreover, the code still allows the exploitation of the municipal fishing waters in favor of export-based commercial fishing fleets to the detriment of small fisherfolk. PAMALAKAYA also criticized the designation of marine protected areas as inadequate because other activities that destroy marine life such as the destruction of mangroves and coastal reclamation projects are not being stopped. Moreover, the marine protected areas are also used to restrict the access of small fisherfolk to fishing areas that are in the vicinity of resorts (Mayuga, 2018).

4.6.6. Manufacturing

The GVA of manufacturing grew from PhP 1.54 trillion in 2013 to PhP 2.4 trillion in 2017 (constant 2000 prices) (Annex 4.22).

In 2015, total establishments under manufacturing reached 24,496. The most number of establishments are under baking (27.4%), manufacture of bottled water (9.6%), printing (5.8%), and rice/corn milling (4.7%) (PSA, 2018f).

The combined GVA of the top 10 manufacturing industries composed the 50.7% of the total GVA of manufacturing establishments for 2015 (PhP 1.2 trillion.). Semi-conductor and electronic components manufacturing had the highest GVA with PhP 133.8 billion, or 11.4% of the total GVA for manufacturing. Cigarettes and cigars ranked second with PhP 108.7 billion or 9.2%, and motor vehicles ranked third with PhP104.6 billion or 8.9% (PSA, 2018f).

Manufacturing provided employment for 1,293,811 workers in 2015, which is 3.3% of total employment. The top employer is the semiconductor devices and other electronic components industry which employed 150,821 workers (11.6% of manufacturing employment or .4% of the total employment), followed by baking which employed 87,477 workers. Manufacture of wearing apparel and garments have a combined employment of 91,420 workers (PSA, 2018f).

4.6.7. Wholesale and Retail Trade

Trade and repair of motor vehicles, motorcycles, personal and household goods contributed to 16.7% to the GDP in 2015 and 16.9% in 2017. Retail trade leads the subsector in terms of GVA. In 2017, retail trade was 13% of the GDP, wholesale trade was 3%, while repairs was only 1%. Growth rate of retail trade increased from 6.1% in 2015 to 7.3% in 2017. Meanwhile the growth rate for wholesale trade decreased from 11.2% in 2015 to 7.8% in 2017 (Annex 4.23.).

The final results of the 2015 Annual Survey of Philippine Business and Industry (ASPBI) - Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles Sector for All Establishments indicate that the retail sale of wearing apparel except footwear had the highest number of establishments (98,765 or 8.2%), followed by drugs and pharmaceutical goods (6.6%) (PSA, 2018g).

The sector employed a total of 1,008,210 workers in 2015. Retail selling in department stores employed the most workers (66,484) within the sector, followed by retail selling in supermarkets (46,034), retail sale of hardware materials (45,677), retail sale of wearing apparel except footwear (44,828), and retail sale of automotive fuel in specialized stores (42,550) (PSA, 2018g)

Retail selling in supermarkets earned the highest income (PhP 291.4 billion) in 2015; followed by sale of passenger motor vehicles with (PhP278.3 billion); retail

sale of automotive fuel in specialized stores (PhP 275.6 billion); wholesale of solid, liquid and gaseous fuels, and related products (PhP 210.05 billion); and retail selling in department stores (PhP 176.38 billion) (PSA, 2018g) (Annex4.24).

Neighborhood retail stores, locally called "sari-sari" stores, are still the most numerous establishments under retail trade.

The sector is currently being modernized and consolidated by the four major players-SM Group, Ayala Corporation, Robinsons, and Rustans (Oxford Business Group, 2017). These companies are consolidating and expanding their operations by buying out smaller players in the grocery, electronics, appliances, and home and garden segments, in metropolitan areas and also less saturated areas in the country (Oxford Business Group, 2017). These companies are also putting in billions in new malls. Robinsons is planning to build 10 new community malls by 2020 through investments amounting to USD 100 million (Oxford Business Group, 2017). SM Group on the other hand owns the world's 4th (SM North), 5th (SM Megamall), 6th (SM City Side Cebu), and 12th (SM Mall of Asia) largest shopping malls (World Atlas, 2018) .

4.6.8. Transportation

Transport system in the Philippines includes road, water, rail, and air transport. According to the ADB in 2012, despite the importance of water transport to an archipelagic country like the Philippines, road transport carries 98% of passenger traffic and 58% of cargo traffic (ADB, 2012). Unfortunately, no new recent data is published on the total passenger and cargo traffic that flows through roads. PSA accounts in 2016 list cargo movement for air transport at 850.90 million MT and 62.11 million passengers. For water transport in 2016, cargo traffic was 243.76 million MT, and passenger traffic was 68.9 million (PSA, 2018a).

Road Transport

As of 2016, the total length of the national road is 32,770 km of which 91.6% is paved with concrete and asphalt while the remaining 8.4% are gravel and earth roads. The top five regions in terms of road density (ratio of length of country's total road network to its land area), are National Capital Region (NCR) (187.08), Central Visayas, (16.68), Cavite-Laguna-Batangas-Rizal-Quezon (CALABARZON) (15.19), Western Visayas (15.1), and Bicol (13.17) (DPWH, 2016) (Annex 4.25). According to the World Economic Forum-Global Competitiveness Report (WEF-GCR) 2015-2016 the Philippines ranked 97th out of 140 countries in terms of quality of road infrastructure.

According to the PSA (2018a), private car ownership increased from 7.71 million in 2015 to 9.35 million in 2017. For hire vehicles increased from 916,300 in 2015 to 970,400 in 2017. For 2017, the regions with highest number of motor vehicles are NCR (2.62 million), CALABARZON (1.35 million), and Central Luzon (1.09 million) (Land Transportation Office [LTO], 2018) (Annex 4.26). NCR also has the highest vehicle density with around 4,224 motor vehicles per square kilometer. CALABARZON, the next region with the highest vehicle density, has 80/km^2 while Central Luzon has 56.88/km^2.

Urban Transport

Road-based transportation in urban areas is entirely provided by the private sector. In NCR, there are around 433 bus companies operating 805 routes. Jeepneys on the other hand operate in 795 routes. Jeepneys are the most popular mode of road transport. After World War II, Americans left their jeeps in the Philippines, which were then re-purposed to accommodate several passengers Utility vans also operate in several areas of NCR, as well as taxis. Tricycles and pedicabs (bicycles with attached 2-wheeled passenger seats) are restricted to local areas leading to larger transport services (ADB, 2012).

In 2017, the Department of Transportation (DOTr) launched the Public Utility Vehicle Modernization Program or commonly known as the "Jeepney Modernization Program." It aims to make the country's public transport system, specifically the jeepney sector, efficient and environment-friendly by 2020. The program will phase out jeepneys that are 15 years and older and replace them with new PUVs that are Euro-4 compliant or have electric engines. The Development Bank of the Philippines (DBP) set up a PhP 1.5 billion loan portfolio to finance the program.

The program was criticized by transport groups, including PISTON (Pinagkaisang Samahan ng mga Tsuper at Operator Nationwide). The new jeeps will cost PhP 1.2 to 1.6 million each. According to PISTON, drivers and operators cannot afford to take out loans to pay for the

new vehicles (Salamat, 2017). Through its financing scheme, the government will subsidize five to six percent of the cost of acquiring the jeeps (around PhP 80,000 each for the 28,000 drivers/operators). Daily amortization will cost PhP 800, whereas the daily average income of drivers is PhP 600 (Cruz, 2017). Meanwhile, foreign manufacturers of the Euro-4 compliant vehicles are set to benefit from the Comprehensive Automotive Resurgence Strategy (CARS) Program. According to IBON Foundation, "The CARS program has a PhP 27 billion subsidy for six years for assemblers to be given fixed investment support (FIS) and/or Production Volume Incentive to revive the car assembly industry in the Philippines beginning 2016. The Board of Investments (BOI) has closed the third slot of CARS (the two being Mitsubishi and Toyota) in order to focus on PUV assemblers. For 2018, the Department of Trade and Industry (DTI) is asking Php1.64 billion to fund the incentive promised to carmakers" (Balangue, 2017).

Railways

The Philippines has three main rail networks in NCR: the Metro Rail Transit (North Avenue to Taft), Light Rail Transit 1 (Baclaran to Monumento), and the Light Rail Transit 2 (Santolan to Recto). Both MRT and LRT1 are owned and operated by the private sector.

The Metro Rail Transit (MRT3) is owned by the following companies through equity shares: Astoria Investment of the Ayala Corp. (18.6%), Anglo Philippine Holdings of the National Bookstore Group (18.6%), Railco Investments of the RAMCAR Group (18.6%), Metro Global Holdings Corp.(18.6%), Sheridan LRT Holdings of the Unilab Group (16%), and other smaller share holders (9.6%). In 2016, MRT3 carried a total of 135 million passengers and earned a gross revenue of 2.68 billion PhP.

The Ayala Ayala and Metro Pacific-backed Light Rail Manila Consortium (LRMC) took over the operations of LRT 1 in 2015. In 2014, LRT1 carried 170.7 million passengers and grossed PhP 2.52 billion (Annex 4.27).

LRT2 is still under the operation of the Light Rail Transit Authority (LRTA) of the Department of Transportation (DOTr). In 2014, LRT2 carried 72.9 million passengers and grossed PhP 973.36 million

The Philippine National Railways (PNR) also operates two lines: the Metro South Commuter Train (Caloocan to Laguna) and the Bicol Commuter Train (Naga City to Sipocot). In 2014, the Metro South Commuter Train carried 24.2 million passengers and grossed PhP 303.41 million. Meanwhile, the Bicol Commuter Train carried 471,474 passengers and grossed PhP 8.073 million.

Construction for expanding the LRT 1 to Cavite and MRT 7 which will connect Bulacan to Metro Manila, has already started.

Water Transport

In 2013, there was a total of 436 major ports in the Philippines, of which 237 are private, 112 are under municipal jurisdiction, 64 are terminals, and 23 are bases.

In 2014, there were a total of 10,694 merchant vessels, 6,555 passenger vessels, 3,051 cargo vessels, 29 tankers, 566 tug boats, 28 dredgers, 33 registered yachts, and 11,340 fishing vessels (Annex 4.28).

In 2015, the five major shipping players are (Development Bank of the Philippines [DBP], 2015):

1. Negros Navigation (Now 2GO)
2. Sulpicio Lines (Now Philippine Span Asia Carrier Corporation)
3. WG&A (Merger of Williams Lines, Inc., Carlos Gothong Lines Inc., and Aboitiz Shipping Corporation)
4. Fast Ferry Corporation
5. Cebu Ferries Corporation

The other leading shipping companies are (DBP, 2015):

1. Aleson Shipping Lines
2. Ocean JetFast Ferries
3. Cokaliong Shipping Lines
4. Oceanic Container Lines, Inc.
5. Herma Shipping & Transport
6. Roble Shipping Inc.
7. Lite Shipping
8. Trans-Asia Shipping Lines
9. Moreta Shipping Lines
10. Weesam Express
11. Starhorse Shipping Lines
12. George and Peter Lines

In 2014, the Philippine Senate Committee on Trade, Commerce, and Entrepreneurship approved SB 2364

TABLE 4.9. BUSIEST AIRPORTS IN THE PHILIPPINES, 2016

Airport	No. of Passengers Annually (in thousands)
Ninoy Aquino International	38,800
Mactan International	8,100
Francisco Bangoy International	3,400
Kalibo International	2,400
Iloilo International	2,300

Source: Oxford Economics, 2016

which will allow foreign ships to call in multiple ports as long as goods carried are for foreign trade.

Air Transport

There are 86 government-controlled airports, 38 are in Luzon, 24 are in Visayas, while 24 are in Mindanao (Annex 4.29). Out of these, nine are international airports wherein five are located in Luzon, two in Visayas, and three in Mindanao (PSA, 2017a). The five busiest airports in 2016 are Ninoy Aquino International, Mactan International, Francisco Bangoy International, Kalibo International, and Iloilo International (Table 4.9).

Domestic air transport in the Philippines is operated by four main airlines: Philippine Airlines (PAL), Cebu Pacific, Philippines Air Asia, and Skyjet. Of the 24.8 million domestic passenger traffic in 2017, Cebu Pacific Group's (with Tiger Air and CebGo) share is 55.%, PAL Group's share (with PAL Express) is 29% Philippines Air Asia is 14% (CAPA, 2018a).

International passenger traffic grew by 12% in 2017 and has grown 36% from 2014 (CAPA, 2018b). Of the 24.4 million international passengers in 2017, 28% were carried by PAL Group, 20% were carried by Cebu Pacific Group, 6% were carried by Philippines Air Asia, while 47% were carried by foreign airlines (CAPA, 2018a).

4.6.9. Information and Communication

In 2017, the GVA of communications is PhP 391.34 billion or 2.5% of the GDP (current prices) (PSA, 2018a). In 2015, the sector provided employment to 148,507 workers or less than 1% of total employment.

In 2015, mobile telecommunications services lead the industry in terms of total income (PhP 215.98 billion), followed by wired (landline) services (PhP 95.21 billion), and computer programming activities (PhP 62.73 billion) (Annex 4.30).

As of 2016, Philippine Long Distance Telephone Company (PLDT) and Globe Telecom, Inc. (Globe) are leading (monopolizing) the local telecommunications market (Board of Investment [BOI], 2018). They provide landline, cellular, and internet broadband services.

In 2016, total landline subscriptions reached 3.8 million while density per 100 inhabitants is 3. On the other hand, total mobile phone subscription increased from 120.3 million in 2015 to 126.5 million in 2016, with a density of 109.17 mobile phone users per 100 inhabitants (Annex 4.31). Fixed broadband subscriptions went down from 3.46 million in 2015 to 2.6 million in 2016. Fixed-broadband subscriptions were 5.5 per 100 inhabitants while mobile broadband subscription were 46.3 per 100 inhabitants. In Akamai's State of the Internet report in 2017, the Philippines ranked 100th globally in terms of average connection speed at 5.5Mbps, the lowest in the Asia Pacific region.

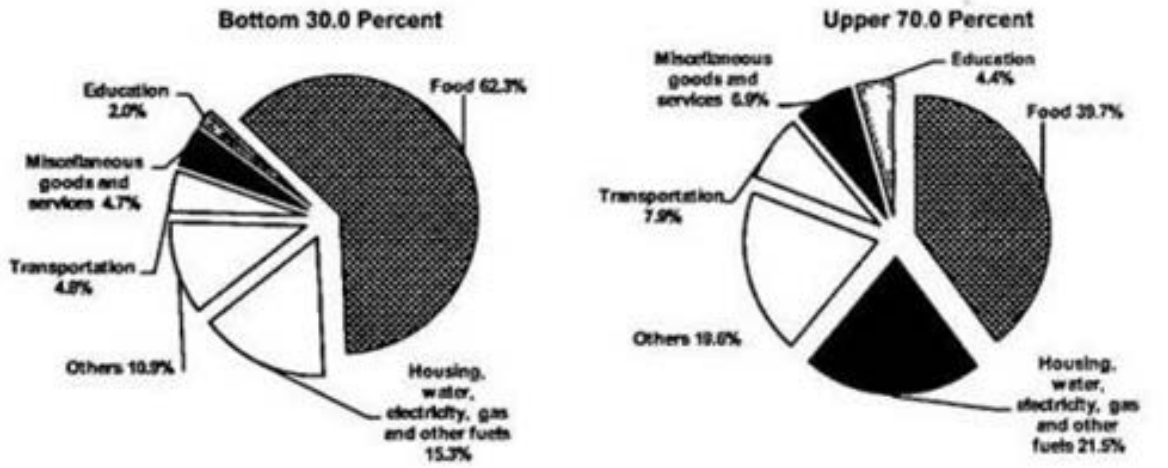
In 2013, there were 357, 398 licensed radio stations. Of these 162,412 are located in NCR. (Annex 4.32). In 2015, there were 436 local and national TV stations, and 1,457 cable TV stations (Annex 4.33). From 1,946 regular post offices in 2010, these were reduced to 1,077 in 2015 (PSA, 2017d).

4.6.10. Tourism

Tourism's contribution to the country's GDP rose from 5.7% in 2000 to 12.2% in 2017 (current prices) (Annex 4.34), higher than the agriculture's which was at 8.5% in 2017. Total contribution in employment also rose from 9% in 2000 to 13.06% in 2017.

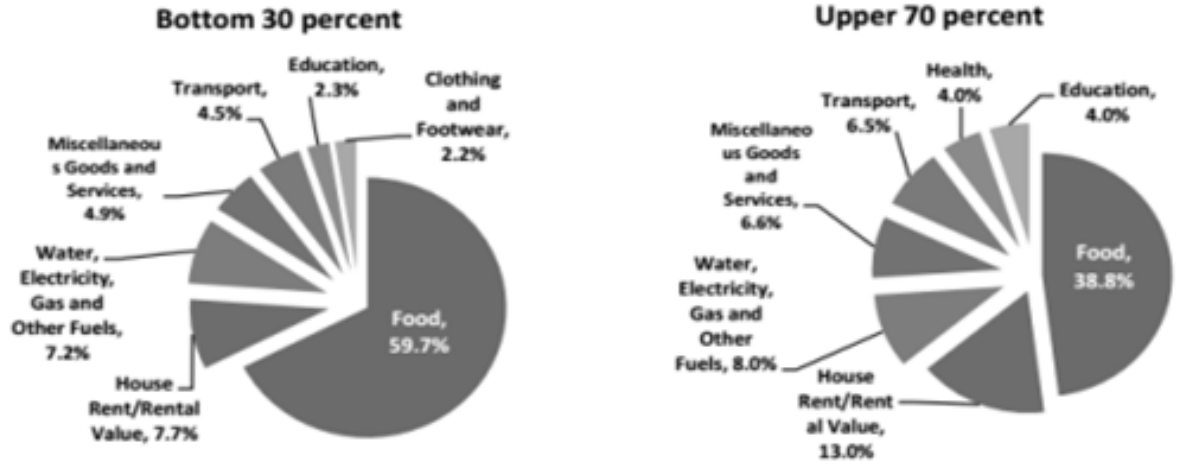
Tourist arrivals in the Philippines increased around 24% from 5.36 million in 2015, to 6.62 million in 2017 (Annex 4.35). Inbound tourism expenditure grew by 43.9% in 2017 amounting to PhP 4.48 billion from PhP 3.11 billion in 2016. The share of inbound tourism to the country's total exports in 9.2% which is third after semiconductors at 21.9% and miscellaneous services at 15.7% (PSA, 2018d).

FIGURE 4.15. EXPENDITURE PATTERN OF THE BOTTOM 30% AND UPPER 70% PER CAPITA INCOME GROUPS: 2012



Source: National Statistics Office [NSO], 2012, p. xxii

FIGURE 4.16. EXPENDITURE PATTERN OF THE BOTTOM 30% AND UPPER 70% PER CAPITA INCOME GROUPS: 2015



Source: PSA, 2015, p. xxiv

Domestic tourism expenditures on the other hand grew by 25.5% from PhP 2.1 trillion to PhP 2.6 trillion. The share of domestic tourism expenditure to household final consumption expenditure rose from 13.4% in 2013 to 22.8% in 2017. However, no disaggregated data for income groups are available (Annex 4.34).

In 2017, accommodation services occupied 21.5% of the total consumption of tourism products for internal tourism. Shopping was 14%, transport services was 11.5%, food and beverage services was 8.8%, entertainment and recreation services was 6.9%, travel agencies and reservation services was 5.7%, and miscellaneous at 30.9% (no data for miscellaneous) (Annex 4.36).

Eco-tourism is being supported by the government through promotion and capacity building of operators. However, some ancestral lands are converted into eco-tourism sites through the NIPAS and managed by non-indigenous business groups, displacing indigenous peoples groups. In exchange for being allowed to stay in their now eco-tourist area, some IP groups have chosen to provide services to tourists. According to the 'Higala sa Lumad' Network, Lumads were relocated to "Lumad towns" or settlements to give way to tourist destinations for mountain trekkers and climbers. In Impasug-ong, Bukidnon, Higaonons display their artworks and perform dances and rituals for a fee. They also sell bead bracelets and other effects blessed by tribal leaders for around P150 to P200. They also serve as tourist guides with fees ranging from P1,000 to P2,000 per climb (2017, p. 45). Having been displaced, the Lumads had to abandon their traditional needs-based or sustainable economy and now have to rely on tourist arrivals (Higala sa Lumad Network, 2017).

TABLE 4.10. PERCENTAGE SHARES OF FOOD IN THE TOTAL FAMILY EXPENDITURES BY FOOD GROUP 2003, 2006, 2009, 2012, 2015

ITEM	2003	2006	2009	2012	2015
Food	43.1	41.4	42.6	42.8	41.9
Food consumed at home	37.7	35.5	36.5	35.3	33.7
Cerals and cereals preparations	10.9	10.9	12.0	12.0	11.7
Fruits and vegetables	4.3	3.8	3.8	3.7	3.5
Meat and meat preparations	6.7	6.1	5.8	5.9	5.4
Dairy products and eggs	3.2	3.0	3.0	2.9	2.8
Fish and marine products	5.5	5.1	5.1	5.4	5.0
Coffee, cocoa and tea	1.0	1.0	1.0	1.3	1.5
Sugar, jam, honey, chocolate and confectionary	1.5	1.3	0.7	1.4	0.9
Non-alcoholic beverages	1.5	1.3	0.7	1.4	1.3
Oil and Fats				0.7	0.6
Food (not elsewhere classified)	3.8	3.8	3.8	1.0	1.0
Food regularly consumed outside home	5.4	5.8	6.1	7.5	8.2

Source: PSA, 2017b, p. 11

4.6.11. Food and Beverage

According to the triennial Family Income and Expenditure Survey of the Philippine Statistics Authority, food holds the greatest share of household expenditure across income groups in 2012 and 2015. However, households at the bottom 30% of the income per capita group spend more on food than those at the upper 70% (see Figures 4.15 and 4.16)

From 2003-2015, food consumed inside homes decreased from 37.7% to 33.7% of total household expenditures. Meanwhile food consumed outside the home increased from 5.4%-8.2% of total household expenditures. In general, families spend most on cereals and cereal preparations, meat and meat preparations, and fish and marine products (Table 4.10).

Disaggregation for income groups show that those earning below PhP 60,000 spent less on meat, non-alcoholic beverages, and on eating outside the home (Tables 4.11 and 4.12)

Government surveys from 1999-2012 show that annual per capita food consumption in kilograms and liters of persons belonging to class D and E generally consume less than classes A, B, and C, of every major food group, except for corn, roots crops (camote, cassava, gabi), string

TABLE 4.11. TOTAL ANNUAL FAMILY EXPENDITURE ON FOOD BY INCOME CLASS, 2012

Region Major Expenditure Group	All Income Class	Income Class				
		Under 40,000	40,000 - 59,999	60,000 - 99,999	100,000 - 249,999	250,000 and over
Philippines Total family expenditure (in millions)	**4,125,312**	**22,540**	**75,188**	**320,853**	**1,307,091**	**2,399,641**
Percent to total expenditure	100.0	100.0	100.0	100.0	100.0	100.0
Food expenditures	42.8	62.3	62.2	60.1	51.8	34.9
Food consumed at home	35.3	56.0	58.4	55.4	44.3	26.8
Bread and cereals	12.0	26.3	27.2	24.7	16.2	7.3
Meat	5.9	3.6	4.4	5.0	6.6	5.7
Fish and sea foods	5.4	9.2	9.6	9.2	6.9	3.9
Milk, cheese and eggs	2.9	2.3	2.4	2.8	3.2	2.8
Oils and fats	0.7	0.9	1.1	1.1	0.9	0.6
Fruits	1.3	2.1	2.0	1.8	1.5	1.1
Vegetables	2.4	5.3	5.2	4.4	3.1	1.7
Sugar, jam , honey, chocolate and confectionary	1.0	1.6	1.7	1.6	1.2	0.7
Food not elsewhere classified	1.0	1.6	1.7	1.6	1.4	0.8
Coffee, cocoa and tea	1.3	2.2	2.1	2.1	1.8	1.0
Mineral water, softdrinks, fruits and veg juices	1.4	0.7	0.9	1.2	1.5	1.3
Food regularly consumed outside the home	7.5	6.4	3.8	4.7	7.5	8.1
Alcoholic beverages	0.6	0.9	0.9	0.9	0.8	0.5
Tobacco	0.9	1.5	1.6	1.5	1.2	0.6
Other vegetables-based products	0.0	0.1	0.1	0.0	0.0	0.0

Source: NSO, 2012, p. 33

TABLE 4.12. TOTAL ANNUAL FAMILY EXPENDITURE ON FOOD, BY INCOME CLASS, 2015

Region Major Expenditure Group	All Income Classes	Income Class				
		Under 40,000	40,000 - 59,999	60,000 - 99,999	100,000 - 249,999	250,000 and over
Philippines Total family expenditure (in millions)	**4,882,860**	**12,376**	**47,947**	**262,096**	**1,500,018**	**3,060,424**
Percent to the total expenditure	100.0	100.0	100.0	100.0	100.0	100.0
Food expenditures	41.9	60.8	59.9	58.8	51.6	35.3
Food consumed at home	33.7	55.2	54.8	53.2	43.8	26.7
Bread and Cereals	11.7	24.5	25.2	23.8	16.9	7.8
Meat	5.4	3.7	4.1	4.7	5.9	5.2
Fish and Seafood	5.0	9.5	8.6	8.4	6.7	3.8
Milk Cheese and Eggs	2.8	2.3	2.6	2.8	3.0	2.7
Oils and Fats	0.6	1.0	1.0	1.0	0.8	0.5
Fruit	1.2	2.1	1.9	1.7	1.4	1.1
Vegetables	2.3	5.6	5.0	4.3	3.2	1.7
Sugar,Jam, Honey, Chocolate and Confectionery	0.9	1.6	1.5	1.5	1.1	0.6
Food Products Not Elsewhere Classified	1.0	1.7	1.7	1.7	1.3	0.8
Coffee Tea and Cocoa	1.5	2.5	2.3	2.2	2.0	1.2
Mineral Water, Softdrinks, Fruit and Vegetable Juices	1.3	0.9	1.0	1.1	1.4	1.2
Food regularly consumed outside the home	8.2	5.5	5.1	5.6	7.8	8.6
Alcoholic Beverages	0.5	0.9	0.9	0.8	0.7	0.4
Tobacco	1.1	2.0	1.9	2.0	1.7	0.8
Other Vegetable-Based Products	0.0	0.1	0.1	0.0	0.0	0.0

Source: PSA, 2015, p.37

TABLE 4.13. HEALTH AS % OF TOTAL EXPENDITURES BOTTOM 30 PERCENT AND UPPER 70 PERCENT

	2012	2015
Bottom 30%	1.8	1.9
Upper 70%	4	4

Source: PSA, 2015, p. xxxi; NSO, 2012, p. xxx

beans, saba, round scad (galunggong), and dried fish (CountryStat, 2017) (Annex 4.37).

In 2011, government surveys show that hunger rates were highest in Eastern Visayas at 16.2%, South Cotabato-Cotabato-Sultan Kudarat-Sarangani-General Santos City (SOCCSKARGEN) at 13%, Caraga at 11.7% and Northern Mindanao at 10.1% (PSA, 2013). In 2017, surveys by the Social Weather Station (SWS) indicate that the annual average hunger rate for Metro Manila is 12.4%, Visayas 11.4% and Mindanao 12%. Ironically, Mindanao produced 40% of the country's total agricultural produce in 2017.

4.6.12. Health

Expenditures

Overall national health expenditures increased from 2014-2016. However, more than 50% of these expenditures are from households (out-of-pocket expenditures) (Annex 4.39).

For the bottom 30% households, health expenditures were 1.8% in 2012 and 1.9% in 2015 of the total household expenditures. Figures remained the same for the upper 70% for 2012 and 2015. (Table 4.13)

Private hospitals outnumber government hospitals. The number of government hospitals decreased from 2013-2015 from 542 to 423. Meanwhile, private hospitals also decreased from 912 to 772 (PSA, 2018a). In 2016, the doctor to population ratio is 1:33,000. In comparison, Cuba has one doctor for every 1,075 people (Ubial as cited in Cabato, 2016)

Prevalence of Malnutrition Among Children from 0-60 Months Old

The prevalence of stunting among children from 0-60 months old increased from 30.3% in 2013 to 33.5% in 2015. Disaggregating for regions, the Autonomous Region of Muslim Mindanao (ARMM) (45%), Eastern Visayas (42.1%), Occidental Mindoro-Oriental Mindoro-Marinduque-Romblon-Palawan (MIMAROPA) (40.7%), Bicol (40.2%), and SOCCSKSARGEN (40.2%) have the highest prevalence rates of stunting in 2015 (Annex 4.40).

The prevalence of underweight among children from 0-60 months old increased from 19.9% in 2013 to 21.6% in 2015. MIMAROPA (31.6%), Eastern Visayas (30%), Bicol (28.5%), Western Visayas (26.5%), and SOCCSKSARGEN (26%) have the highest prevalence rates of underweight children in 2015.

Wasting slightly decreased from 7.9% to 7.1% from 2013-2015. MIMAROPA (9.6%), Eastern Visayas (8.4%), ARMM (8.2%), Bicol (8.1%), and Caraga (8.1%) have the highest prevalence rates of wasting in 2015.

The number of overweight children decreased from 5% to 3.8% from 2013-2015. NCR (6%), Central Luzon (5.9%), CALABARZON (4.9%), ARMM (4.1)%, and Cagayan Valley (3.8%) have the highest prevalence of overweight children in 2015.

Diseases

The top five highest reported diseases (2007-2014) are acute lower respiratory tract infection and pneumonia, diarrhea, acute febrile illness, measles, and typhoid and paratyphoid fever (Annex 4.41).

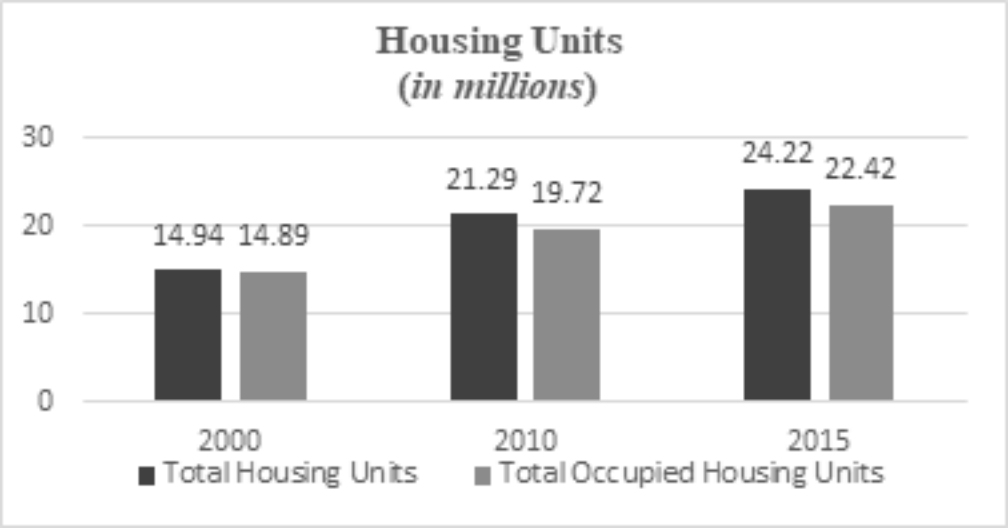
Leading Causes of Death

The top causes of death in 2016 are ischaemic heart diseases, neoplasms, pneumonia, cerebrovascular diseases, and hypertensive diseases (Annex 4.42).

4.6.13. Housing

The number of housing units increased from 14.94 million in 2000 to 24.22 million in 2015 (Figure 4.17). In the same period, occupancy rates fell from 99.68% to 92.57%, meaning in 2015, around 1.66 million housing units do not have occupants. A 2016 study conducted by the University of Asia and the Pacific found out that there was "an excess of around 253,300 high-end (or open market) houses and 307,740 mid-priced homes, many of which were situated within the National Capital Region

FIGURE 4.17. TOTAL HOUSING UNITS VS OCCUPIED HOUSING UNITS



Source: PSA, 2018c

(NCR) and the country's other urban centers" (Angara, 2018).

However, this does not mean that every Filipino family owns a house. At the national level, there are 102 households for every 100 occupied housing units. The top three regions with the highest household to occupied housing units are ARMM (110:100), NCR (104:100), and Ilocos Region (104:100) (PSA, 2018c).

Majority of the occupied housing units are single houses (80.7%), followed by multi-unit residential (11.9%), duplex house (7.1%), and others (0.2%) (PSA, 2018c) (Annex 4.43).

A little over half (55.3%) of the households own the house and lot of their homes. 21.4% own their house on rent-free lots with consent of the land owner. 12.1% rent both house and lot while 5.9% live in rent-free house and lot with consent of the owner. 3.1% own the house but rent the lot (PSA, 2018c) (Annex 4.44)

There are no official statistics on homelessness in the Philippines. In the 2015 National Census however, the PSA reported that there are 529,751 households (2.3%) whose tenure status are described as "own house rent-free lot without consent of owner" or "rent-free house and lot without consent of owner". Multiplying the figure by the average household size of 4.38, reveals that there may be around 2.32 million informal settlers or 'squatters' in the Philippines. The top five regions with the highest number of informal settlers are: NCR (511,723), CALABARZON (306,862), Western Visayas (197,993), Central Luzon (177,769), and Central Visayas (165,481) (Annex 4.45).

These numbers do not yet include populations living on the streets. Meanwhile, the PDP 2017-2022 indicate that there is a need for 5,390 housing units for homeless people, and that the government's Pantawid Pamilya program served 4,947 homeless street families.

Almost half (49.2%) of the occupied housing units have walls made of concrete/brick/stone. 17.4% are made of wood, 15.8% are made of bamboo/sawali/nipa/cogon, 15.3% half concrete/brick/stone and half wood, 1.3% are made of galvanized iron. For roofing, 80.3% of the occupied housing units have roofs made of galvanized iron/aluminum, 11.8% are made of bamboo/sawali/cogon/, 4.8% half galvanized iron and half concrete, and 2.4% are made of tile/concrete/clay tile (PSA, 2018c) (Annex 4.46).

Housing in the Philippines is managed by the National Housing Authority. However, its predecessor Philippine Homesite and Housing Corp. (PHHC) started selling its vast land holdings, enabling rich land developers to control real estate and the housing market (Angara, 2018). Since then, the government is not able to fulfill its mandate to provide affordable housing. "Socialized" housing is provided by the government mainly through public-private partnerships (PPPs). Through this scheme, private developers and construction firms such as Ayala Land, Inc. and Phinma Property Holding Corp., earn lucrative profits from government contracts (IBON, 2017e). Under the PDP 2017-2022, the government will continue the PPP scheme for housing, which also

allows developers to enjoy 30% off on taxable income from profits in accordance to the Republic Act (RA) 7279 or the Urban Development and Housing Act (UDHA) (IBON, 2017e).

4.7. ENVIRONMENTAL PRESSURES

Unsustainable patterns of consumption and production can be seen not only through the materials flow accounting, but also in the state of the environment.

According to the Environmental Protection Index of 2018, the Philippines ranked 82 out of 180 countries. The EPI report shows that the overall environmental health improved slightly but the overall ecosystem vitality experienced degeneration.

Ecosystem vitality deteriorated from a baseline score of 60.37 to 58.99. Particularly alarming is the species habitat index which was reduced from the 90.15 baseline to 41.81, indicating huge loses of habitats of species. This corresponds to the reduction of the forest protection index score of 30.06 to 17.16, indicating huge loses in tree cover. Fish stocks score was reduced from 84.78 baseline to 74.19 indicate decline in fisheries production as shown in the declining contribution of fisheries in the GDP, and also the reduction of fish stocks.

Scores for protection from heavy metals, particularly lead exposure were low (32.43 baseline, 37.10 current). The Philippines ranks 133 out of 180 countries in protection from exposure to heavy metals.

The score for intensity of CO_2 emissions lowered from 68.64 to 58.46, indicating increased emissions. This also corresponds to an increase in air pollution (sulfur oxide and nitrogen oxide intensity), with the score reduced from 71.47 to 66.85. According to the WHO, the safe level for fine particulate matter (PM2.5) is 10 micrograms per cubic meter ($\mu g/m^3$) of air in a year. However, the annual average of PM2.5 in Manila is 17 $\mu g/m^3$ which is 70 percent more than the recommended safe level (DENR, 2017). In individual cities of NCR, the concentration of PM2.5 can range from 7 $\mu g/m^3$ (San Juan City) to 50 $\mu g/m^3$ (Pasig City) (PSA, 2016a) (Annex 4.47). Air pollution related deaths are one in every four.

Waste water management is another big challenge. Only about 10% of total waste water is treated before being released into the environment. Major sources of waste water are: households (48%), agriculture (37%), and industrial (15%) (Claudio, 2015).

Solid waste management is also a problem. In 2016, 40,087 tons of waste was produced per day in the Philippines. NCR accounted for the highest amount of 9,212.92 tons every day, followed by CALABARZON which generated 4,440.15 tons/day, and Central Luzon which produced 3,890.12 tons/day (Annex 4.48). Households are the source of 57% of these wastes and 27% are from commercial establishments. In 2010, only 43% of household wastes are collected by the LGUs (Annex 4.49).

There are still 403 open dumpsites and 108 controlled dumpsites as of 2016 (Senate Economic Planning Office [SEPO], 2017). Sanitary landfills increased from 48 in 2010 to 118 in 2016 but LGU's access to these facilities is a low 15%, pushing the DENR to advocate for cluster landfills that will service multiple LGUs who will co-finance the building and operation of the facilities (SEPO, 2017).

A report on plastic pollution released by the Ocean Conservancy and the McKinsey Center for Business and Environment in 2015 revealed that the Philippines is the third largest source of plastics found in oceans (Vila, 2018). China and Indonesia ranked first and second, respectively. According to the report, 20% of the 2.7 million tons of plastic waste produced in the Philippines annually end up in oceans. Interviews with environmental advocates from Global Alliance for Incinerator Alternatives (GAIA), Break Free from Plastic Movement, and Plastic Pollution Coalition point to the lack of garbage collection in secondary cities, underfunding of the Ecological Solid Waste Management Act and the tendency of the funds to be corrupted, and the prevalence of "tingi" or retail among Filipino consumers as the culprits (Vila, 2018).

Corporations selling products such as soy sauce, vinegar, soap, shampoo, toothpaste, candies, and even alcoholic drinks in single-use sachets use this strategy to match the purchasing power of consumers. A brand audit done by Break Free from Plastic Movement after one of their coastal clean ups discovered that the most common single-use sachets are from Unilever, Nestle, Procter and Gamble, and Colgate-Palmolive. Break Free from Plastic Movement identifies the problem as stemming from corporate decisions rather than consumer choices and call for companies to take responsibility for their actions. GAIA recommends that companies should not pass the

consequences of their production to local governments and should invest in long term solutions to the plastic problem.

Several cities in the Philippines have implemented plastic bag bans. In Metro Manila, Muntinlupa City (no plastic bags), Las Pinas City (no plastic bag), Pasig (no plastic bag), Quezon City (PhP 2 for a plastic bag), and Pasay City (recyclable or reusable bag for a fee) are implementing different forms of plastic bag bans. In Quezon City, the PhP 2 goes to a greenfund for various environmental activities. However, a study released by the Food Industry Asia (FIA)[4] on waste management practices in Indonesia, Vietnam, Thailand, and the Philippines reveals that plastic bans would only reduce 2% of plastic wastes produced (FIA, 2018). The study recommends better waste collection systems for governments, redesigning plastics for better recycling, and improving recycling technologies.

"Data gathered so far show that liberalization, deregulation, and privatization policies implemented by the Philippines have led to an unbalanced economy that is driven by services and geared towards exports."

4.8. CONCLUSION

Data gathered so far show that liberalization, deregulation, and privatization policies implemented by the Philippines have led to an unbalanced economy that is driven by services and geared towards exports. This resulted in the decline on industry and agriculture, making the country reliant on imports to meet its population's material needs. Although shifting to services has led to less overall consumption of materials, the country's decades of extracting resources for export has resulted into long-term environmental consequences. The incoherence between environmental and economic policies of the government has lead to massive environmental destruction. Further expanding extractive industries according to the government's priorities as it seeks to further open the country for foreign investments and to support infrastructure building continue to endanger the country's biodiversity as well as the lives of communities. Although commitments have been made to lower GHG emissions, the country still continues to rely on and expand fossil fuel consumption for energy.

Despite the country's backward economy, household consumption still experiences growth because of remittances from overseas Filipinos. This is quite unsustainable as remittance flows can be affected by crises and policies of migrant-receiving countries. It also rests on the fundamental absence of meaningful and gainful employment in the country that compel thousands to seek jobs overseas, risking life and limb at times.

The data also showed that key resources, economic subsectors, and services in the Philippines are controlled by the elite, including local and foreign corporations. Laws managing the use and distribution of primary resources such as land, water, minerals, and energy, facilitate the transfer of the control of these resources from the public to the private sector. The ineffective distribution of land, its further concentration in the hands of landlords, corporations, and foreign investors, and the general neglect of agriculture by the government resulted in widespread poverty among food producers. The quality and quantity of food consumption differs between socio-economic classes, wherein classes D and E generally consume less than classes A, B, and C, except for food that are considered for the poor (e.g. corn, roots crops [camote, cassava, gabi], string beans, saba, round scad [galunggong] and dried fish). Ironically, food producers belong to classes D and E.

Policies meant to conserve and manage natural resources are dispossessing indigenous peoples of their territories and small fisherfolk of their sources of livelihoods, while making these same resources available for profiteering projects under the guise of nature conservation.

The corporate control of water and sanitation, and energy left significant parts of the population, especially poor communities, unable to access these services because of the high costs. Public transportation in general remained neglected which in part led to the rise of private motor vehicle ownership. The private sector take over of the housing policy has made houses unaffordable especially

4 FIA members are multinational food corporations, including Nestle, Unilever, and Coca-cola.)

for those living in urban centers. This, along with the increase of urban populations due to declining jobs and growth in agriculture in the countryside, contributed to the rise of urban slums.

Pollution has largely been associated with the consumerist lifestyle of households. However, the underfunding of existing laws to control pollution, corruption, and the lack of complementary actions such as provision of efficient mass transportation and sufficient recycling centers worsened air and solid waste pollution. Initiatives to curb plastic pollution have largely targeted consumers, but not the producers of plastics which are corporations that use single-use packaging to retail their products to match the purchasing power of its consumers. Here, it can be inferred that purchasing power is correlated to plastic pollution.

Therefore, addressing fundamental issues on who controls the production and distribution of materials and services is highly important in the transformation towards a people-powered SCP.

4.9. STRUGGLES FOR SUSTAINABLE CONSUMPTION AND PRODUCTION

Initiatives for sustainable consumption and production exist in the Philippines. Examples are reducing the use of plastics as supported by environmental advocates and local governments, and the promotion of solar energy and micro-hydro energy for communities without access to electricity, and promotion of agro-ecological farming. Campaigns against destructive extractive industries are also waged by people's organizations and environmental advocates.

People-led initiatives on SCP are almost always linked to struggles for people's rights. An example is the Lumad's struggle for their ancestral lands against mining and oil palm industries that are being promoted by the government. Practicing agro-ecological and indigenous farming methods and reforesting their lands are integrated in the Lumad's struggles against extractive industries that are encroaching in their ancestral lands.. During their 2016 and 2017 "bakwit" or evacuation from their communities and encamping in cities to protest the militarization of their communities, the Lumad brought their agro-ecological farming practices with them to produce their own food and sell some agricultural products to buy other needs while staying in camps (Varona, 2016).

The struggle for SCP by farmers is tied to their struggle for land rights. Some examples are the land occupations or "bungkalan" carried out by farmers in Central and Southern Luzon, Negros, Panay, and CARAGA. Around 10,000 hectares of land are covered by these different land occupation initiatives since 2009 (Olea, 2018). Owned by landlords and corporations, these lands which were once idle or used for monocrop plantations are being transformed by farmers to produce food through agro-ecological practices. A book titled "Bungkalan: Manwal sa Organikong Pagsasaka" was released in 2017 by the Unyon ng mga Manggagawa sa Agrikultura (UMA) to promote organic farming practices and disseminate the lessons from the land struggles of farmers in Hacienda Luisita and Negros (Acosta, 2017). Like the Lumad, farmers also face attacks from the landlords, their private armies, and also the government's military.

Campaigns for alternative laws on resource management also support people-led SCP. Two separate mining bills, People's Mining Bill (House Bill 171) and Alternative Minerals Management Bill (House Bill 984), were filed by environmental advocates and their allies in Congress to replace the current Mining Act of 1995. The Genuine Agrarian Reform Bill (House Bill 555) was filed in Congress to replace the Comprehensive Agrarian Reform Law.

4.10. RECOMMENDATIONS FOR FUTURE STUDIES

This study attempted to look at the Philippines' major economic sectors and policies governing economic development and sustainable consumption and production. It will be useful for future studies to look deeper into existing people-led SCP initiatives and how these can be scaled up. A more thorough look into civil society opportunities to influence relevant policies would also be useful for advocacy and campaigning.

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ANNEXES

ANNEX 1.1. EXAMPLES OF ENABLING MECHANISMS FOR SCP SYSTEMS

Enabling Mechanism	Short Description	Concerns, Constraints or Challenges
Produce with less	Innovations in production process reduce the environmental impact per unit made	Rebound effects
Green supply chains	Firms with leverage in a chain impose standards on their suppliers to improve environmental performance	Unfair control of small producers
Co-design	Consumers are involved in design of products to meet functions with less environmental impact	Inadequate incentives for firms to involve consumers
Produce responsibly	Producers are made responsible for waste from the disposal of products at the end of their life	Incentives for compliance without regulation may be low for many types of products
Service rather than sell	Producers provide service rather than sell products , this reduces the number of products made while still providing to consumers the functions the need	Difficult transition for firm and consumer to make as it requires new behaviors and values
Certify and label	Consumers buy labeled products. As labels are based on independent certification, producers with good practices increase their market share	Consumers easily confused with too much information or lack of transparency & credibility of competing schemes
Trade fair	Agreements are made with producers that may include minimum price and other investments or benefits. Consumers buy products labeled as or sold through fair trade channels while producers get a better deal.	Mainstream trade still dominates. Hard to maintain fair trade benefits to producers when product becomes mainstream.
Market ethically	Reducing unethical practices in marketing and advertising would reduce wasteful and over-consumption practices.	Reluctance by policy-makers to tackle very powerful private sector interests with regulation.
Buy responsibly	Campaigns that educate consumers about impacts of individual products, classes of products and consumption patterns change behavior overall.	Converting intentions and values into actions in everyday life is often difficult for consumers. Issues of convenience, flexibility and function still matter a lot.
Use less	Consumption may be reduced for a variety of reasons, for example, as a consequence of working less. There are many potential environmental gains from less overall consumption.	Dominant perception that using less means sacrifice. Less income and consumption may not automatically translate into better consumption impacts.
Increase wisely	Increasing consumption of under- consumers can be done in ways that minimize environmental impacts as economic activity expands.	Incentives for developed countries and firms to assist those in developing may be inadequate.

Lebel and Lorek (2008) as cited in Lorek & Spangenberg (2012)

ANNEX 1.2. PUBLIC TRANSPORT AND PEOPLE'S RIGHTS: JEEPNEY PHASEOUT IN THE PHILIPPINES

A program in the Philippines to phase out aging passenger jeepneys and replace them with new models that are more environment-friendly (i.e., Euro 4 engines) and more commuter-friendly (i.e., more space and safety features), if viewed with the narrow lens of an (individual) commuter (consumer), is on the surface a positive initiative to promote SCP.

But scrutinized through the perspective of people's rights and appreciating public transportation and mobility as a systemic issue, the supposed modernization program is in reality problematic. On the one hand, it assaults the right to livelihood of tens of thousands of jeepney drivers and small operators who will be displaced by the introduction of the new models, which due to their high costs and the program's requirement for bigger fleets is designed to be managed only by big corporations. On the other hand, it is also detrimental to the poorer segments of the commuting public as fares will increase under the program.

The situation is compounded by the government's neglect of mass transport such as the light rail transit system that has been in a state of disrepair for so long, which with the jeepney phaseout would further hamper the people's mobility.

A broad opposition of jeepney drivers and small operators' groups; workers, urban poor and students' groups (who make up majority of the riding public); and commuter advocacy groups against the jeepney phase out eventually halted the program. Such multisectoral opposition would have been difficult to muster without the concept and principles of people's rights and sovereignty and collectively approaching the transport issue as a systemic issue, especially amid government's efforts to pit the interests of individual commuters against the individual jeepney drivers and operators.

An alternative program of rehabilitating the jeepneys to comply with environmental regulations and the strict implementation of such already existing regulations is being pursued as a more acceptable alternative.

ANNEX 1.3. ICC MEMBERS' SCP (SDG 12) INITIATIVES

- Cargill and FareShare are working together to tackle supply chain food waste in the United Kingdom. Through the collaboration, FareShare tripled the number of cities it operates in.
- Unilever is committed to resource optimization and has already cut CO2 emissions from energy by 47%, water abstraction by 39% and total waste disposed by 98% per ton of production.
- Telefonica reuses and recycles more than 96% of its electronic waste. In 2016, 3,000 tons of used mobile phones were collected through buy-back programs, from which 41% of phones were reused and 59% were recycled.
- Olam and General Mills partnered to launch GO Compost, a lifecycle project that provides organic farmers with high quality compost and technical support for tomato growing and processing.
- Charoen Pokphand Foods audits its suppliers of animal raw materials, food ingredients and packaging groups on sustainability metrics. 64.5% of the company's key agricultural raw materials are responsibly sourced and traceable.
- Thai Union is lowering its steam, water and energy consumption through the implementation of automated manufacturing processes in its tuna canning systems.
- DIHK has launched a project called 'Young Energy Europe', which empowers young professionals to implement energy efficiency projects in their workplace.
- Billabong launched a board shorts made from 100% recycled bottle-based polyester and has now implemented the treatment to over 70% of its garments and accessories.
- Santa Cruz Chamber of Commerce, Industry, Services and Tourism (CAINCO) created FUNDARE, a foundation to promote environmental and e-waste management in Bolivia.
- Wecyclers is a project that has diverted over 3,000 metric tons of recyclable material from landfills by employing people from low-income communities in Lagos, Nigeria to collect the waste and trade it at repurposing hubs.

ANNEX 4.1. GROSS DOMESTIC PRODUCT BY INDUSTRIAL ORIGIN, PERCENT DISTRIBUTION AT CONSTANT 2000 PRICES, ANNUAL (1998-2017)

	2013	2014	2015	2016	2017					
	% Growth Rate	% GDP	% Growth Rate	% GDP	% Growth Rate	% GDP	% Growth Rate	% GDP	% Growth Rate	% GDP
AGRI. HUNTING FORESTRY AND FISHING	1.1	8.7	1.7	8.3	0.1	7.9	-1.2	7.3	4	7.1
a. Agriculture and forestry	1.2	7.1	2.1	6.8	0.6	6.5	-0.6	6	5	5.9
b. Fishing	0.7	1.6	-0.2	1.5	-1.8	1.4	-4	1.3	-0.9	1.2
INDUSTRY SECTOR	9.2	27.2	7.8	27.7	6.4	27.8	8	28.2	7.2	28.4
a. Mining & Quarrying	1.2	0.9	12.1	0.9	-1.5	0.9	3.2	0.9	3.7	0.8
b. Manufacturing	10.3	18.9	8.3	19.3	5.7	19.3	7.1	19.3	8.4	19.7
c. Construction	9.6	4.7	7.2	4.7	11.6	5	12.1	5.2	5.3	5.2
d. Electricity Gas and Water Supply	4.7	2.8	3.7	2.7	5.7	2.7	9	2.8	3.4	2.7
SERVICE SECTOR	7	46.9	6	46.9	6.9	47.4	7.5	47.8	6.8	47.9
a. Transport Storage & Communication	6	6.2	6.5	6.2	8	6.4	5.3	6.3	4	6.1
b. Trade and Repair of Motor Vehicles Mo-torcycles Personal and Household Goods	6.2	13.8	5.8	13.7	7.1	13.9	7.6	14	7.3	14.1
c. Financial Intermediation	12.6	5.9	7.2	6	6.1	6	7.9	6	7.6	6.1
d. R. Estate Renting & Business Activities	8.9	9.1	8	9.2	7.1	9.3	8.9	9.5	7.4	9.6
e. Public Administration & Defense; Com-pulsory Social Security	2.7	3.5	4.1	3.4	1.2	3.3	7.1	3.3	7.8	3.3
f. Other Services	5.2	8.5	4	8.4	8.3	8.6	7.5	8.6	6.4	8.6

Unit: In Percent
Source: Philippine Statistical Authority

ANNEX 4.2. EXPORTS OF GOODS (2013-2017)

ITEMS	2013	2014	2015	2016	2017
TOTAL EXPORTS OF GOODS	**2,417,822**	**2,755,017**	**2,936,403**	**3,249,966**	**3,928,434**
PRINCIPAL EXPORTS OF GOODS	**1,566,309**	**1,721,492**	**1,940,330**	**2,119,462**	**2,645,113**
Electric Components	**1,259,976**	**1,417,119**	**1,647,383**	**1,822,274**	**2,282,434**
a. Components/Devices (Semiconduc-tors)	985,302	1,092,910	1,306,487	1,408,491	1,743,691
b. Electric Data Processing	151,692	191,331	167,182	197,758	233,559
g. Control Instrumentation	24,834	29,518	22,583	50,096	115,567
c. Office Equipment	22,998	27,603	44,196	33,942	52,554
f. Communication/Radar	11,551	16,443	21,059	30,913	51,770
e. Telecommunication	20,134	23,037	35,741	57,028	40,665
d. Consumer Electronics	22,044	26,644	37,887	32,711	37,281
i. Automotive Electronics	19,412	4,649	4,462	6,517	4,085
h. Medical/Industrial Instrumentation	2,009	4,984	7,785	4,817	3,261
Metal Components	**66,312**	**61,267**	**64,269**	**76,482**	**101,523**
Ignition Wiring Sets	**60,967**	**74,280**	**93,483**	**91,319**	**97,564**
Principal Agricultural Products	**73,934**	**65,190**	**51,079**	**56,697**	**72,930**
a. Bananas including Plantains Fresh or Dried	25,174	27,198	15,319	18,075	23,694
b. Coconut Oil	17,846	16,832	17,913	16,746	23,153
g. Pineapple and Pineapple Products	7,258	7,335	9,752	11,541	9,535
h. Sugar	12,596	4,202	809	3,120	7,578
d. Dessicated Coconut	4,788	4,586	3,179	4,297	6,048
f. Mango Fresh or Dried	1,277	3,146	2,671	1,877	1,831
c. Copra Oil Cake or Meal	4,996	1,892	1,436	1,040	1,091
Articles of Apparel and Clothing Accessories	**63,398**	**78,160**	**59,874**	**49,780**	**50,353**
Principal Fishery Products	**22,187**	**14,615**	**9,896**	**11,904**	**19,564**
b. Tuna	20,237	11,805	8,486	9,842	16,416
a. Shrimps and Prawns	1,950	2,810	1,411	2,062	3,148
Basketworks	**2,710**	**2,284**	**3,022**	**2,571**	**2,852**
Cathodes & Sections of Cathodes of Refined Copper	**6,826**	**3,517**	**5,623**	**1,663**	**9,916**
Other Products Manufactured from Materials on Consignment Basis	-	-	-	-	-
Petroleum Products	**9,999**	**5,060**	**5,702**	**6,771**	**7,978**
OTHERS	**851,513**	**1,033,524**	**996,073**	**1,130,504**	**1,283,321**

Unit: In Million Pesos (Constant 2000 Prices)
Source: Philippine Statistical Authority | http://openstat.psa.gov.ph/sites/default/files/EOG_Annual_CONSLEV.csv

ANNEX 4.3. IMPORTS OF GOODS (2013-2017) ***CONTINUED***

ITEM	2013	2014	2015	2016	2017
TOTAL IMPORTS OF GOODS	**2,501,608**	**2,744,133**	**3,129,043**	**3,871,839**	**4,632,180**
PRINCIPAL IMPORT GOODS	**1,821,463**	**1,879,604**	**2,253,893**	**3,011,516**	**3,691,465**
Electronics	**741,933**	**632,915**	**880,308**	**1,203,236**	**1,578,020**
a. Components/Devices (Semiconduc-tors)	496,403	382,866	548,895	707,438	970,695
b. Electronic Data Processing	162,611	164,367	208,524	307,951	406,469
c. Office Equipment	3,578	3,112	5,880	7,705	7,540
d. Consumer Electronics	11,066	11,308	16,197	25,874	34,950
e. Telecommunication	35,026	36,372	47,204	74,815	51,506
f. Communication/Radar	21,809	24,143	37,091	50,545	70,145
g. Control and Instrumentation	7,500	6,533	10,583	21,502	26,023
h. Medical/Industrial Instrumentation	3,505	3,588	5,278	6,699	9,475
i. Automotive Electronics	436	626	657	706	1,216
Mineral fuels	**196,598**	**209,731**	**240,541**	**224,653**	**262,875**
Machinery and mechanical appliances	**139,698**	**156,634**	**195,835**	**283,711**	**302,944**
Base metals	**50,856**	**65,701**	**93,892**	**137,739**	**181,057**
Transport equipment	**302,894**	**345,142**	**329,186**	**497,994**	**569,172**
Textile yarns	**51,576**	**64,004**	**60,697**	**84,090**	**94,824**
Electrical machinery	**70,464**	**80,823**	**98,069**	**145,164**	**178,014**
Artificial resins	**55,812**	**78,890**	**68,299**	**104,222**	**112,993**
Chemical products	**37,296**	**37,768**	**43,065**	**56,125**	**73,581**
Cereals	**49,228**	**74,956**	**100,051**	**84,904**	**96,936**
Dairy Products	**18,819**	**20,205**	**18,130**	**18,931**	**22,130**
Medical and Pharmaceutical products	**44,311**	**49,561**	**57,143**	**78,922**	**97,502**
Paper products	**33,311**	**35,822**	**38,022**	**51,587**	**59,986**
Feedstuff	**17,215**	**24,906**	**28,448**	**37,134**	**38,988**
Metalliferous ores and metal scrap	**11,452**	**2,546**	**2,205**	**3,105**	**22,444**
IMPORTS ON CONSIGNMENT*	-	-	-	-	-
OTHERS*	**680,144**	**864,529**	**875,150**	**860,323**	**940,715**

Unit: In Million Pesos (Constant 2000 Prices)
Source: PSA | http://openstat.psa.gov.ph/sites/default/files/IOG_Annual_CONSLEV.csv

ANNEX 4.4. REMITTANCES

		Levels (in Million U.S. Dollars)				Growth Rates Year-on-Year (%)			
		Personal Remittances		Cash Remittances*		Personal Remittances		Cash Remittances	
		Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative
2009	Jan	1,398	1,398	1,266	1,266	0.0	0.0	0.1	0.1
	Feb	1,456	2,853	1,320	2,586	4.9	2.5	4.9	2.5
	Mar	1,619	4,472	1,471	4,057	3.0	2.6	3.1	2.7
	Apr	1,573	6,045	1,442	5,499	1.3	2.3	2.2	2.6
	May	1,627	7,673	1,482	6,981	3.3	2.5	3.7	2.8
	Jun	1,646	9,319	1,499	8,480	3.6	2.7	3.3	2.9
	Jul	1,643	10,962	1,494	9,974	9.4	3.6	9.3	3.8
	Aug	1,505	12,467	1,369	11,343	3.1	3.6	2.8	3.7
	Sep	1,596	14,063	1,447	12,790	8.8	4.1	8.6	4.2
	Oct	1,686	15,749	1,531	14,321	6.9	4.4	6.7	4.5
	Nov	1,604	17,353	1,459	15,780	11.4	5.0	11.3	5.1
	Dec	1,724	19,078	1,568	17,348	11.8	5.6	11.4	5.6
2010	Jan	1,509	1,509	1,373	1,373	7.9	7.9	8.5	8.5
	Feb	1,553	3,061	1,413	2,786	6.6	7.3	7.1	7.7
	Mar	1,701	4,762	1,553	4,339	5.1	6.5	5.6	7.0
	Apr	1,670	6,433	1,520	5,860	6.2	6.4	5.4	6.6
	May	1,731	8,164	1,579	7,439	6.4	6.4	6.5	6.6
	Jun	1,777	9,941	1,624	9,062	8.0	6.7	8.3	6.9
	Jul	1,771	11,712	1,617	10,679	7.8	6.8	8.2	7.1
	Aug	1,645	13,357	1,503	12,182	9.3	7.1	9.8	7.4
	Sep	1,752	15,109	1,601	13,782	9.8	7.4	10.6	7.8
	Oct	1,830	16,939	1,674	15,456	8.5	7.6	9.3	7.9
	Nov	1,768	18,707	1,613	17,069	10.2	7.8	10.5	8.2
	Dec	1,856	20,563	1,694	18,763	7.6	7.8	8.1	8.2
2011	Jan	1,609	1,609	1,477	1,477	6.6	6.6	7.6	7.6
	Feb	1,635	3,244	1,501	2,978	5.3	6.0	6.2	6.9
	Mar	1,763	5,006	1,617	4,594	3.6	5.1	4.1	5.9
	Apr	1,760	6,767	1,616	6,210	5.4	5.2	6.3	6.0
	May	1,840	8,606	1,688	7,898	6.3	5.4	6.9	6.2
	Jun	1,901	10,507	1,737	9,636	6.9	5.7	7.0	6.3
	Jul	1,868	12,375	1,715	11,351	5.5	5.7	6.1	6.3
	Aug	1,820	14,195	1,670	13,021	10.6	6.3	11.1	6.9
	Sep	1,891	16,086	1,736	14,757	7.9	6.5	8.4	7.1
	Oct	1,936	18,022	1,777	16,534	5.8	6.4	6.2	7.0
	Nov	1,942	19,963	1,783	18,317	9.8	6.7	10.6	7.3
	Dec	1,959	21,922	1,800	20,117	5.5	6.6	6.2	7.2

ANNEX 4.4. REMITTANCES *CONTINUED*

		Levels (in Million U.S. Dollars)				Growth Rates Year-on-Year (%)			
		Personal Remittances		Cash Remittances*		Personal Remittances		Cash Remittances	
		Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative
2012	Jan	1,712	1,712	1,557	1,557	6.4	6.4	5.4	5.4
	Feb	1,743	3,454	1,587	3,144	6.6	6.5	5.8	5.6
	Mar	1,864	5,318	1,698	4,842	5.7	6.2	5.0	5.4
	Apr	1,871	7,189	1,701	6,543	6.3	6.2	5.3	5.4
	May	1,948	9,137	1,774	8,317	5.9	6.2	5.1	5.3
	Jun	1,989	11,127	1,811	10,128	4.7	5.9	4.2	5.1
	Jul	1,967	13,093	1,809	11,936	5.3	5.8	5.4	5.2
	Aug	1,955	15,048	1,797	13,733	7.4	6.0	7.6	5.5
	Sep	2,000	17,048	1,838	15,571	5.8	6.0	5.9	5.5
	Oct	2,096	19,145	1,928	17,499	8.3	6.2	8.5	5.8
	Nov	2,087	21,232	1,918	19,417	7.5	6.4	7.6	6.0
	Dec	2,120	23,352	1,975	21,391	8.2	6.5	9.7	6.3
2013	Jan	1,874	1,874	1,699	1,699	9.5	9.5	9.1	9.1
	Feb	1,881	3,755	1,700	3,399	8.0	8.7	7.1	8.1
	Mar	1,954	5,709	1,768	5,167	4.8	7.4	4.2	6.7
	Apr	2,019	7,728	1,819	6,986	7.9	7.5	6.9	6.8
	May	2,081	9,809	1,879	8,865	6.8	7.4	5.9	6.6
	Jun	2,122	11,931	1,935	10,800	6.7	7.2	6.8	6.6
	Jul	2,132	14,063	1,946	12,746	8.4	7.4	7.6	6.8
	Aug	2,122	16,185	1,938	14,684	8.6	7.6	7.9	6.9
	Sep	2,155	18,341	1,953	16,637	7.7	7.6	6.2	6.8
	Oct	2,305	20,646	2,083	18,720	9.9	7.8	8.1	7.0
	Nov	2,310	22,956	2,084	20,805	10.7	8.1	8.7	7.1
	Dec	2,413	25,369	2,179	22,984	13.8	8.6	10.4	7.4

ANNEX 4.4. REMITTANCES *CONTINUED*

		Levels (in Million U.S. Dollars)				Growth Rates Year-on-Year (%)			
		Personal Remittances		Cash Remittances*		Personal Remittances		Cash Remittances	
		Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative
2014	Jan	2,074	2,074	1,865	1,865	10.7	10.7	9.8	9.8
	Feb	1,989	4,063	1,791	3,656	5.7	8.2	5.3	7.6
	Mar	2,285	6,347	2,063	5,719	16.9	11.2	16.6	10.7
	Apr	2,215	8,562	1,998	7,717	9.7	10.8	9.8	10.5
	May	2,172	10,735	1,959	9,676	4.4	9.4	4.3	9.1
	Jun	2,226	12,960	2,009	11,685	4.9	8.6	3.8	8.2
	Jul	2,350	15,311	2,125	13,810	10.2	8.9	9.2	8.3
	Aug	2,224	17,535	2,007	15,817	4.8	8.3	3.6	7.7
	Sep	2,437	19,972	2,205	18,022	13.1	8.9	12.9	8.3
	Oct	2,495	22,467	2,258	20,280	8.3	8.8	8.4	8.3
	Nov	2,206	24,673	1,993	22,274	-4.5	7.5	-4.4	7.1
	Dec	2,599	27,273	2,354	24,628	7.7	7.5	8.0	7.2
2015	Jan	2,134	2,134	1,927	1,927	2.9	2.9	3.3	3.3
	Feb	2,143	4,277	1,936	3,863	7.7	5.3	8.1	5.7
	Mar	2,644	6,920	2,394	6,257	15.7	9.0	16.1	9.4
	Apr	2,292	9,212	2,070	8,327	3.5	7.6	3.6	7.9
	May	2,287	11,500	2,068	10,395	5.3	7.1	5.5	7.4
	Jun	2,458	13,958	2,227	12,622	10.5	7.7	10.9	8.0
	Jul	2,490	16,447	2,253	14,874	5.9	7.4	6.0	7.7
	Aug	2,205	18,653	1,994	16,868	-0.8	6.4	-0.6	6.6
	Sep	2,469	21,122	2,234	19,103	1.3	5.8	1.3	6.0
	Oct	2,392	23,514	2,164	21,266	-4.1	4.7	-4.2	4.9
	Nov	2,068	25,582	1,871	23,137	-6.2	3.7	-6.2	3.9
	Dec	2,726	28,308	2,470	25,607	4.9	3.8	4.9	4.0
2016	Jan	2,208	2,208	1,997	1,997	3.4	3.4	3.6	3.6
	Feb	2,320	4,528	2,098	4,095	8.3	5.9	8.4	6.0
	Mar	2,606	7,134	2,362	6,457	-1.4	3.1	-1.4	3.2
	Apr	2,443	9,577	2,213	8,670	6.6	4.0	6.9	4.1
	May	2,416	11,993	2,188	10,859	5.7	4.3	5.8	4.5
	Jun	2,575	14,569	2,334	13,192	4.8	4.4	4.8	4.5
	Jul	2,355	16,923	2,131	15,323	-5.4	2.9	-5.4	3.0
	Aug	2,559	19,482	2,319	17,642	16.0	4.4	16.3	4.6
	Sep	2,626	22,108	2,383	20,025	6.3	4.7	6.7	4.8
	Oct	2,326	24,434	2,099	22,124	-2.8	3.9	-3.0	4.0
	Nov	2,448	26,883	2,217	24,341	18.4	5.1	18.5	5.2
	Dec	2,823	29,706	2,559	26,900	3.6	4.9	3.6	5.0

ANNEX 4.4. REMITTANCES *CONTINUED*

		Levels (in Million U.S. Dollars)				Growth Rates Year-on-Year (%)			
		Personal Remittances		Cash Remittances*		Personal Remittances		Cash Remittances	
		Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative	Monthly	Cumulative
2017 p	Jan	2,396	2,396	2,169	2,169	8.5	8.5	8.6	8.6
	Feb	2,397	4,794	2,169	4,338	3.3	5.9	3.4	5.9
	Mar	2,915	7,709	2,615	6,953	11.8	8.1	10.7	7.7
	Apr	2,317	10,026	2,083	9,036	-5.2	4.7	-5.9	4.2
	May	2,588	12,613	2,310	11,346	7.1	5.2	5.5	4.5
	Jun	2,751	15,364	2,467	13,813	6.8	5.5	5.7	4.7
	Jul	2,559	17,923	2,283	16,095	8.7	5.9	7.1	5.0
	Aug	2,800	20,723	2,499	18,595	9.4	6.4	7.8	5.4
	Sep	2,442	23,164	2,186	20,781	-7.0	4.8	-8.3	3.8
	Oct	2,552	25,717	2,275	23,056	9.7	5.2	8.4	4.2
	Nov	2,526	28,242	2,262	25,318	3.2	5.1	2.0	4.0
	Dec	3,046	31,288	2,741	28,060	7.9	5.3	7.1	4.3
2018 p	Jan	2,655	2,655	2,379	2,379	10.8	10.8	9.7	9.7
	Feb	2,528	5,182	2,267	4,647	5.4	8.1	4.5	7.1
	Mar	2,627	7,809	2,360	7,006	-9.9	1.3	-9.8	0.8
	Apr	2,616	10,426	2,347	9,353	12.9	4.0	12.7	3.5
	May	2,746	13,172	2,469	11,822	6.1	4.4	6.9	4.2
	Jun	2,615	15,787	2,357	14,179	-4.9	2.8	-4.5	2.7
	Jul	2,675	18,462	2,401	16,580	4.5	3.0	5.2	3.0

Unit: In Million US Dollars
Source: Bangko Sentral ng Pilipinas | http://www.bsp.gov.ph/statistics/efs_ext3.asp

ANNEX 4.5. HOUSEHOLD FINAL CONSUMPTION EXPENDITURE BY PURPOSE AND GROWTH RATES

Unit: In Million Pesos (Constant 2000 Prices)/ In Percent*					
EXPENDITURE GROUP	2013	2014	2015	2016	2017
HOUSEHOLD FINAL CONSUMPTION EXPENDITURE	4,692,438	4,952,967	5,266,632	5,642,389	5,973,816
Food and Non-alcoholic beverages	1,963,521	2,054,488	2,175,094	2,328,973	2,456,997
Alcoholic beverages Tobacco	63,540	70,094	73,580	77,904	75,249
Clothing and Footwear	75,625	79,742	78,400	76,137	77,179
Housing water electricity gas and other fuels	519,375	548,773	568,039	610,048	653,578
Furnishings household equipment and rou-tine household maintenance	249,442	261,555	268,884	276,993	296,251
Health	109,462	119,973	130,691	143,013	152,802
Transport	385,344	423,500	471,750	521,606	546,877
Communication	251,544	259,447	282,039	292,135	301,911
Recreation and culture	108,269	114,043	125,074	134,277	135,792
Education	144,937	156,655	160,506	171,643	186,775
Restaurants and hotels	195,181	208,183	229,282	248,172	274,081
Miscellaneous goods and services	626,197	656,514	703,293	761,488	816,324

Unit: In Percent** (Constant 2000 Prices)					
EXPENDITURE GROUP	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
HOUSEHOLD FINAL CONSUMPTION EXPENDITURE	5.6	5.6	6.3	7.1	5.9
Food and Non-alcoholic beverages	5.6	4.6	5.9	7.1	5.5
Alcoholic beverages Tobacco	0.4	10.3	5	5.9	-3.4
Clothing and Footwear	1.3	5.4	-1.7	-2.9	1.4
Housing water electricity gas and other fuels	6.9	5.7	3.5	7.4	7.1
Furnishings household equipment and rou-tine household maintenance	1.7	4.9	2.8	3	7
Health	6.3	9.6	8.9	9.4	6.8
Transport	5.7	9.9	11.4	10.6	4.8
Communication	6.6	3.1	8.7	3.6	3.3
Recreation and culture	5.7	5.3	9.7	7.4	1.1
Education	5	8.1	2.5	6.9	8.8
Restaurants and hotels	6.3	6.7	10.1	8.2	10.4
Miscellaneous goods and services	6.9	4.8	7.1	8.3	7.2

Sources:
**PSA | http://openstat.psa.gov.ph/sites/default/files/HFCE_Annual_CONSLEV.csv*
*** http://openstat.psa.gov.ph/sites/default/files/HFCE_Annual_CONSGR.csv*

ANNEX 4.6. GROSS VALUE ADDED IN RETAIL TRADE AND REPAIR OF MOTOR VEHICLES MOTORCYCLES PERSONAL AND HOUSEHOLD GOODS

INDUSTRY/INDUSTRY GROUP	2012	2013	% of GDP	2014	% of GDP	2015	% of GDP	2016	% of GDP	2017	% of GDP
Maintenance and Repair of Motor Vehicles Mo-torcycles Personal and Household Goods	32,783	34,686	1%	38,327	1%	43,357	1%	48,344	1%	51,275	1%
Wholesale Trade	178,062	184,170	3%	198,845	3%	221,102	3%	243,790	3%	262,925	3%
Retail Trade	844,827	902,245	13%	948,638	13%	1,006,067	13%	1,075,304	13%	1,153,655	13%
GROSS VALUE ADDED IN TRADE AND RE-PAIR OF MOTOR VEHICLES MOTORCY-CLES PERSONAL AND HOUSEHOLD GOODS	1,055,672	1,121,102	17%	1,185,810	17%	1,270,526	17%	1,367,438	17%	1,467,855	17%
GROSS DOMESTIC PRODUCT	6,305,229	6,750,631	100%	7,165,478	100%	7,600,175	100%	8,122,741	100%	8,665,708	100%
Growth Rate Unit: In Percent (Constant 2000 Prices)											

INDUSTRY/INDUSTRY GROUP	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Maintenance and Repair of Motor Vehicles Mo-torcycles Personal and Household Goods	5.8	10.5	13.1	11.5	6.1
Wholesale Trade	3.4	8	11.2	10.3	7.8
Retail Trade	6.8	5.1	6.1	6.9	7.3
GROSS VALUE ADDED IN TRADE AND RE-PAIR OF MOTOR VEHICLES MOTORCY-CLES PERSONAL AND HOUSEHOLD GOODS	6.2	5.8	7.1	7.6	7.3

Unit: In Million Pesos (Constant 2000 Prices)
Source: PSA | http://openstat.psa.gov.ph/sites/default/files/TRD_Annual_CONSLEV.csv

ANNEX 4.7. FOREST COVER OF THE PHILIPPINES BY PROVINCE, 2010

Region	Closed Forest		Open Forest		Mangrove		Total	
Province	In For-estland	In A&D Land*	In For-estland	In A&D Land*	In For-estland	In A&D Land*	In For-estland	In A&D Land*
Philippines	1,817,173.0	116,874.6	4,079,932.8	515,258.1	203,590.6	107,002.5	6,100,696.4	739,135.2
NCR	0.0	0.0	0.0	2,008.0	0.0	111.8	0.0	2,119.8
CAR	254,620.2	931.4	495,649.3	26,771.6	0.0	0.0	750,269.5	27,702.9
Abra	43,273.2	42.7	97,453.6	5,930.8	0.0	0.0	140,726.7	5,973.5
Apayao	118,154.7	827.3	103,722.4	417.1	0.0	0.0	221,877.1	1,244.4
Benguet	3,193.3	2.5	99,080.8	17,349.0	0.0	0.0	102,274.1	17,351.5
Ifugao	13,690.1	1.7	87,089.2	1,616.0	0.0	0.0	100,779.3	1,617.7
Kalinga	48,883.3	4.6	49,313.5	661.0	0.0	0.0	98,196.8	665.6
Mountain Prov-ince	27,425.7	52.5	58,989.7	797.7	0.0	0.0	86,415.4	850.3
I - Ilocos Region	18,173.6	216.2	97,277.5	8,008.2	55.7	972.0	115,506.7	9,196.4
Ilocos Norte	14,049.8	216.2	51,490.9	2,092.3	0.0	0.0	65,540.6	2,308.5
Ilocos Sur	77.6	0.0	27,306.6	4,642.9	0.0	211.3	27,384.2	4,854.1
La Union	0.0	0.0	4,813.5	946.5	0.0	119.7	4,813.5	1,066.2
Pangasinan	4,046.2	0.0	13,666.6	326.5	55.7	641.0	17,768.4	967.5
II - Cagayan Val-ley	430,103.6	55,158.1	321,502.3	232,205.9	2,321.4	3,580.7	753,927.2	290,944.7
Batanes	0.0	0.0	1,236.3	582.5	0.0	0.0	1,236.3	582.5
Cagayan	203,918.9	2,555.6	122,863.2	8,477.5	2,321.4	2,857.8	329,103.5	13,890.9
Isabela	19,718.7	49,725.1	91,558.1	216,912.0	0.0	722.9	111,276.8	267,360.1
Nueva Vizcaya	120,258.2	2,356.4	66,965.6	4,127.3	0.0	0.0	187,223.8	6,483.7
Quirino	86,207.7	520.9	38,879.2	2,106.5	0.0	0.0	125,086.9	2,627.4
III - Central Lu-zon	211,160.3	14,191.5	274,313.5	20,017.7	213.1	808.2	485,686.8	35,017.4
Aurora	118,467.7	14,080.5	72,425.0	13,093.4	84.9	436.5	190,977.6	27,610.5
Bataan	10,618.0	0.0	20,085.4	706.0	20.1	187.6	30,723.5	893.7
Bulacan	35,265.9	0.4	23,295.5	91.2	30.7	36.0	58,592.1	127.6
Nueva Ecija	9,515.4	14.9	64,679.9	394.2	0.0	0.0	74,195.3	409.1
Pampanga	773.1	0.0	6,548.7	57.9	1.3	83.7	7,323.1	141.6
Tarlac	5,406.8	0.2	27,057.6	2,377.0	0.0	0.0	32,464.4	2,377.3
Zambales	31,113.4	95.5	60,221.3	3,297.9	76.1	64.3	91,410.8	3,457.7
IVA - CALA-BARZON	58,482.1	11,076.8	135,436.5	40,327.9	9,670.1	9,267.1	203,588.7	60,671.8
Batangas	0.0	333.6	1,315.8	2,193.7	52.1	360.8	1,367.9	2,888.2
Cavite	0.0	0.0	2,053.8	335.6	0.0	150.4	2,053.8	486.0

ANNEX 4.7. FOREST COVER OF THE PHILIPPINES BY PROVINCE, 2010 *CONTINUED*

Region	Closed Forest		Open Forest		Mangrove		Total	
Province	In For-estland	In A&D Land*	In For-estland	In A&D Land*	In For-estland	In A&D Land*	In For-estland	In A&D Land*
Laguna	915.3	318.4	3,534.8	9,836.4	0.0	0.0	4,450.1	10,154.8
Quezon	53,428.2	10,424.8	116,359.4	27,606.8	9,618.0	8,755.9	179,405.6	46,787.5
Rizal	4,138.7	0.0	12,172.6	355.3	0.0	0.0	16,311.3	355.3
MIMAROPA	95,203.2	2,606.4	706,913.3	39,372.7	55,965.1	17,330.9	858,081.6	59,310.0
Marinduque	0.0	0.0	8,888.1	3,367.0	2,492.4	384.4	11,380.5	3,751.4
Occidental Min-doro	1,968.2	0.0	98,236.2	3,188.1	40.8	1,553.1	100,245.1	4,741.2
Oriental Mindoro	5,301.0	0.0	74,634.0	3,181.6	840.4	3,109.1	80,775.4	6,290.8
Palawan	84,494.5	2,382.3	514,645.5	28,616.1	52,249.1	11,543.1	651,389.1	42,541.6
Romblon	3,439.5	224.1	10,509.5	1,019.8	342.4	741.2	14,291.5	1,985.1
V - Bicol Region	28,803.7	10,842.0	107,422.1	30,403.7	14,730.5	10,242.4	150,956.3	51,488.2
Albay	4,735.7	6,460.6	10,412.4	12,715.9	479.4	612.5	15,627.5	19,789.0
Camarines Norte	8,599.9	865.9	11,249.4	3,829.8	2,644.5	914.6	22,493.8	5,610.3
Camarines Sur	7,239.6	981.0	43,819.6	2,027.8	3,491.8	3,772.2	54,551.0	6,781.0
Catanduanes	8,228.6	2,534.5	28,248.1	4,000.8	700.1	1,295.1	37,176.8	7,830.4
Masbate	0.0	0.0	31.4	108.5	4,531.4	2,106.5	4,562.8	2,215.0
Sorsogon	0.0	0.0	13,661.3	7,721.0	2,883.2	1,541.5	16,544.5	9,262.5
VI - Western Vi-sayas	66,588.1	579.2	97,343.1	12,803.1	5,358.0	4,647.8	169,289.2	12,555.4
Aklan	12,568.2	30.3	21,884.6	1,213.6	243.2	458.7	34,696.0	1,702.5
Antique	20,295.5	84.9	29,879.6	1,343.0	421.7	370.5	50,596.8	1,798.4
Capiz	14,681.4	46.5	6,352.6	512.2	1,085.5	313.5	22,119.5	872.2
Guimaras	0.0	0.0	0.0	0.0	405.1	370.8	405.1	370.8
Iloilo	2,553.4	401.0	14,594.0	6,803.3	708.5	607.2	17,855.9	7,811.6
Negros Occidental	16,489	17	24,632	2,931	2,494	2,527	43,616	5,475
VII - Central Vi-sayas	10,078.6	1,384.9	31,213.6	4,584.0	10,925.3	3,846.9	52,217.5	9,815.9
Bohol	0.0	0.0	9,633.4	633.5	8,344.1	2,246.2	17,977.5	2,879.7
Cebu	7,547.7	1,174.8	2,346.1	304.1	2,044.9	989.4	11,938.7	2,468.3
Negros Oriental	2,530.9	210.1	18,596.4	3,477.8	491.2	560.2	21,618.5	4,248.0
Siquijor	0.0	0.0	637.6	168.6	45.2	51.2	682.8	219.8
VIII - Eastern Visayas	45,344.2	603.3	412,657.8	14,521.6	24,804.3	16,888.5	482,806.3	32,013.4
Biliran	0.0	0.0	8,314.1	69.0	208.0	77.7	8,522.0	146.7

ANNEX 4.7. FOREST COVER OF THE PHILIPPINES BY PROVINCE, 2010 *CONTINUED*

Region	Closed Forest		Open Forest		Mangrove		Total	
Province	In For-estland	In A&D Land*	In For-estland	In A&D Land*	In For-estland	In A&D Land*	In For-estland	In A&D Land*
Eastern Samar	21,578.9	248.9	151,386.3	5,152.3	4,794.4	3,039.9	177,759.6	8,441.2
Leyte	16,858.2	311.3	49,463.0	3,309.7	3,737.9	4,540.7	70,059.0	8,161.7
Northern Samar	0.0	0.0	33,473.8	2,020.5	6,340.6	4,485.4	39,814.4	6,505.9
Samar	3,744.6	3.7	147,023.0	1,128.6	9,488.5	4,391.1	160,256.2	5,523.5
Southern Leyte	3,162.6	39.3	22,997.6	2,841.5	234.9	353.6	26,395.1	3,234.4
IX - Zamboanga Peninsula	27,365.0	278.1	118,957.6	2,100.6	16,024.8	9,665.3	162,347.4	12,044.0
Zamboanga Del Norte	8,915.1	116.5	71,972.9	1,160.5	211.8	379.9	81,099.9	1,657.0
Zamboanga Del Sur	794.5	0.0	12,307.1	102.1	3,145.5	2,959.3	16,247.1	3,061.4
Zamboanga Sibugay with Zamboanga City	17,655.4	161.6	34,677.5	837.9	12,667.4	6,326.1	65,000.4	7,325.6
X - Northern Mindanao	167,898.5	6,063.6	187,832.1	10,476.4	2,910.5	3,468.4	358,641.2	20,008.4
Bukidnon	124,167.6	1,193.3	74,272.0	2,689.5	0.0	0.0	198,439.5	3,882.8
Camiguin	2,911.1	1,082.7	550.6	1,154.5	0.0	19.0	3,461.7	2,256.2
Lanao Del Norte	8,350.7	3,583.4	49,138.0	3,775.4	1,158.0	1,170.3	58,646.6	8,529.1
Misamis Occi-dental	23,678.0	180.9	14,914.6	1,231.2	1,661.8	2,077.2	40,254.4	3,489.3
Misamis Oriental	8,791.1	23.3	48,957.0	1,625.7	90.8	201.9	57,838.9	1,850.9
XI - Davao Re-gion	159,777.7	305.6	260,868.4	5,087.1	1,540.2	1,338.7	422,186.3	6,731.5
Compostela Val-ley	53,963.7	142.5	87,322.6	3,173.7	140.1	68.8	141,426.4	3,385.0
Davao Del Norte	10,148.8	0.0	41,940.7	429.3	110.0	559.9	52,199.4	989.2
Davao Del Sur/Davao Occi-dental	17,570.2	0.0	50,289.7	601.1	48.1	83.9	67,908.0	685.0
Davao Oriental	78,095.1	163.2	81,315.3	883.0	1,242.1	626.2	160,652.5	1,672.3
XII - SOCCSKSARG-EN	54,174.5	72.7	188,615.5	4,586.1	589.8	1,011.1	243,379.8	5,670.0

ANNEX 4.7. FOREST COVER OF THE PHILIPPINES BY PROVINCE, 2010 *CONTINUED*

Region	Closed Forest		Open Forest		Mangrove		Total	
Province	In For-estland	In A&D Land*	In For-estland	In A&D Land*	In For-estland	In A&D Land*	In For-estland	In A&D Land*
Cotabato City	0.0	0.0	0.0	0.0	45.4	624.4	45.4	624.4
Cotabato	7,823.7	72.5	28,320.1	3,061.4	0.0	0.0	36,143.7	3,134.0
Sarangani	1,775.5	0.2	37,409.0	628.1	32.8	114.3	39,217.3	742.7
South Cotabato	26,464.8	0.0	37,809.7	28.8	0.0	24.3	64,274.5	53.1
Sultan Kudarat	18,110.5	0.0	85,076.8	867.7	511.5	248.2	103,698.8	1,115.9
XIII - Caraga	97,246.6	2,565.1	520,598.0	37,849.3	17,886.1	8,011.7	635,730.7	48,426.0
Agusan Del Norte	2,217.5	0.0	47,867.7	610.0	343.9	887.6	50,429.1	1,497.6
Agusan Del Sur	54,825.0	2,382.7	260,254.3	25,274.4	0.0	0.0	315,079.3	27,657.1
Dinagat Islands	5,639.3	1.6	18,995.2	422.5	1,799.0	561.5	26,433.4	985.6
Surigao Del Norte	7,136.0	3.4	14,565.9	330.3	11,573.5	1,660.9	33,275.3	1,994.7
Surigao Del Sur	27,428.9	177.4	178,914.9	11,212.1	4,169.9	4,901.7	210,513.7	16,291.1
ARMM	92,153.0	9,999.6	123,332.2	24,134.2	40,595.8	15,810.8	256,081.1	49,944.6
Basilan with Isa-bela City	7,669.6	6,035.6	526.8	476.6	7,641.7	2,066.0	15,838.1	8,578.3
Lanao Del Sur	78,024.9	2,220.1	60,476.4	9,702.3	171.2	292.9	138,672.6	12,215.3
Maguindanao	6,458.5	1,743.9	39,553.6	3,533.8	502.7	558.2	46,514.8	5,835.8
Sulu	0.0	0.0	752.2	4.4	20,928.1	9,154.6	21,680.4	9,159.0
Tawi-Tawi	0.0	0.0	22,023.2	10,417.0	11,352.1	3,739.1	33,375.3	14,156.1

Unit: In Hectares
Source: Compendium of Philippines Environment Statistics (PSA, 2016a)
https://psa.gov.ph/environment/compendium/cpes/2016
** In A&D Land means In Alienable and Disposable Land*

ANNEX 4.8. POWER GENERATION BY SOURCE 2008-2017

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Coal	15,749	16,476	23,301	25,342	28,265	32,081	33,054	36,686	43,303	46,847
Oil-Based	4,868	5,381	7,101	3,398	4,254	4,491	5,708	5,886	5,661	3,787
Natural Gas	19,576	19,887	19,518	20,591	19,642	18,791	18,690	18,878	19,854	20,547
Renewable Energy (RE)	20,628	20,191	17,823	19,845	20,762	19,903	19,810	20,963	21,979	23,189
Geothermal	10,723	10,324	9,929	9,942	10,250	9,605	10,308	11,044	11,070	10,270
Hydro	9,843	9,788	7,803	9,698	10,252	10,019	9,137	8,665	8,111	9,611
Biomass	0	14	27	115	183	212	196	367	726	1,013
Solar	1	1	1	1	1	1	17	139	1,097	1,201
Wind	61	64	62	88	75	66	152	748	975	1,094

Unit: in Gigawatt hours (GWh)
Source: DOE, 2017a

ANNEX 4.9. COAL PRODUCTION, IMPORTATION, EXPORTATION, AND CONSUMPTION 2007-2016

	Production	Importation	Exportation	Consumption
2007	3.74	7.73	0.80	10.22
2008	3.98	8.53	1.24	12.24
2009	5.18	7.03	2.26	12.06
2010	7.34	10.97	4.15	13.31
2011	7.61	10.96	2.74	14.23
2012	8.15	11.90	3.17	16.16
2013	7.20	14.42	3.40	18.95
2014	8.42	15.18	5.25	20.16
2015	8.17	17.28	3.11	21.66
2016	12.09	20.03	6.83	20.30

Unit: in Million Metric Tons (MMT)
Source: DOE, n.d.

ANNEX 4.10. OIL PRODUCTION, IMPORTATION, AND CONSUMPTION 2007-2016

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Domestic Production of Oil	184	965	2,920	3,039	2,326	1,638	1,884	3,079	2,410	2,014
Refinery Production	75,079	67,175	53,708	65,909	69,288	62,391	57,712	61,372	77,478	79,016
Crude oil Importation	74,185	69,067	50,061	66,599	69,456	63,562	56,186	64,862	77,911	78,637
Petroleum Products Importation	45,712	48,307	57,843	54,607	46,671	54,780	62,517	69,658	77,934	86,108
Petroleum Products Consumption	88,753	101,229	107,299	111,809	106,857	110,991	117,489	124,503	143,226	155,414

Unit: In Thousan Barrels
Source: PSA, 2017a

ANNEX 4.11. ACCESS TO ELECTRICITY BY PROVINCE AS OF 2016

Region		Coverage / Energized	%	Potential	Energized / Completed	%	Potential	To Date	%
	Philippines	1,475	100	36,061	36,051	99	13,335,500	11,724,640	88
CAR		73	100	1,112	1,112	100	383,100	345,696	90
I	Ilocos Region	116	100	3,027	3,027	100	998,700	958,253	96
II	Cagayan Valley	96	100	2,369	2,369	100	793,800	739,400	93
III	Central Luzon	100	100	2,236	2,236	100	1,410,600	1,366,964	97
IV-A	CALABARZON	71	100	1,946	1,945	99	760,300	731,695	96
IV-B	MIMAROPA	70	100	1,434	1,434	100	643,950	541,572	84
V	Bicol Region	111	100	3,388	3,386	99	1,069,800	974,128	91
VI	Western Visayas	100	100	3,209	3,208	99	813,400	780,229	96
NIR	Negros Island Region	57	100	1,219	1,219	100	831,100	772,006	93
VII	Central Visayas	96	100	2,156	2,156	100	774,800	753,441	97
VIII	Eastern Visayas	142	100	4,372	4,372	100	887,200	794,386	90
IX	Zamboanga Peninsula	72	100	1,865	1,865	100	656,000	485,266	74
X	Northern Mindanao	85	100	1,843	1,843	100	760,800	655,106	86
XI	Davao Region	44	100	896	896	100	562,700	449,970	80
XII	SOCCSKSARGEN	55	100	1,231	1,231	100	896,100	609,207	68
XIII	Caraga	73	100	1,311	1,311	100	607,700	584,005	96
ARMM		114	100	2,447	2,441	99	485,450	183,316	38

Source: PSA, 2016d

ANNEX 4.12. NUMBER OF HOUSEHOLDS BY KIND OF FUEL FOR LIGHTING

City/Municipality	Number of Households*	Fuel for Lighting									
		Electricity	Kerosene (Gaas)	Liquified Petroleum Gas (LPG)	Oil (vegetable animal and others)	Solar panel	Solar lamp	Others	None	Not Reported
PHILIPPINES	**22,969,666**	**20,320,665**	**1,930,072**	**53,825**	**7,957**	**218,498**	**313,732**	**94,983**	**26,262**	**3,672**
		0.88467	0.08403	0.00234	0.00035	0.00951	0.01366	0.00414	0.00114	0.00016
NATIONAL CAPITAL REGION	3,095,484	3,047,198	18,906	10,213	234	2,086	2,674	7,764	3,244	3,165
CORDILLERA ADMINISTRATIVE REGION	395,748	360,533	19,865	453	219	5,643	3,031	5,911	93	-
REGION I - ILOCOS	1,151,629	1,102,034	41,627	1,009	168	1,223	1,610	2,711	1,247	-
REGION II - CAGAYAN VALLEY	804,524	737,953	47,959	530	197	7,253	6,677	3,600	355	-
REGION III - CENTRAL LUZON	2,566,524	2,477,370	68,445	3,487	358	2,718	3,269	7,979	2,838	60
REGION IV-A - CALABARZON	3,395,332	3,232,948	100,250	9,606	692	12,169	14,207	20,433	5,016	11
MIMAROPA REGION	682,668	507,417	113,600	758	450	30,989	18,947	9,112	1,390	5
REGION V - BICOL	1,216,369	1,009,648	173,317	1,733	153	13,996	10,466	5,975	1,081	-
REGION VI - WESTERN VISAYAS	1,716,307	1,504,278	173,893	1,452	244	11,750	17,208	6,378	1,100	4
REGION VII - CENTRAL VISAYAS	1,699,058	1,455,330	207,153	796	421	9,291	17,212	6,753	2,088	14
REGION VIII - EASTERN VISAYAS	985,418	826,736	128,180	5,998	255	4,777	15,624	2,871	974	3
REGION IX - ZAMBOANGA PENINSULA	795,345	602,971	164,929	3,333	148	5,277	15,392	1,944	1,335	16
REGION X - NORTHERN MINDANAO	1,042,814	855,628	159,249	1,277	157	6,259	15,974	2,705	1,565	-
REGION XI - DAVAO	1,177,409	965,251	159,719	5,466	825	13,400	26,667	5,594	487	-
REGION XII - SOCCSKSARGEN	1,050,654	820,294	165,413	2,521	2,028	17,466	38,943	2,583	1,390	16
REGION XIII - CARAGA	573,998	488,249	73,366	1,127	211	3,977	4,999	1,424	644	1
AUTONOMOUS REGION IN MUSLIM MIN-DANAO	620,385	326,827	114,201	4,066	1,197	70,224	100,832	1,246	1,415	377

Source: http://www.psa.gov.ph/content/housing-characteristics-philippines-results-2015-census-population

ANNEX 4.13. NUMBER OF HOUSEHOLDS BY MAIN SOURCE OF WATER SUPPLY FOR DRINKING AND CITY/MUNICIPALITY 2015

City/Municipality	Number of Households	Source of Water Supply for Drinking											
		Own use faucet commu-nity wa-ter sys-tem	Shared faucet commu-nity wa-ter sys-tem	Own use tubed / piped deep well	Shared tubed / piped deep well	Tubed / piped shallow well	Dug well	Protected spring	Un-Protected spring	Lake, river, rain and others	Peddler	Bottled water	Others
PHILIPPINES	**22,969,666**	**6,023,891**	**2,988,858**	**1,370,172**	**2,784,478**	**432,498**	**1,010,631**	**1,001,955**	**335,642**	**184,439**	**539,106**	**6,255,234**	**42,762**
NATIONAL CAPITAL REGION	3,095,484	1,448,079	339,318	11,577	17,820	1,259	1,510	7,769	56	118	63,062	1,191,664	13,252
CORDILLERA ADMINISTRATIVE RE-GION	395,748	43,133	21,313	16,030	32,052	7,879	9,710	85,346	41,003	1,528	3,187	134,470	97
REGION I - ILOCOS	1,151,629	144,857	49,354	166,943	234,617	63,435	39,631	36,491	5,570	604	8,241	400,470	1,416
REGION II - CAGAYAN VALLEY	804,524	76,008	29,071	156,261	216,163	40,070	53,208	32,225	17,907	2,423	2,319	177,544	1,325
REGION III - CENTRAL LUZON	2,566,524	736,074	145,612	309,354	353,275	50,794	11,298	38,239	5,329	2,631	15,983	892,918	5,017
REGION IV-A - CALABARZON	3,395,332	1,257,886	306,744	131,366	211,798	23,713	61,073	70,458	13,748	7,193	67,006	1,236,408	7,939
MIMAROPA REGION	682,668	114,663	95,112	70,811	138,860	28,401	59,447	30,232	13,891	11,782	22,142	95,961	1,366
REGION V - BICOL	1,216,369	271,902	267,918	81,520	203,462	26,492	115,420	66,111	17,258	4,558	40,030	120,722	976
REGION VI - WESTERN VISAYAS	1,716,307	186,853	163,419	134,681	358,626	39,323	169,556	109,908	38,014	8,568	58,362	447,788	1,209
REGION VII - CENTRAL VISAYAS	1,699,058	281,479	214,400	25,201	113,215	15,112	90,611	94,428	27,175	12,534	24,951	799,098	854
REGION VIII - EASTERN VISAYAS	985,418	179,622	310,193	29,867	159,112	26,356	56,607	49,691	13,352	7,932	19,469	132,597	620
REGION IX - ZAMBOANGA PENINSULA	795,345	168,652	199,902	18,960	94,880	11,939	72,378	54,760	25,925	6,137	30,380	110,390	1,042
REGION X - NORTHERN MINDANAO	1,042,814	326,339	252,610	20,627	100,218	8,701	28,762	87,744	35,327	8,008	17,583	156,268	627
REGION XI - DAVAO	1,177,409	375,863	212,515	38,603	155,025	22,419	35,447	85,560	23,943	12,295	93,348	120,566	1,825
REGION XII - SOCCSKSARGEN	1,050,654	237,570	178,259	99,770	201,098	41,328	67,430	74,832	24,164	7,773	20,869	95,132	2,429
REGION XIII - CARAGA	573,998	105,130	119,918	15,787	85,615	7,779	14,590	39,400	14,099	15,137	25,188	130,960	395
AUTONOMOUS REGION IN MUSLIM MINDANAO	620,385	69,781	83,200	42,814	108,642	17,498	123,953	38,761	18,881	75,218	26,986	12,278	2,373

Source: http://www.psa.gov.ph/content/housing-characteristics-philippines-results-2015-census-population

ANNEX 4.14 VOLUME OF AGRICULTURAL PRODUCTION

	2,013	2,014	2,015	2,016	2,017
Sugarcane	24,584,841	25,029,880	22,926,437	22,370,546	29,286,893
Palay	18,439,420	18,967,826	18,149,838	17,627,245	19,276,347
Coconut (with husk)	15,354,334	14,696,298	14,735,189	13,825,080	14,049,131
Banana	8,646,417	8,884,857	9,083,929	8,903,684	9,166,334
Corn	7,377,293	7,770,603	7,518,756	7,218,817	7,914,908
Cassava	2,361,561	2,540,254	2,714,346	2,755,146	2,806,668
Pineapple	2,458,528	2,507,098	2,582,699	2,612,474	2,671,711
Mango	816,378	885,038	902,739	814,055	737,032
Mango Carabao	671,929	730,140	740,239	659,014	598,714
Sweet Potato/Camote	528,250	519,855	535,996	529,472	537,303
Oil Palm (fresh fruit bunch)	473,416	437,439	432,496	439,529	474,792
Rubber (cuplump)	444,818	453,052	398,137	362,626	406,984
Eggplant	219,911	225,579	232,864	235,626	241,901
Cashew (ripe fruit with nut)	146,289	170,853	205,531	216,398	222,541
Tomato	207,668	214,573	214,774	210,720	218,793
Squash Fruit	223,522	222,207	217,908	214,147	206,024
Onion (mature bulb)	134,239	203,651	181,208	122,594	184,427
Papaya	166,336	172,628	172,650	162,481	167,043
Watermelon	130,005	131,530	148,030	143,880	147,319
Cabbage	127,463	127,986	125,752	123,080	122,474
White/Irish Potato	117,722	119,140	118,479	116,783	117,637
Stringbeans	119,536	117,544	118,660	117,201	116,804
Calamansi	164,091	160,740	162,676	118,248	116,665
Taro/Gabi	112,262	110,365	111,988	107,569	109,374
Ampalaya Fruit	89,887	90,111	88,918	87,460	89,460
Bottle Gourd/Upo	88,464	83,218	82,737	79,978	81,402
Swamp Cabbage/Kangkong	75,439	73,107	71,971	69,649	69,144
Abaca	64,952	68,053	70,356	71,840	68,841
Durian	91,212	80,334	87,382	71,444	66,458
Carrots	68,111	68,342	67,037	65,987	65,219
Coffee (dried berries)	78,634	75,454	72,342	68,823	62,078
Tobacco	53,753	61,418	56,193	56,457	51,024
Pechay, Chinese	51,798	52,243	51,435	50,745	50,266
Pechay, Native	45,983	45,645	46,582	46,658	48,625
Mung bean/Mongo	32,422	32,144	33,623	34,039	35,341
Lady's Finger/Okra	30,122	30,274	30,638	30,529	31,379
Peanut	29,091	29,196	29,195	27,921	29,374
Ginger	28,216	27,197	26,623	26,787	27,482
Greater yam/Ubi	14,770	15,245	13,798	14,166	14,376
Snap Beans/Habitchuelas	15,423	15,306	14,745	14,389	14,151

ANNEX 4.14 VOLUME OF AGRICULTURAL PRODUCTION *CONTINUED*

	2,013	2,014	2,015	2,016	2,017
Mandarin	15,287	14,045	14,064	13,243	12,908
Cauliflower	11,782	11,739	11,865	11,641	12,061
Radish	9,827	9,880	9,959	9,516	9,301
Lanzones	35,207	13,899	20,814	17,160	8,031
Garlic (Dried Bulb)	8,986	8,993	10,420	7,469	7,751
Pili Nut (with shell)	8,243	7,316	7,362	7,291	7,427
Cacao	4,876	5,428	6,023	6,263	7,009
Tamarind Fruit	7,782	7,558	7,436	7,128	6,756
Ornamental flowers	7,326	7,035	6,628	6,223	6,514
Rambutan	7,440	6,479	8,723	7,668	6,065
Lettuce	4,041	4,061	3,810	3,822	4,033
Broccoli	3,026	3,064	2,911	2,859	3,159
Orange	3,513	3,325	3,219	2,861	2,634
Asparagus	3,213	2,939	2,742	2,172	1,904
Mangosteen	3,303	2,686	3,400	2,522	1,171
Cotton	55	11	6	5	10

Unit: In Metric Tons
Source: CountryStat Philippines, http://countrystat.psa.gov.ph/?cont=10&pageid=1&ma=A50PNVOP

ANNEX 4.15. LIVESTOCK VOLUME OF PRODUCTION

	2013	2014	2015	2016	2017
Hog	2,012.17	2,032.30	2,120.33	2,231.66	2,265.01
Chicken	1,555.07	1,571.76	1,660.81	1,674.50	1,745.89
Chicken Eggs	427.69	415.65	444.55	461.72	492.41
Cattle	258.45	261.32	266.9	270.42	266.3
Carabao	141.48	143.03	142.04	144.68	144.41
Goat	75.42	76.1	77.48	77.45	77.34
Duck Eggs	41.07	41.51	42.4	44.16	45.43
Duck	34.46	34.61	33.94	32.22	31.09
Dairy	19.53	19.73	20.39	21.16	22.76

Unit: In Thousand Metric Tons
Source: PSA, 2018b

ANNEX 4.16 FISHERIES VOLUME OF PRODUCTION

	2013	2014	2015	2016	2017
TOTAL	4,705.40	4,689.10	4,649.30	4,355.80	4,312.10
Commercial	**1,067.60**	**1,107.20**	**1,084.60**	**1,016.90**	**948.3**
Municipal	**1,264.40**	**1,244.30**	**1,216.50**	**1,137.90**	**1,126.00**
Marine	1,062.10	1,029.40	1,011.80	976.9	962.1
Inland	202.3	214.9	204.7	161	163.9
Aquaculture	**2,373.40**	**2,337.60**	**2,348.20**	**2,200.90**	**2,237.80**
Brackishwater Fishpond 1/	327.4	322.7	325.6	340.6	347.5
Freshwater Fishcage/pen	170.5	150.4	155.6	154.2	158.5
Freshwater Fishpond 2/	148.3	148.9	147.6	145.7	156.6
Marine Fishcage/pen	123.8	125	116.8	117.6	117.8
Others	1,603.40	1,590.60	1,602.60	1,442.80	1,457.40
Oyster	22.1	22.3	20.3	19.5	22.9
Mussel	22.9	18.8	15.9	18.8	19.2
Seaweed	1,558.40	1,549.50	1,566.40	1,404.50	1,415.30

Unit: In Thousand Metric Tons
Source: PSA, 2018b

ANNEX 4.17. TOP AGRICULTURAL EXPORTS VOLUME, VALUE, AND DESTINATION

Top Agricultural Exports: Volume and Value, 2013-2017

ITEM	2013	2014	2015	2016	2017
VOLUME OF TOP EXPORTS ('000 mt)					
Coconut Oil	1,080.84	892.30	940.15	755.61	983.59
Bananas, *Fresh*	3,266.55	3,630.98	1,795.22	1,733.84	2,855.64
Pineapple & Products	816.64	783.33	713.94	1,126.96	880.29
Tuna	165.76	127.31	104.16	102.06	307.39
Desiccated Coconut	92.81	84.30	52.02	93.41	116.08
Centrifugal Sugar	471.27	206.83	38.75	181.76	440.73
Tobacco Manufactured	34.96	44.17	28.95	25.86	26.52
Seaweeds & Carageenan	55.70	41.58	38.96	39.85	35.49
Tobacco Unmanufactured	31.60	38.02	32.85	23.91	57.45
Rubber	69.93	85.93	82.95	67.61	133.31
VALUE OF TOTAL AGRICULTURAL EXPORTS (FOB in million US$)	**6,400.03**	**6,542.95**	**5,131.85**	**5,280.24**	**6,579.51**
VALUE OF TOP EXPORTS (FOB in million US$)					
Coconut Oil	1,005.58	1,220.21	1,168.22	1,151.69	1,614.77
Bananas, *Fresh*	962.58	1,129.89	657.87	730.36	1,128.58
Pineapple & Products	425.38	434.99	574.24	710.66	582.77
Tuna	618.62	501.03	350.30	277.52	521.55
Desiccated Coconut	198.67	254.16	160.05	210.04	340.83
Centrifugal Sugar	272.88	107.14	21.77	99.04	203.55
Tobacco Manufactured	248.02	325.06	207.61	161.18	188.96
Seaweeds & Carageenan	218.58	256.65	202.60	199.25	174.29
Tobacco Unmanufactured	92.34	121.82	101.04	91.68	108.76
Rubber	76.97	79.63	61.89	37.68	103.07

Source: PSA, 2018b

Top Agricultural Exports: Volume and Value by Major Country of Destination, 2017

COMMODITY/ COUNTRY OF DESTINATION	VOLUME	VALUE	% SHARE (VALUE)
VOLUME AND VALUE ('000 mt, FOB in million US$)			
COCONUT OIL (crude & refined)	**983.59**	**1,614.77**	**100.00**
Netherlands	446.11	676.32	41.88
United States of America	322.48	553.34	34.27
China, People's Republic of	40.80	73.93	4.58
Japan (Excludes Okinawa)	40.88	71.33	4.42
Italy	42.49	68.24	4.23
Others	90.83	171.62	10.63
BANANAS, Fresh	**2,855.64**	**1,128.58**	**100.00**
Japan (Excludes Okinawa)	821.39	390.71	34.62
China, People's Republic of	745.64	288.97	25.60
Korea, Republic of South	376.66	176.56	15.64
United Arab Emirates	284.06	95.16	8.43
Iran	322.09	78.55	6.96
Others	305.81	98.63	8.74
PINEAPPLE AND PINEAPPLE PRODUCTS	**880.29**	**582.77**	**100.00**
United States of America	274.15	195.57	33.56
Japan (Excludes Okinawa)	181.44	78.10	13.40
Korea, Republic of South	122.17	63.27	10.86
China, People's Republic of	100.60	51.37	8.82
Netherlands	7.89	16.17	2.78
Others	194.03	178.29	30.59
TUNA	**307.39**	**521.55**	**100.00**
Germany	28.86	100.98	19.36
UK Great Britain & N. Ireland	19.89	71.20	13.65
United States of America	123.80	70.94	13.60
Japan (Excludes Okinawa)	13.18	62.49	11.98
Spain	17.21	60.74	11.65
Others	104.46	155.20	29.76

ANNEX 4.18. SELF-SUFFICIENCY AND IMPORT DEPENDENCY RATES

	2012		2013		2014		2015		2016	
	Sufficiency Rate	Import Rate	Sufficiency Rate	Import Rate	Sufficiency Rate	Import Rate	Sufficiency Rate	Import Rate	Sufficiency Rate	Import Rate
Rice	91.89	8.11	96.82	3.2	91.95	8.06	88.93	11.07	95.01	4.99
Corn	98.18	1.82	95.57	4.43	93.12	6.89	91.35	8.65	89.96	10.04
Coconut	100.01	0	100.02	0	100.01	0	100.02	0	100.04	0
Sugarcane	100	0	100	0	100	0	100	0	100	0
Coffee	45.21	54.79	46.79	53.42	71.91	28.1	33.04	66.96	31.89	68.12
Banana	..	0	..	0	..	0	..	0	..	0
Pineapple	..	0	..	0	..	0	..	0	..	0
Mango	..	0	..	0	..	0	..	0	..	0
Calamansi	100.02	0	100.02	0	100.03	0	100.03	0	100.05	0
Papaya	101.89	0	103.69	0	103.05	0	101.07	0	100.99	0
Pomelo	100	0	100	0	100.15	0	100.15	0	99.99	0.01
Tomato	99.99	0.01	100	0	100	0	99.97	0.03	100	0
Garlic	48.17	51.85	71.92	28.13	23.3	76.93	12.96	87.14	11.03	89.08
Onion	90.62	13.38	96.36	6.11	96.1	4.27	84.48	15.95	47.65	52.59
Cabbage	100	0	100	0	100	0	100	0	100	0
Eggplant	100	0	100	0	100	0	100	0	100	0
Peanut	35.59	64.41	45.43	54.57	30.52	69.51	28.43	71.64	27.52	72.48
Mongo	50.21	49.91	49.08	50.96	52.85	47.23	52.23	47.77	52.15	47.85
Cassava	100.02	0	99.38	0.67	99.66	0.41	100.02	0	100.02	0
Sweet Potato	100	0	100	0	100	0	100	0	100	0
Potato	95	5	96.43	3.57	94.7	5.3	85.54	14.46	85.23	14.78
Beef	75.11	24.89	75.03	24.99	70	30.02	70.83	29.18	67.27	32.73
Carabeef	69.71	30.29	75.04	24.98	68.04	31.96	66.26	33.74	68.52	31.48
Pork	93.34	6.66	91.81	8.24	89.39	10.62	89.78	10.22	89.36	10.64
Chevon	100	0	99.99	0.01	99.94	0.06	100	0	100	0
Chicken Dressed	91.82	8.65	92.82	7.65	88.44	12.17	87.25	13	84.67	15.48
Duck Dressed	98.62	1.39	99.62	0.38	98.82	1.46	99.09	1.01	99.23	0.88
Chicken Egg	99.93	0.07	100	0.01	100	0	100	0	100	0
Milkfish	100.4	0.19	100.91	0.11	100.83	0.03	100.8	0.03	100.83	0
Roundscad	100.14	0.01	100	0.11	99.99	0.03	99.93	0.03	96.64	0
Tilapia	100.1	0	101.69	0.01	100.63	0	100.04	0.01	100.01	0.01
Tuna	95.33	7.77	93.45	11.59	90.99	14.5	81.61	22.52	83.91	21.19
Shrimps and Prawns	100.33	4.61	107.09	4.69	111.02	5.29	103.98	4.62	107.02	5.69
Crabs	115.45	0.08	135.64	0.12	124.12	0.16	120.97	0.05	127.82	0.42
Oysters	99.91	0.15	100.32	0.02	101.95	0	101.14	0.03	100.23	0.02

Source: PSA, 2018b

ANNEX 4.19. TOP 20 RICE IMPORTERS

	Country	2013	2014	2015	2016	2017	Grand Total
1	CHINA	4,450,000	10,300,000	4,600,000	5,900,000	5,500,000	30,750,000
2	NIGERIA	3,200,000	4,200,000	2,100,000	2,500,000	2,600,000	14,600,000
3	PHILIPPINES	1,800,000	4,000,000	800,000	1,200,000	1,400,000	9,200,000
4	SAUDI ARABIA	1,459,000	3,202,000	1,260,000	1,195,000	1,250,000	8,366,000
5	IRAN	1,400,000	2,600,000	1,100,000	1,500,000	1,300,000	7,900,000
6	IVORY COAST	950,000	2,300,000	1,300,000	1,350,000	1,500,000	7,400,000
7	INDONESIA	1,225,000	2,700,000	1,050,000	350,000	2,000,000	7,325,000
8	IRAQ	1,080,000	2,000,000	930,000	1,060,000	1,100,000	6,170,000
9	SENEGAL	960,000	1,980,000	980,000	1,100,000	1,150,000	6,170,000
10	BANGLADESH	1,335,000	1,196,000	35,000	2,348,000	1,200,000	6,114,000
11	SOUTH AFRICA	910,000	1,824,000	954,000	1,054,000	1,000,000	5,742,000
12	MALAYSIA	989,000	2,102,000	823,000	900,000	900,000	5,714,000
13	UNITED STATES OF AMERICA	755,000	1,514,000	768,000	787,000	855,000	4,679,000
14	MEXICO	685,000	1,438,000	731,000	910,000	850,000	4,614,000
15	JAPAN	669,000	1,376,000	685,000	679,000	685,000	4,094,000
16	UNITED ARAB EMIRATES	560,000	1,160,000	670,000	750,000	825,000	3,965,000
17	GHANA	590,000	1,160,000	700,000	650,000	700,000	3,800,000
18	MOZAMBIQUE	590,000	1,150,000	625,000	710,000	725,000	3,800,000
19	BRAZIL	586,000	726,000	786,000	754,000	650,000	3,502,000
20	GUINEA	520,000	840,000	650,000	700,000	775,000	3,485,000

Source: World Rice Statistics | http://ricestat.irri.org:8080/wrs
Unit: In Tons

ANNEX 4.20. TOP AGRICULTURAL IMPORTS VOLUME, VALUE, SOURCE

Top Agricultural Imports: Volume and Value, 2013-2017

ITEM	2013	2014	2015	2016	2017
VOLUME OF TOP IMPORTS ('000 mt)					
Wheat (Including Spelt) and Meslin	2,472.61	3,095.30	4,770.39	5,243.11	5,827.94
Soyabean Oil/Cake Meal	1,513.32	1,991.08	1,954.98	2,628.23	2,519.70
Milk & Cream & Products	296.00	277.59	350.72	431.43	412.64
Coffee	90.89	70.68	91.18	190.83	197.70
Meat of Bovine, *Frozen*	75.44	100.85	103.46	113.05	120.08
Fertilizer Manufactured	978.62	1,218.62	1,050.63	1,270.72	1,482.71
Rice	399.08	1,089.14	1,481.50	609.36	888.09
Urea	637.04	773.21	672.08	968.99	1,019.86
Chicken Meat, *Frozen*	95.55	166.55	190.53	235.77	253.71
Tuna	65.06	88.52	156.05	129.82	146.75
VALUE OF TOTAL AGRICULTURAL IMPORTS (CIF in million US$)	**7,931.14**	**9,631.24**	**10,965.76**	**12,518.84**	**11,762.47**
VALUE OF TOP IMPORTS (CIF in million US$)					
Wheat (Including Spelt) and Meslin	868.93	1,030.44	1,319.24	1,229.81	1,362.74
Soyabean Oil/Cake Meal	758.88	971.14	888.40	1,053.93	983.69
Milk & Cream & Products	751.22	763.34	650.15	641.35	662.10
Coffee	214.62	246.45	298.13	483.04	513.87
Meat of Bovine, *Frozen*	235.51	336.34	324.89	347.66	394.01
Fertilizer Manufactured	349.64	352.73	319.47	317.09	376.36
Rice	172.31	453.77	615.70	278.87	357.72
Urea	221.36	254.28	206.75	232.89	261.65
Chicken Meat, *Frozen*	96.06	167.86	179.32	221.99	235.80
Tuna	90.94	86.96	190.76	189.02	226.75

Source: PSA

Source: PSA, 2018b

Other Major Agricultural Imports: Volume and Value, 2013-2017

ITEM	2013	2014	2015	2016	2017
VOLUME OF IMPORTS ('000 mt)					
LIVESTOCK & POULTRY					
Live Bovine (million head)	0.02	0.02	0.03	0.02	a/
Meat of Bovine, *frozen*	75.44	100.85	103.24	113.05	120.08
Live Chicken (million head)	0.51	-	-	-	-
Chicken Meat, *frozen*	95.73	166.55	190.53	235.77	253.71
VEGETABLES					
Garlic	5.22	32.71	74.14	63.22	72.56
Onion	9.45	10.53	38.94	137.78	38.05
Cauliflower and Headed Broccoli	0.02	0.03	0.02	0.04	0.18
Potatoes	4.39	6.86	20.18	20.27	20.90
VALUE OF IMPORTS (CIF in million US$)					
LIVESTOCK & POULTRY					
Live Bovine	18.57	22.12	32.97	19.19	4.16
Meat of Bovine, *frozen*	235.51	336.28	323.43	347.66	394.01
Live Chicken	6.32	-	-	-	-
Chicken Meat, *frozen*	96.21	167.86	179.32	221.99	235.80
VEGETABLES					
Garlic	3.26	12.89	25.43	24.83	28.05
Onion	3.38	5.05	12.13	27.49	12.43
Cauliflower and Headed Broccoli	0.05	0.04	0.02	0.06	0.21
Potatoes	1.31	2.53	7.61	8.92	9.66

a/ Less than 0.005

Source: PSA

ANNEX 4.20. TOP AGRICULTURAL IMPORTS VOLUME, VALUE, SOURCE *CONTINUED*

Top Agricultural Imports: Volume and Value by Major Country, 2017

COMMODITY/ COUNTRY OF ORIGIN	VOLUME	VALUE	% SHARE (VALUE)
VOLUME AND VALUE ('000 mt, CIF in million US$)			
WHEAT (including spelt) **and MESLIN**	**5,827.94**	**1,362.74**	**100.00**
United States of America	2,687.36	686.48	50.37
Australia	1,989.95	416.67	30.58
Ukraine	629.08	126.41	9.28
Canada	141.62	36.54	2.68
Turkey	74.23	19.11	1.40
Others	305.71	77.55	5.69
SOYABEAN OIL/CAKE MEAL	**2,519.70**	**983.69**	**100.00**
United States of America	1,805.43	713.78	72.56
Argentina	701.28	263.94	26.83
India	11.17	4.62	0.47
Taiwan	0.31	0.54	0.06
Canada	1.06	0.45	0.05
Others	0.46	0.35	0.04
MILK & CREAM & PRODUCTS	**412.64**	**662.10**	**100.00**
United States of America	103.03	187.50	28.32
New Zealand	86.15	167.23	25.26
Netherlands	25.62	44.71	6.75
Germany	27.96	44.66	6.75
Australia	25.78	28.27	4.27
Others	144.09	189.72	28.65
COFFEE	**197.70**	**513.87**	**100.00**
Indonesia	135.74	337.95	65.77
Vietnam	51.10	120.78	23.50
Malaysia	3.31	24.21	4.71
China, People's Republic of	2.16	12.79	2.49
Thailand	2.98	11.41	2.22
Others	2.42	6.74	1.31
MEAT OF BOVINE, FROZEN	**120.08**	**394.01**	**100.00**
Australia	31.22	119.82	30.41
India	41.04	118.37	30.04
Ireland	14.41	41.74	10.59
United States of America	9.05	40.05	10.16
Brazil	11.48	34.09	8.65
Others	12.87	39.94	10.14
FERTILIZER MANUFACTURED	**1,482.71**	**376.36**	**100.00**
China, People's Republic of	817.04	185.40	49.26
Canada	120.23	31.41	8.35
Indonesia	104.37	29.79	7.92
Korea, Republic of South	60.45	18.44	4.90
Norway	40.40	18.37	4.88
Others	340.21	92.95	24.70
RICE	**888.09**	**357.72**	**100.00**
Vietnam	499.37	186.55	52.15
Thailand	281.57	104.51	29.22
Pakistan	81.68	26.92	7.53
India	10.81	22.35	6.25
China, People's Republic of	4.35	13.32	3.72
Others	10.29	4.07	1.14
UREA	**1,019.86**	**261.65**	**100.00**
Indonesia	303.23	77.07	29.45
Qatar	288.67	76.92	29.40
Malaysia	244.22	62.26	23.80
China, People's Republic of	115.17	28.25	10.80
Saudi Arabia	33.28	8.14	3.11
Others	35.29	9.02	3.45
CHICKEN MEAT, FROZEN	**253.71**	**235.80**	**100.00**
United States of America	102.25	97.41	41.31
Netherlands	49.94	44.88	19.03
Brazil	36.32	33.22	14.09
Canada	27.52	25.79	10.94
Belgium	25.42	23.19	9.84
Others	12.26	11.31	4.80
TUNA	**146.75**	**226.75**	**100.00**
Papua New Guinea	60.40	103.79	45.77
Taiwan	15.17	27.33	12.05
China, People's Republic of	22.97	21.08	9.30
Korea, Republic of South	11.63	19.86	8.76
Indonesia	9.68	17.09	7.54
Others	26.90	37.59	16.58

Source: PSA, 2018b

ANNEX 4.21. UTILIZATION OF AGRICULTURAL PRODUCTS

	SU Production	SU Imports	SU Gross Supply	UT Exports	UT Seeds	UT Feeds and Waste	UT Processing	UT Total Net Food Disposable	UT Per Capita kg/yr
Rice (in thousand metric tons)									
2012	11,793	1,041	15,465	c/	230	767	472	11,472	118.87
2013	12,059	398	14,981	2	233	784	482	11,354	115.63
2014	12,405	1,087	15,618	1	232	806	496	11,421	114.35
2015	11,870	1,478	16,010	c/	228	772	475	11,336	111.62
2016	11,528	605	15,332	c/	223	749	461	11,134	107.84
Corn (in thousand metric tons)									
2012	7,407	137	7,710	c/	52	4,815	988	1,694	17.55
2013	7,377	342	7,880	c/	51	4,795	984	1,881	19.16
2014	7,771	575	8,515	1	52	5,051	1,037	2,190	21.93
2015	7,519	712	8,415	c/	51	4,887	1,003	2,087	20.55
2016	7,219	806	8,412	c/	50	4,692	963	2,325	22.52
Banana (in metric tons)									
2012	9,226,768	0	9,226,768	2,646,118	0	394,839	1,645,163	4,540,648	47.05
2013	8,646,417	0	8,646,417	3,266,548	0	322,792	1,344,967	3,712,110	37.8
2014	8,884,857	1	8,884,858	3,630,976	0	315,233	1,313,471	3,625,178	36.3
2015	9,083,929	0	9,083,929	1,795,219	0	437,323	1,822,178	5,029,209	49.52
2016	8,903,684	14	8,903,698	1,733,836	0	430,192	1,792,466	4,947,204	47.92
Pineapple (in metric tons)									
2012	2,397,745	0	2,397,745	397,018	0	120,044	880,320	1,000,363	10.37
2013	2,458,528	0	2,458,528	489,743	0	118,127	866,265	984,393	10.02
2014	2,507,098	0	2,507,098	487,492	0	121,176	888,627	1,009,803	10.11
2015	2,582,699	0	2,582,699	315,829	0	136,012	997,423	1,133,435	11.16
2016	2,612,474	68	2,612,542	599,343	0	120,792	885,808	1,006,599	9.75

Source: CountryStat | http://countrystat.psa.gov.ph/ (SU=Supply, UT=Utilization)

ANNEX 4.21. UTILIZATION OF AGRICULTURAL PRODUCTS *CONTINUED*

	Commercial Crops: Supply Utilization Accounts, in metric tons									
	SU Production	SU Imports	SU Gross Supply	UT Exports	UT Net Disposable Supply	UT Seeds	UT Feeds and Waste	UT Processing Food Use	UT Processing Non-food Use	UT Per Capita kg/yr
Cacao										
2012	4,831	11,053	15,884	315	15,569	0	0	0	0	0.16
2013	4,876	15,882	20,758	513	20,245	0	0	0	0	0.2
2014	5,428	21,399	26,827	1,820	25,007	0	0	0	0	0.25
2015	6,023	23,186	29,209	2,297	26,912	0	0	0	0	0.26
2016	6,263	25,356	31,619	4,109	27,510	0	0	0	0	0.26
Coffee										
2012	24,904	30,184	55,088	1	55,087	0	3,305	0	0	0.41
2013	22,018	25,136	47,154	99	47,055	0	2,823	0	0	0.34
2014	21,127	8,255	29,382	1	29,381	0	1,763	0	0	0.21
2015	20,256	41,051	61,307	2	61,305	0	3,678	0	0	0.43
2016	19,270	41,162	60,432	6	60,426	0	3,626	0	0	0.42
Coconut										
2012	15,863,801	0	15,863,801	1,741	15,862,060	158,638	0	6,345,520	8,565,512	8.21
2013	15,354,334	0	15,354,334	2,984	15,351,350	153,543	0	6,141,734	8,289,729	7.8
2014	14,696,298	0	14,696,298	1,331	14,694,967	146,963	0	5,878,519	7,935,282	7.35
2015	14,735,189	0	14,735,189	3,136	14,732,053	147,352	0	5,894,076	7,955,309	7.24
2016	13,825,080	0	13,825,080	5,092	13,819,988	138,251	0	5,530,032	7,462,794	6.67
Sugarcane										
2012	26,395,915	7	26,395,922	1	0	0	0	26,131,956	0	2.74
2013	24,584,842	0	24,584,842	7	0	0	0	24,338,994	0	2.5
2014	25,029,880	0	25,029,880	1	0	0	0	24,779,581	0	2.51
2015	22,926,437	0	22,926,437	b/	0	0	0	22,697,173	0	2.26
2016	22,370,546	0	22,370,546	1	0	0	0	22,146,841	0	2.17

ANNEX 4.21. UTILIZATION OF AGRICULTURAL PRODUCTS *CONTINUED*

	Non-food: Supply Utilization Accounts (metric tons)						
	SU Production	SU Imports	SU Gross Supply	UT Exports	UT Seeds	Wastes	Domestic Use
Abaca							
2012	68,510	103	68,613	8,202	.	.	60,411
2013	64,952	725	65,677	3,271	.	.	62,406
2014	68,052	1,040	69,092	13,620	.	.	55,472
2015	70,356	144	70,500	48,632	.	.	21,868
2016	71,840	2,299	74,139	10,673	..	..	63,466
Rubber (natural)							
2012	110,750	17,202	127,952	24,985	.	.	102,967
2013	111,205	17,503	128,708	69,589	.	.	59,119
2014	113,263	13,679	126,942	85,410	.	.	41,532
2015	99,534	41,297	140,831	82,608	.	.	58,223
2016	90,657	54,902	145,559	66,965	..	..	78,594
Cotton							
2012	77	6,155	6,232	521	3	.	5,708
2013	55	11,900	11,955	103	2	.	11,850
2014	11	13,199	13,210	100	b/	.	13,110
2015	6	14,098	14,104	494	b/	.	13,610
2016	5	10,242	10,247	411	b/	..	9,836
Tobacco							
2012	48,075	43,047	91,122	10,930	.	4,808	75,384
2013	53,753	45,283	99,036	26,845	.	5,375	66,816
2014	61,418	28,268	89,686	31,867	.	6,142	51,677
2015	56,193	47,715	103,908	25,000	..	5,619	73,289
2016	56,457	40,705	97,162	23,908	..	5,646	67,608

ANNEX 4.21. UTILIZATION OF AGRICULTURAL PRODUCTS *CONTINUED*

	Poultry and Livestock: Supply Utilization Accounts, metric tons							
	SU Production	SU Imports	SU Gross Supply	UT Exports	UT Egg Hatched	UT Processing	UT Total Net Food Disposable	UT Per Capita kg/ yr
Chicken Eggs								
2012	421,057	303	421,360	0	25,263	8,421	387,676	4.02
2013	427,686	15	427,701	0	25,661	8,554	393,486	4.01
2014	415,652	0	415,652	0	24,939	8,313	382,400	3.83
2015	444,550	0	444,550	0	26,673	8,891	408,986	4.03
2016	461,719	0	461,719	0	27,703	9,234	424,782	4.11
Duck Eggs								
2012	39,747	0	39,747	0	1,590	795	37,362	0.39
2013	41,071	0	41,071	0	1,643	821	38,607	0.39
2014	41,510	0	41,510	0	1,660	830	39,020	0.39
2015	42,404	0	42,404	0	1,696	848	39,860	0.39
2016	44,160	0	44,160	0	1,766	883	41,511	0.4
Dressed Chicken								
2012	1,139,165	107,258	1,246,423	5,800	.	.	1,240,623	12.85
2013	1,197,404	98,727	1,296,131	6,084	.	.	1,290,047	13.14
2014	1,210,257	166,605	1,376,862	8,405	.	.	1,368,457	13.7
2015	1,278,826	190,529	1,469,355	3,700	.	.	1,465,655	14.43
2016	1,289,369	235,770	1,525,139	2,398	..	..	1,522,741	14.75
Duck								
2012	25,385	357	25,742	1	.	.	25,741	0.27
2013	25,842	98	25,940	0	.	.	25,940	0.26
2014	25,959	384	26,343	75	.	.	26,268	0.26
2015	25,455	259	25,714	26	.	.	25,688	0.25
2016	24,162	214	24,376	27	..	..	24,349	0.24

ANNEX 4.21. UTILIZATION OF AGRICULTURAL PRODUCTS *CONTINUED*

	Livestock: Supply Utilization Accounts, in metric tons						
	SU Production	SU Imports	SU Gross Supply	UT Exports	UT Processing	UT Total Carcass Net Food Disposable	UT Carcass Per Capita kg/yr
Beef							
2012	148,859	49,333	198,192	2	14,886	160,534	1.66
2013	151,480	50,452	201,932	49	15,148	164,083	1.67
2014	153,160	65,692	218,852	39	15,316	179,038	1.79
2015	156,429	64,446	220,875	0	15,643	181,168	1.78
2016	158,491	77,112	235,603	0	15,849	195,785	1.9
Chevon							
2012	44,135	1	44,136	0	0	33,293	0.34
2013	43,990	3	43,993	0	0	33,186	0.34
2014	44,390	25	44,415	0	0	33,510	0.34
2015	45,194	0	45,194	0	0	34,091	0.34
2016	45,179	0	45,179	0	0	34,080	0.33
Carabeef							
2012	83,652	36,340	119,992	0	84	107,632	1.12
2013	82,920	27,608	110,528	23	83	98,253	1
2014	83,832	39,370	123,202	0	84	110,815	1.11
2015	83,251	42,401	125,652	0	83	113,351	1.12
2016	84,800	38,955	123,755	0	85	111,225	1.08
Pork							
2012	1,664,351	118,801	1,783,152	12	19,972	1,419,805	14.71
2013	1,696,865	152,372	1,849,237	948	20,362	1,461,180	14.88
2014	1,713,841	203,690	1,917,531	308	20,566	1,474,554	14.76
2015	1,788,077	203,606	1,991,683	0	21,457	1,530,160	15.07
2016	1,881,959	224,091	2,106,050	0	22,584	1,618,941	15.68

ANNEX 4.21. UTILIZATION OF AGRICULTURAL PRODUCTS *CONTINUED*

	Fishery: Supply Utilization Accounts, metric tons							
	SU Production	SU Imports	SU Gross Supply	UT Exports	UT Feeds and Waste	UT Processing	UT Total Net Food Disposable	UT Per Capita kg/ yr
Crabs								
2012	43,700	32	43,732	5,879	656	0	37,197	0.39
2013	43,064	39	43,103	11,354	646	0	31,103	0.32
2014	44,776	58	44,834	8,759	672	0	35,403	0.35
2015	43,347	17	43,364	7,531	650	0	35,183	0.35
2016	46,462	151	46,613	10,264	697	0	35,652	0.35
Tuna								
2012	511,682	41,692	553,374	16,627	15,350	163,738	357,659	3.71
2013	524,560	65,032	589,592	28,251	15,737	167,859	377,745	3.85
2014	554,551	88,374	642,925	33,446	16,637	177,456	415,386	4.16
2015	560,160	154,601	714,761	28,359	16,805	179,251	490,346	4.83
2016	509,177	128,583	637,760	30,935	15,275	162,937	428,613	4.15
Mussel								
2012	25,660	170	25,830	41	385	0	25,404	0.26
2013	22,894	147	23,041	0	343	0	22,698	0.23
2014	18,762	194	18,956	87	281	0	18,588	0.19
2015	15,949	292	16,241	0	239	0	16,002	0.16
2016	18,775	219	18,994	0	282	0	18,712	0.18
Round Scad								
2012	233,481	24	233,505	357	7,004	74,714	151,430	1.57
2013	270,809	183	270,992	170	8,124	86,659	176,039	1.79
2014	260,598	191	260,789	169	7,818	83,391	169,411	1.7
2015	225,102	346	225,448	198	6,753	72,033	146,464	1.44
2016	211,777	835	212,612	79	6,353	67,769	138,411	1.34
Tilapia								
2012	307,975	0	307,975	293	9,239	0	298,443	3.09
2013	317,757	24	317,781	5,319	9,533	0	302,929	3.08
2014	313,378	0	313,378	1,957	9,401	0	302,020	3.02
2015	311,684	43	311,727	167	9,351	0	302,209	2.98
2016	300,722	37	300,759	60	9,022	0	291,677	2.83
Milkfish								
2012	391,330	741	392,071	2,297	11,740	125,226	252,808	2.62
2013	405,783	458	406,241	4,121	12,173	129,851	260,096	2.65
2014	401,979	112	402,091	3,419	12,059	128,633	257,980	2.58
2015	392,738	105	392,843	3,219	11,782	125,676	252,166	2.48

ANNEX 4.21. UTILIZATION OF AGRICULTURAL PRODUCTS *CONTINUED*

	Fishery: Supply Utilization Accounts, metric tons							
	SU Production	SU Imports	SU Gross Supply	UT Exports	UT Feeds and Waste	UT Processing	UT Total Net Food Disposable	UT Per Capita kg/ yr
2016	402,655	6	402,661	3,306	12,080	128,850	258,425	2.5
Oyster								
2012	20,648	31	20,679	13	310	0	20,356	0.21
2013	23,834	5	23,839	80	358	0	23,401	0.24
2014	23,796	1	23,797	456	357	0	22,984	0.23
2015	21,169	6	21,175	245	318	0	20,612	0.2
2016	20,831	4	20,835	52	312	0	20,471	0.2
Shrimps and Prawns								
2012	57,734	2,650	60,384	2,839	866	0	56,679	0.59
2013	58,788	2,574	61,362	6,466	882	0	54,014	0.55
2014	57,559	2,741	60,300	8,454	863	0	50,983	0.51
2015	58,686	2,608	61,294	4,856	880	0	55,558	0.55
2016	55,939	2,976	58,915	6,643	839	0	51,433	0.5

ANNEX 4.22. GROSS VALUE ADDED IN MANUFACTURING 1998-2017

INDUSTRY/INDUSTRY GROUP	2013	2014	2015	2016	2017
Food manufactures	554,984	593,577	603,249	653,626	685,442
Beverage industries	58,632	73,080	72,375	79,345	80,012
Tobacco manufactures	4,349	4,307	5,480	5,854	5,394
Textile manufactures	26,435	30,428	32,384	29,761	26,141
Wearing apparel	33,330	31,994	31,258	31,238	31,428
Footwear and leather and leather products	6,993	7,137	7,478	8,518	8,745
Wood, bamboo, cane and rattan articles	13,316	13,567	17,366	20,504	21,003
Paper and paper products	12,708	13,437	15,392	16,430	17,100
Publishing and printing	8,225	15,308	17,916	18,809	19,507
Petroleum and other fuel products	43,266	49,683	49,035	49,689	55,407
Chemical & chemical products	184,363	191,229	220,902	242,753	261,951
Rubber and plastic products	23,208	24,561	25,398	31,596	32,562
Non-metallic mineral products	41,392	39,637	43,362	42,089	50,605
Basic metal industries	31,348	33,218	35,290	49,590	60,761
Fabricated metal products	14,063	20,335	21,994	21,986	33,022
Machinery and equipment except electrical	21,426	26,568	31,424	39,328	40,309
Office, accounting and computing machinery	20,936	23,638	20,342	29,323	34,466
Electrical machinery and apparatus	33,405	34,476	37,373	42,074	44,642
Radio, television and communication equipment and apparatus	262,166	276,537	311,241	305,480	345,151
Transport equipment	26,845	28,867	31,301	38,926	43,593
Furniture and fixtures	77,078	94,741	90,378	89,500	104,573
Miscellaneous manufactures	40,444	40,189	40,050	39,096	41,303
GROSS VALUE ADDED INMANUFACTURING	1,538,912	1,666,514	1,760,989	1,885,514	2,043,118

Unit: In Million Pesos (Constant 2000 Prices)
Source:http://openstat.psa.gov.ph/dataset/national-accounts-philippines/resource/51f9e8f0-fe88-4fed-a625-50d0de291747#{view-graph:{graphOptions:{hooks:{processOffset:{},bindEvents:{}}}},graphOptions:{hooks:{processOffset:{},bindEvents:{}}}}

ANNEX 4.23. GROSS VALUE ADDED IN TRADE AND REPAIR OF MOTOR VEHICLES MOTORCYCLES PERSONAL AND HOUSEHOLD GOODS

INDUSTRY/INDUSTRY GROUP	2012	2013	2014	2015	2016	2017
Maintenance and Repair of Motor Vehicles Motorcycles Personal and Household Goods	32,783	34,686	38,327	43,357	48,344	51,275
Wholesale Trade	178,062	184,170	198,845	221,102	243,790	262,925
Retail Trade	844,827	902,245	948,638	1,006,067	1,075,304	1,153,655
GROSS VALUE ADDED IN TRADE AND REPAIR OF MOTOR VEHICLES MOTORCYCLES PERSONAL AND HOUSEHOLD GOODS	1,055,672	1,121,102	1,185,810	1,270,526	1,367,438	1,467,855
GROSS DOMESTIC PRODUCT	**6,305,229**	**6,750,631**	**7,165,478**	**7,600,175**	**8,122,741**	**8,665,708**

Growth Rates**	2012	2013	2014	2015	2016	2017
INDUSTRY/INDUSTRY GROUP	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	
Maintenance and Repair of Motor Vehicles Motorcycles Personal and Household Goods	5.8	10.5	13.1	11.5	6.1	
Wholesale Trade	3.4	8	11.2	10.3	7.8	
Retail Trade	6.8	5.1	6.1	6.9	7.3	
GROSS VALUE ADDED IN TRADE AND REPAIR OF MOTOR VEHICLES MOTORCYCLES PERSONAL AND HOUSEHOLD GOODS	6.2	5.8	7.1	7.6	7.3	

Unit: In Million Pesos (Constant 2000 Prices)
Sources:
**PSA | http://openstat.psa.gov.ph/sites/default/files/TRD_Annual_CONSLEV.csv*
*** Unit: In Percent (Constant 2000 Prices) . http://openstat.psa.gov.ph/sites/default/files/TRD_Annual_CONSGR.csv*

ANNEX 4.24. SUMMARY STATISTICS FOR WHOLESALE AND RETAIL TRADE

Industry Description	Number of Establish-ments	Employment		Total Income	Value Added	Sales from E-commerce Transactions
		Total	Paid Employees			
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	98,675	1,008,210	979,250	3,813,318,808	430,570,952	2,560,527
Sale of passenger motor vehicles	807	27,863	27,803	278,315,809	23,318,594	4,629
Sale of lorries, trailers and semi-trailers	192	2,342	2,342	8,499,892	1,432,163	0
Sale of other motor vehicles	104	1,340	1,340	4,498,710	579,338	0
Repair of motor vehicles, including overhauling	1,232	12,858	12,546	6,274,638	2,426,256	0
Repair of batteries for motor vehicles	69	266	266	100,107	35,321	0
Vulcanizing or preparing of tires for motor vehicles	235	435	367	236,464	83,699	0
Maintenance of motor vehicles, n.e.c.	529	3,373	3,164	1,952,438	612,497	0
Wholesale of motor vehicles parts and accessories	248	3,231	3,192	6,578,697	1,133,632	0
Retail sale of motor vehicles parts and accessories	2,065	19,665	18,462	27,023,408	3,953,673	0
Wholesale of motor vehicles tires and batteries	129	1,788	1,788	10,363,352	1,271,243	0
Retail sale of motor vehicles tires and batteries	776	5,510	5,067	13,063,583	1,673,714	208,940
Sale of motor vehicle parts and ac cessories, n.e.c.	42	453	453	995,085	121,297	0
Sale of motorcycles and their parts and components	5,489	34,244	33,540	87,208,276	11,269,672	0
Maintenance and repair of motorcycles and their parts and components	98	416	416	514,409	147,294	0
Wholesale on a fee or contract basis, of agricultural raw materials and live animals	85	1,136	1,136	4,168,503	361,650	0
Wholesale on a fee or contract basis, of food, beverages and tobacco	54	600	600	2,391,558	694,936	0
Wholesale on a fee or contract basis, of textile, clothing, and footwear	19	212	212	703,646	126,947	0
Wholesale on a fee or contract basis, of household appliances, articles and equipment	24	312	308	425,691	94,540	0
Wholesale on a fee or contract basis, of miscellaneous consumer goods	54	934	934	763,160	364,568	0
Wholesale on a fee or contract basis, of construction materials and hardware	22	261	261	1,072,945	227,496	0

ANNEX 4.24. SUMMARY STATISTICS FOR WHOLESALE AND RETAIL TRADE *CONTINUED*

Industry Description	Number of Establish-ments	Employment		Total Income	Value Added	Sales from E-commerce Transactions
		Total	Paid Employees			
Wholesale on a fee or contract basis, of chemical and pharmaceutical products	26	146	146	710,272	138,867	0
Wholesale on a fee or contract basis, of machinery, equipment and supplies	45	588	588	3,959,750	256,689	0
Wholesale on a fee or contract basis, of other products	30	412	394	679,373	138,465	0
Wholesale of palay, corn (unmilled) and other grains	680	7,729	7,699	7,820,352	1,030,045	0
Wholesale of abaca and other fibers, except synthetic fibers	19	415	415	1,942,229	115,913	0
Wholesale of coconut and coconut by-products	541	5,037	4,722	6,867,706	841,976	0
Wholesale of oleaginous fruits (e.g., oil seeds, palm oil, sunflower seeds, etc.)	8	28	28	24,714	5,924	0
Wholesale of tobacco leaf	18	266	258	169,900	31,883	0
Wholesale of flowers and plants	29	122	120	502,001	45,572	0
Wholesale of livestock and poultry and unprocessed animal products	38	492	492	529,232	67,759	0
Wholesale of fish and other seafoods	310	1,880	1,674	4,011,135	433,321	0
Wholesale of farm, forest and marine products, including seeds and animal feeds, hides and skins, leather, etc., n.e.c.	296	4,209	4,123	22,712,322	2,372,913	633
Wholesale of fruits, nuts and vegetables	200	4,304	4,296	9,236,094	1,189,376	0
Wholesale of sugar, confectionery and bakery products and other processed foods	770	20,605	20,594	141,356,979	11,827,928	0
Wholesale of meat and poultry products, including eggs	227	5,525	5,474	26,748,250	2,370,808	0
Wholesale of rice, corn and other cereals	321	5,361	4,838	23,651,062	6,086,740	0
Wholesale of fishery products	65	598	577	1,305,327	128,842	0
Wholesale of drinking water, juices (including powder), coffee, tea, cocoa and other beverages	1,086	19,731	17,932	111,199,534	9,939,215	0
Wholesale of tobacco p roducts	23	505	505	4,483,809	253,896	0
Wholesale of spices	45	753	753	5,916,292	504,102	0
Wholesale of food, beverage and tobacco, n.e.c.	147	4,687	4,680	22,813,766	1,715,910	0
Wholesale of textile fabrics, all kinds, including man-made fibers	63	694	694	1,701,162	260,735	0

ANNEX 4.24. SUMMARY STATISTICS FOR WHOLESALE AND RETAIL TRADE *CONTINUED*

Industry Description	Number of Establish-ments	Employment		Total Income	Value Added	Sales from E-commerce Transactions
		Total	Paid Employees			
Wholesale of wearing apparel, except footwear	304	3,624	3,624	8,522,314	1,227,162	0
Wholesale of made-up textile goods, except wearing apparel	21	243	243	363,171	55,560	0
Wholesale of articles of clothing, including accessories	22	91	91	283,941	40,892	0
Wholesale of footwear, all kinds of materials	92	2,459	2,428	9,362,455	813,227	0
Wholesale of embroideries	3	23	23	6,272	1,675	0
Wholesale of cordage, rope and twine	6	32	32	101,176	11,106	0
Wholesale of leather and leather goods, including man-made leather, except footwear	33	405	405	1,551,734	183,325	0
Wholesale of textiles, clothing and footwear, n.e.c.	51	736	736	2,060,090	283,509	0
Wholesale of medicinal and pharmaceutical products	1,055	25,840	25,719	170,626,573	23,602,697	49,202
Wholesale of surgical and orthopedic instruments and devices	148	3,271	3,271	12,388,037	2,210,629	0
Wholesale of photographic and optical goods	52	1,501	1,501	5,033,333	834,426	0
Wholesale of musical instruments/sporting goods (including bicycles), and games and toys	186	3,218	3,218	5,981,899	908,026	0
Wholesale of paper and paper products (including stationeries)	216	3,783	3,769	9,197,165	1,307,970	0
Wholesale of books, magazines and newspapers	104	1,066	1,066	2,815,086	329,224	0
Wholesale of perfumeries, cosmetics and soaps	453	12,683	12,299	85,900,418	8,110,636	0
Wholesale of watches, clocks and jewelries	24	209	206	395,186	70,483	0
Wholesale of miscellaneous consumer goods, n.e.c.	363	7,001	6,864	35,454,726	2,888,503	96,619
Wholesale of household-type appliances, except radio and television equipment, cd and dvd players/recorders	165	4,146	4,146	17,298,735	1,869,069	0
Wholesale of household furniture, furnishing and fixtures	143	2,119	2,119	8,152,105	1,324,108	0
Wholesale of recorded audio and video tapes, cds, dvds	25	563	563	1,380,333	172,727	0
Wholesale of chinaware, glassware, earthenware, woodenware, wickerware, corkware, plasticware, cutlery and utensils	231	3,320	3,301	12,573,852	1,045,914	0
Wholesale of handicraft products	47	706	698	623,827	107,475	50,904
Wholesale of lighting equipment	83	1,340	1,329	5,806,777	974,812	0
Wholesale of other household goods, n.e.c.	97	1,757	1,669	3,725,376	459,872	0

ANNEX 4.24. SUMMARY STATISTICS FOR WHOLESALE AND RETAIL TRADE *CONTINUED*

Industry Description	Number of Establish-ments	Employment		Total Income	Value Added	Sales from E-commerce Transactions
		Total	Paid Employees			
Wholesale of computers, computer peripheral equipment and software	176	8,580	8,566	55,025,769	5,718,318	37,526
Wholesale of electronic valves and tubes	49	702	687	8,926,385	796,657	0
Wholesale of semi-conductor devices	59	1,039	1,037	6,226,154	652,131	0
Wholesale of micro-chips and integrated circuits	4	37	37	75,338	11,580	0
Wholesale of printed circuits	s	s	s	s	s	s
Wholesale of radio and television including parts and accessories	15	308	308	4,333,751	266,422	0
Wholesale of telephone and communications equipment including parts and accessories	120	3,040	3,035	28,217,681	1,821,761	6,340
Wholesale of blank audio and video tapes and diskettes, magnetic and optical disks (cds, dvds)	s	s	s	s	s	s
Wholesale of agricultural machinery, equipment and supplies	207	2,037	2,023	8,759,315	1,161,215	0
Wholesale of commercial machinery and equipment	220	4,782	4,782	11,442,176	2,068,349	55,095
Wholesale of industrial machinery and equipment	655	12,240	12,182	39,205,481	8,843,466	0
Wholesale of office machinery equipment including office furniture, furnishings, appliances and vases	107	2,653	2,642	6,533,929	986,637	0
Wholesale of professional and scientific and measuring and controlling equipment	235	4,409	4,409	10,039,649	2,046,668	145,697
Wholesale of transport equipment and supplies, except land motor vehicles, motorcycles and bicycles	44	935	934	1,858,530	422,489	0
Wholesale of other machinery and equipment, n.e.c.	95	1,304	1,304	5,910,655	937,655	0
Wholesale of solid, liquid and gaseous fuels and related products	410	9,156	9,023	210,050,831	24,627,095	0
Wholesale of metals and metal ores	85	1,168	1,168	4,700,164	647,427	0
Wholesale of lumber and planing mill products, wood in the rough	71	1,331	1,331	2,959,367	391,893	0
Wholesale of cement, hydraulic	29	1,130	1,130	8,250,742	643,365	0
Wholesale of masonry materials, except cement	194	3,636	3,635	8,322,206	2,017,018	0
Wholesale of flat glass	7	217	217	655,351	80,247	0
Wholesale of hardware, paints, varnishes and lacquers, and plumbing materials, including fittings and fixtures	320	6,679	6,553	23,087,532	3,571,737	0

ANNEX 4.24. SUMMARY STATISTICS FOR WHOLESALE AND RETAIL TRADE *CONTINUED*

Industry Description	Number of Establish-ments	Employment		Total Income	Value Added	Sales from E-commerce Transactions
		Total	Paid Employees			
Wholesale of electrical materials	206	4,529	4,529	18,329,605	1,709,306	1,186
Wholesale of wallpaper and floor coverings	27	349	332	1,415,833	182,360	0
Wholesale of construction materials and supplies, n.e.c.	305	3,943	3,940	16,344,323	1,760,576	0
Wholesale of industrial chemical products	390	6,898	6,898	45,380,755	7,460,129	0
Wholesale of fertilizers and agro-chemical products	168	3,438	3,438	34,824,052	2,757,979	0
Wholesale of non-metallic products except cement, sand and gravel	29	304	304	532,057	86,055	0
Wholesale of scrap metals, waste and junk	462	4,253	4,161	6,974,136	732,098	0
Wholesale of scraps, except metal	498	2,985	2,589	2,071,629	361,566	0
Wholesale of other waste and scrap and other products, n.e.c.	46	330	295	435,053	97,907	0
Non-specialized wholesale trade	72	1,181	1,171	4,171,920	538,080	0
Retail selling in groceries	3,540	42,130	39,404	146,184,728	7,815,136	0
Retail selling in supermarkets	885	46,034	45,933	291,356,266	23,854,624	0
Retail selling in sari-sari stores	1,378	6,729	5,756	4,612,480	768,365	0
Retail selling in convenience stores	1,347	10,004	9,621	35,600,950	2,542,171	0
Retail selling in hypermarkets	58	6,194	6,193	40,578,716	2,231,838	0
Retail selling in department stores	563	66,484	66,345	176,384,024	22,088,911	0
Retail selling in non-specialized stores, n.e.c.	60	913	879	1,101,155	110,528	0
Retail sale of fruits and vegetables	300	2,646	2,543	6,766,973	854,032	0
Retail sale of eggs and dairy products	265	749	701	1,249,639	150,895	0
Retail sale of meat and poultry products	2,343	12,007	11,462	17,648,881	2,052,887	0
Retail sale of bakery products	2,859	11,740	11,740	12,558,789	1,741,838	0
Retail sale of fish and other seafoods (fresh and dried)	177	1,069	879	712,538	163,317	0
Retail sale of rice, corn and other cereals	1,526	5,859	5,118	5,610,626	877,981	0
Retail sale of food products, n.e.c.	942	5,162	4,826	12,584,420	1,244,971	0
Retail sale of alcoholic beverages (not consumed on the spot)	196	1,273	1,240	3,781,600	460,144	0
Retail sale of non-alcoholic beverages (not consumed on the spot)	156	768	768	2,101,987	306,416	0

ANNEX 4.24. SUMMARY STATISTICS FOR WHOLESALE AND RETAIL TRADE *CONTINUED*

Industry Description	Number of Establish-ments	Employment		Total Income	Value Added	Sales from E-commerce Transactions
		Total	Paid Employees			
Retail sale of tobacco products in specialized stores	41	200	200	367,288	71,887	0
Retail sale of automotive fuel in specialized stores	3,926	42,550	41,408	275,611,721	26,376,555	0
Retail sale of computers	1,081	10,758	10,753	42,935,552	3,338,743	767,170
Retail sale of computer peripheral equipment	629	4,316	4,298	26,686,652	1,618,132	0
Retail sale of computer software	52	803	803	1,799,076	350,293	0
Retail sale of cellular phones, parts and accessories	2,819	13,755	12,874	17,799,406	2,305,677	0
Retail sale of other telecommunications equipment	73	674	668	1,872,675	398,119	0
Retail sale of of radio and television, including parts and accessories	97	772	715	1,201,527	181,152	0
Retail sale of audio and video equipment	82	1,023	1,023	3,624,898	450,222	56,321
Retail sale of stereo equipment, cd and dvd players and equipment	70	506	440	1,689,189	263,096	0
Retail sale of audio and video equipment, n.e.c.	45	744	744	4,046,863	286,134	0
Retail sale of textiles, all kinds	292	2,341	2,148	1,401,407	254,936	0
Retail sale of modistes' supplies	50	339	338	346,458	74,602	0
Retail sale of hardware materials	3,796	45,677	44,848	106,276,153	12,342,604	0
Retail sale of glass and mirror	679	5,912	5,382	6,185,388	740,145	0
Retail sale of lumber	417	3,119	2,928	3,384,371	561,720	0
Retail sale of construction materials	2,042	23,349	22,131	75,714,405	10,555,813	0
Retail sale of masonry materials	333	3,087	2,975	7,035,590	1,132,747	0
Retail sale of nipa, bamboo and rattan	20	92	44	15,150	3,389	0
Retail sale of paints, varnishes and lacquers	397	1,716	1,596	1,061,526	238,742	0
Retail sale of construction supplies, n.e.c.	149	906	868	527,296	134,697	0
Retail sale of carpets, rugs, wal l and floor coverings in specialized stores	58	394	394	544,113	96,268	0
Retail sale of home furnishing, furniture and fixtures, including lamps and lamp shades	1,410	11,387	11,146	17,578,913	2,337,775	0
Retail sale of chinaware, glassware, earthenware and utensils	633	4,014	4,012	7,017,725	833,379	0
Retail sale of household appliances, articles and equipment	2,420	24,854	24,710	117,960,849	17,298,220	19,688

ANNEX 4.24. SUMMARY STATISTICS FOR WHOLESALE AND RETAIL TRADE *CONTINUED*

Industry Description	Number of Establish-ments	Employment		Total Income	Value Added	Sales from E-commerce Transactions
		Total	Paid Employees			
Retail sale of musical instruments and records, tapes and cartridges	263	692	692	1,863,615	276,106	0
Retail sale of handicrafts	183	1,364	1,174	616,516	122,029	0
Retail sale of electrical household appliances, furniture, lighting equipment and other household articles in specialized stores, n.e.c.	225	1,693	1,578	2,463,836	295,503	0
Retail sale of books, newspapers and stationery in specialized stores	1,677	13,666	13,664	21,474,903	3,244,680	0
Retail sale of music and video recordings in specialized stores	60	288	288	919,917	74,027	0
Retail sale of sporting goods and athletic supplies	779	5,614	5,265	11,877,462	2,104,459	0
Retail sale of marine supplies, including nets and gears	73	363	363	579,848	94,570	0
Retail sale of camping goods and bicycles	177	2,114	2,114	1,569,422	381,210	0
Retail sale of games and toys in specialized stores	135	716	716	2,464,070	330,753	0
Retail sale of wearing apparel, except footwear	8,095	44,828	44,802	74,260,984	15,028,554	0
Retail sale of made-up textile goods	47	353	353	620,592	104,170	0
Retail sale of footwear, all kinds	2,319	15,708	15,253	33,630,931	5,113,210	0
Retail sale of leather and artificial leather goods and travel accessories, except footwear	329	1,446	1,446	3,160,895	448,653	0
Retail sale of other clothing, footwear and leather articles in specialized stores, n.e.c.	385	1,919	1,900	6,151,721	994,218	0
Retail sale of drugs and pharmaceutical goods	6,475	42,410	40,854	164,553,493	14,979,886	0
Retail sale of medical, surgical and orthopedic goods/instruments and dental supplies	308	2,469	2,469	7,630,907	1,266,389	21,962
Retail sale of perfumery, cosmetic and toilet articles	1,445	10,160	10,128	41,530,513	9,332,088	0
Retail sale of feeds, fertilizers and insecticides	2,688	13,461	10,076	27,716,174	2,278,884	0
Retail sale of gifts and novelty goods	807	7,944	7,687	16,096,702	2,033,310	0
Retail sale of office machines and equipment, excluding computers and computer peripheral equipment	144	1,370	1,370	3,306,076	695,855	0
Retail sale of jewelry, watches and clocks	1,332	5,681	5,681	19,807,970	2,308,877	28,031
Retail sale of fresh and artificial flowers and plants	310	2,021	1,953	1,411,803	393,402	0
Retail sale of beauty parlor supplies and equipment	275	1,620	1,620	2,098,516	317,899	0

ANNEX 4.24. SUMMARY STATISTICS FOR WHOLESALE AND RETAIL TRADE *CONTINUED*

Industry Description	Number of Establish-ments	Employment		Total Income	Value Added	Sales from E-commerce Transactions
		Total	Paid Employees			
Retail sale of art goods, marble products, painting and artists' supplies	194	1,034	977	1,611,302	297,706	0
Retail sale of optical goods and supplies	377	2,331	2,331	2,628,251	448,373	0
Other retail sale of new goods in specialized stores, n.e.c.	1,640	10,730	9,411	9,281,136	1,804,422	0
Retail sale of second-hand clothing, footwear and leather articles	842	4,014	3,337	1,416,939	302,255	0
Retail sale of books and other goods	35	283	283	358,573	54,709	0
Retail sale of antiques and auctioning houses	22	121	121	143,430	28,205	0
Retail sale of second-hand goods, n.e.c.	324	1,289	1,289	1,244,702	215,351	0
Retail sale of liquefied petroleum gas and other fuel products	1,591	9,719	9,415	34,797,299	2,787,348	0
Retail sale via internet	10	360	360	1,275,303	145,268	1,010,585
Door-to-door retailing	23	131	131	403,575	114,214	0
Selling by vending machine	4	318	318	967,495	112,537	0
Retail sale of health products, non-store	317	1,477	1,403	3,039,097	475,124	0
Retail sale of water (including distribution)	24	99	99	47,152	13,587	0
Other retail sale not in stores, stalls or markets, n.e.c	44	238	238	522,506	109,877	0

Source:https://psa.gov.ph/content/2015-annual-survey-philippine-business-and-industry-aspbi-wholesale-and-retail-trade-0

ANNEX 4.25. ROAD DENSITY 2004-2016

REGION	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Nationwide	9.52	9.14	9.46	9.48	9.57	9.65	10.09	10.13	10.21	10.36	10.46	10.49	10.54
CAR	9.66	8.8	9.51	9.5	9.53	9.67	9.85	9.97	10.32	11.02	11.14	11.25	11.84
I	13.2	12.36	12.36	12.37	12.37	12.36	12.5	12.68	12.67	12.77	12.83	12.84	12.86
II	6.8	6.2	6.27	6.25	6.28	6.33	6.39	6.4	6.56	6.33	6.41	6.4	6.43
III	9.35	7.96	9.2	9.23	9.42	9.85	10.33	10.32	10.31	10.7	10.7	10.7	10.7
IV-A	14.13	15.73	14.48	14.25	14.11	14.12	14.6	14.6	14.75	14.85	15.13	15.13	15.19
IV-B	7.48	6.81	7.38	7.38	7.51	7.52	7.62	7.63	7.63	7.72	7.76	7.76	7.76
IX	6.23	5.63	7.1	7.15	7.15	7.15	8.1	8.2	8.49	9.27	9.59	9.73	9.77
NCR	146.1	159.56	166.13	166.54	175.39	175.82	179.73	180.82	180.97	184.15	185.16	185.63	187.08
NIR	0	0	0	0	0	0	0	0	0	0	0	12.32	12.34
V	12.38	11.98	12.11	12.1	12.35	12.37	12.74	12.75	12.75	12.94	12.94	12.96	13.17
VI	14.31	13.96	13.96	13.85	13.85	13.85	14.08	14.17	14.16	14.39	14.46	14.97	15.1
VII	11.93	12.03	12.8	12.82	12.8	12.93	14.28	14.28	14.28	14.45	14.49	16.62	16.68
VIII	10.14	9.96	10.04	10.2	10.2	10.2	10.43	10.51	10.55	10.81	10.9	10.89	10.92
X	8	7.48	7.95	8.21	8.37	8.38	9.26	9.26	9.27	9.28	9.4	9.58	9.59
XI	7.24	7.05	7.09	7.11	7.11	7.3	8.12	8.1	8.17	8.14	8.16	8.24	8.25
XII	6.21	5.67	5.8	5.79	6.14	6.27	6.74	6.75	6.78	6.68	6.76	6.76	6.79
XIII	6.41	6.32	6.32	6.32	6.31	6.37	6.68	6.69	6.82	7	7.17	7.2	7.2

Source:http://www.dpwh.gov.ph/dpwh/2016%20DPWH%20ATLAS/Tables%20&%20Graphs%20(Roads)/Road%20Data%202016/ATLAS%202016/Table%201.5.htm

ANNEX 4.26. LAND TRANSPORT

	2015	2016	2017
Registered motor vehicles by type (*Th*)	8,706.6	9,2516	10,410.8
Cars	962.4	9718	1,040.1
Sports utility vehicles (SUVs)	428.2	493.2	569.0
Utility vehicles	1,977.5	1,969.4	2,109.0
Trucks	384.6	407.4	430.6
Buses	31.9	29.8	34.8
Trailers	44.9	50.3	53.0
Motorcycles and tricycles	4,877.1	5,329.8	6,174.3
Registered motor vehicles by classification (*Th*)	8,706.6	9,2516	10,410.8
Private	7,710.9	8,246.1	9,359.8
Government	76.1	79.5	77.2
Diplomatic	2.8	3.1	2.8
For hire	916.3	922.5	970.4
Tax exempt	0.5	0.5	0.5
Light Rail Transit	**2015**	**2016**	**2017**
Blue line			
Passenger traffic (*M*)	62.2	67.0	65.9
Gross revenue collection (*MP*)	1,252.1	1,307.8	1,271.5
Metrostar Express	**2015**	**2016**	**2017***
Passenger traffic (*M*)	120	135	106
Gross revenue collection (*MP*)	2,332	2,680	2,117
Traffic accidents	**2012**	**2013**	**2014**
Total	6,033	9,179	10,599
Fatal	1,129	1,362	1252
Nonfatal	4,904	7,817	9,347
Vehicles involved	9,153	8,169	15,195

Source: PSA, 2018a, p. 77

ANNEX 4.26. LAND TRANSPORT

REGIONS	MOTOR VEHICLES REGISTERED			% INCREASE		AVE. %INC.
	2015	2016	2017	16/'15	17/'16	
I	481,388	540,693	593,933	12.32	9.85	11.08
II	447,186	419,010	431,864	(6.30)	3.07	(1.62)
III	1,046,163	1,092,922	1,252,402	4.47	14.59	9.53
IV-A	1,115,264	1,181,957	1,353,476	5.98	14.51	10.25
IV-B	96,500	119,113	178,496	23.43	49.85	36.64
V	307,052	350,832	396,357	14.26	12.98	13.62
VI	465,337	514,941	587,080	10.66	14.01	12.33
VII	711,910	726,028	800,149	1.98	10.21	6.10
VIII	191,145	214,648	240,695	12.30	12.13	12.22
IX	280,343	312,326	352,912	11.41	12.99	12.20
X	278,875	306,465	371,748	9.89	21.30	15.60
XI	393,762	425,081	486,292	7.95	14.40	11.18
XII	333,791	375,288	405,589	12.43	8.07	10.25
NCR	2,317,204	2,405,122	2,617,537	3.79	8.83	6.31
C.A.R.	106,105	136,684	158,865	28.82	16.23	22.52
CARAGA	134,582	130,455	183,419	(3.07)	40.60	18.77
TOTAL	8,706,607	9,251,565	10,410,814	6.26	12.53	9.39

Source: PSA, 2018a, p. 77

Annex 4.27. Railway Transport

Number of Passengers, Load Factor and Revenues of Metro Rail Transit, Light Rail Transit, and Megatren 2006-2014									
Year	Metro Rail Transit (Metrostar)			Light Rail Transit			Megatren (LRT Line 2/Purple Line)		
	Total Number of Passengers (in million)	Load Factor (%)	Revenues (in million pesos)	Total Number of Passengers (in million)	Peak Hour Load Factor (%)	Gross Revenue Collection (in million pesos)	Total Number of Passengers (in million)	Peak Hour Load Factor (%)	Gross Revenue Collection (in million pesos)
2006	134.9	76.8	1,651.6	111.1	61.9	1,594.6	47.5	30.9	642.8
2007	142.8	87.7	1,724.4	118.6	66.8	1,707.7	52.9	34.1	749.4
2008	149.5	91.8	1,845.0	138.1	62.4	1,962.5	58.6	38.8	815.7
2009	151.9	93.9	1,874.0	149.4	67.9	2,111.2	62.1	40.3	838.3
2010	153.1	94.0	1,904.2	155.9	69.0	2,228.2	63.2	39.9	857.3
2011	158.8	50.5	1,956.8	156.9	77.3	2,285.6	63.8	39.0	856.8
2012	174.5	50.5	2,136.6	170.7	90.2	2,514.0	70.3	48.0	943.0
2013	176.1	87.9	2,172.4	171.8	94.7	2,526.8	71.4	60.0	949.9
2014	167.7	92.0	2,020.9	170.7	96.0	2,524.0	72.9	60.0	973.4

Number of Passengers and Revenues by Railways 2010-2014						
Philippine National Railways						
Year	Metro South Commuter Train		Bicol Commuter Train		Total All Commuter Train	
	Passengers Carried	Passenger Revenues (Pesos)	Passengers Carried	Passenger Revenues (Pesos)	Passengers Carried	Passenger Revenues (Pesos)
2010	9,138,021	102,834,615	400,704	5,884,844	9,538,725	108,719,459
2011	15,382,360	176,685,822	406,299	5,831,250	15,788,659	182,517,072
2012	15,143,542	174,672,060	472,946	6,437,987	15,616,488	181,110,047
2013	19,483,122	227,192,340	485,663	7,196,952	19,968,785	234,389,292
2014	24,200,480	303,406,806	471,474	8,073,641	24,671,954	311,480,447

Source: http://openstat.psa.gov.ph/dataset/railway-transport

ANNEX 4.28. WATER TRANSPORT

Type of Vessel	Unit	2,011	2,012	2,013	2,014
Merchant fleet	Number	7,299	8,499	9,574	10,694
Merchant fleet	Gross Tonnage	1,762,706	1,968,584	2,267,475	2,360,990
..Passenger	Number	4,236	5,076	5,734	6,555
..Passenger	Gross Tonnage	451,481	449,801	454,819	402,309
..Cargo	Number	2,121	2,449	2,813	3,051
..Cargo	Gross Tonnage	1,016,461	1,189,044	1,466,964	1,585,687
..Tanker	Number	288	263	245	249
..Tanker	Gross Tonnage	216,395	232,458	240,329	258,177
..Tug	Number	432	481	534	566
..Tug	Gross Tonnage	41,182	47,935	56,444	61,958
..Dredger	Number	20	21	26	28
..Dredger	Gross Tonnage	5,439	7,093	12,452	13,224
..Yacht	Number	30	14	24	33
..Yacht	Gross Tonnage	473	75	586	628
..Special Purpose Ship	Number	15	14	20	16
..Special Purpose Ship	Gross Tonnage	2,101	1,572	1,610	3,632
..Miscellaneous Ship	Number	53	67	63	78
..Miscellaneous Ship	Gross Tonnage	13,349	26,363	20,185	20,518
..No Information	Number	10	..	3	..
..No Information	Gross Tonnage	3,398	..	766	..
..Others	Number	94	114	112	118
..Others	Gross Tonnage	12,426	14,244	13,320	14,857
Fishing	Number	5,830	7,242	9,437	11,340
Fishing	Gross Tonnage	317,998	356,836	386,958	422,714

Source:http://openstat.psa.gov.ph/dataset/inland-waterways-transport/resource/873f000c-9fa3-45cb-b49d-d631a23459e2#{view-graph:{graphOptions:{hooks:{processOffset:{},bindEvents:{}}}},graphOptions:{hooks:{processOffset:{},bindEvents:{}}}}

ANNEX 4.29. NUMBER OF AIRPORTS BY CLASSIFICATION, BY ISLAND GROUP

Classification	Luzon	Visayas	Mindanao
2013	38	24	24
International Airport	5	2	3
Principal Airport Class 1	4	6	5
Principal Airport Class 2	8	5	6
Community Airport	21	11	10

Source:https://psa.gov.ph/sites/default/files/Chapter%2013%20Transportation%20and%20Communication%20-%20as%20of%2010-24_0.xls

ANNEX 4.30. SUMMARY STATISTICS FOR INFORMATION AND COMMUNICATIONS, 2015

Industry Description	Number of Establishments	Employment as of November 15		Total Income	Value Added	Sales from E-Commerce
		Total	Paid Employees			
Philippines	2,823	148,507	147,759	571,825,524	227,682,826	2,000,265
Book publishing	83	3,753	3,734	6,960,515	1,643,313	139,167
Publishing of directories and mailing lists	4	1,581	1,581	1,494,587	852,382	63,787
Publishing of newspapers, journals and periodicals	112	6,299	6,290	12,633,151	3,774,406	-
Other publishing activities	8	349	349	267,993	142,134	-
Software publishing	9	2,281	2,280	6,198,306	1,723,966	-
Motion picture, video and television programme activities	32	1,045	1,031	4,122,461	1,061,748	647
Motion picture, video and television programme post-production activities	15	1,298	1,285	868,846	490,710	-
Motion picture, video and television programme distribution activities	3	33	33	1,435,921	184,180	-
Motion picture projection activities	120	2,172	2,168	7,898,719	4,198,374	-
Sound recording activities	13	174	168	473,857	303,146	-
Publishing of music	5	197	197	218,066	64,454	-
Radio broadcasting and relay station and studios	313	4,340	4,166	4,812,223	2,021,645	-
Radio program production	s	s	s	s	s	s
Television broadcasting and relay stations and studios including closed circuit television services	76	8,843	8,833	33,453,136	13,325,873	-
Television program production	15	325	322	2,960,421	1,136,208	-
Wired (landline) services	41	8,231	8,224	95,207,074	37,984,943	910,269
Wired internet access service activities (e.g. dsl, leased line, dial-up)	5	364	364	22,235,398	9,621,244	-
Other wired telecommunications activities	8	1,208	1,208	2,524,842	1,561,407	89,926
Wireless landline services	s	s	s	s	s	s
Mobile telecommunications services	10	14,829	14,829	215,977,709	78,708,053	-
Wireless internet access services (e.g. internet service provider, broadband)	22	851	851	6,895,741	2,061,927	7,398
Other wireless telecommunication services, n.e.c.	5	543	543	1,047,774	322,451	-

ANNEX 4.30. SUMMARY STATISTICS FOR INFORMATION AND COMMUNICATIONS, 2015 ***CONTINUED***

Industry Description	Number of Establishments	Employment as of November 15		Total Income	Value Added	Sales from E-Commerce
		Total	Paid Employees			
Satellite telecommunications activities	301	7,890	7,824	20,081,970	7,420,832	509
Telephone access in facilities open to the public service activities	s	s	s	s	s	s
Internet access in facilities open to the public service activities	769	2,057	1,811	871,408	315,833	-
Other telecommunications service activities, n.e.c.	59	2,742	2,690	8,541,944	2,288,887	-
Computer programming activities	542	39,503	39,401	62,725,798	31,955,583	617,412
Computer consultancy and computer facilities management activities	98	14,609	14,609	29,574,595	12,689,611	169,789
Other information technology and computer service activities	65	4,049	4,042	7,614,782	2,839,450	-
Data processing	55	17,684	17,674	11,135,184	6,654,818	-
Website hosting services	19	294	289	104,865	69,135	1,362
Application hosting services	5	588	588	1,286,193	774,761	-
Web portals	s	s	s	s	s	s
News agency activities	3	35	35	598,274	90,446	-
Other information service activities, n.e.c.	4	311	311	1,571,899	1,386,542	-

Source:PSA, 2018e

ANNEX 4.31.COMMUNICATIONS

	2012	2013	2014
Telephone distribution			
Installed lines *(by operator)*	6,765,459	6,340,777	5,940,741
PLDT	3,324,791	2,962,474	2,962,474
Innove	1,580,000	1,580,000	1,580,000
Digitel	590,265	590,421	590,421
Bayantel	443,910	430,890	430,890
Others	826,493	776,992	376,956
Telephone density *(per 100 population)*	6.93	6.38	5.87
Subscribers *(by operator)*	3,493,164	3,148,835	3,196,747
PLDT	1,792,519	1,886,562	2,049,528
Innove	491,000	491,000	491,000
Digitel	196,296	206,631	151,729
Bayantel	379,724	363,576	363,576
Others	633,625	201,066	140,914
Telephone density *(per 100 population)*	3.58	3.17	3.16
Population *(Th)*	97,549,040	99,384,460	101,174,880
Cellular mobile telephone service (CMTS)			
Subscribers *(by operator)*	101,978,345	102,823,569	130,319,459
Smart	54,189,986	54,983,400	54,066,725
Globe Telecom/Innove	30,040,000	30,040,000	44,040,844
Digital Mobile Philippines	16,308,602	16,308,602	15,790,335
Others	1,439,757	1,491,567	16,421,555
Population	97,549,040	99,384,460	101,174,880
CMTS density *(per 100 population)*	104.50	103	129
Internet service providers (ISPs)			
NTC-registered ISPs	400	400	728
Estimated subscribers	7,464,960	7,464,960	8,957,952
Telecommunications Industry Sector			
Type of service	**2011**	**2012**	**2013**
Local exchange carrier service	70	70	70
Inter-exchange carrier			
	2011	**2012**	**2013**
Mobile Radio Service			
Cellular mobile telephone operator	9	9	9
Broadcast media	**2013**	**2014**	**2015**
AM	402	408	411
FM	894	934	1,014
TV	405	435	436
Cable television	1,215	1,300	1,457
DTU	5	5	6
Licensed radio stations	357,398	357,398	...
Number of licenses, permits, registrations and certificates issued	385,049	3,731,319	...
Number of radio stations inspected		139,872	...
	2010	**2014**	**2015[a]**
Regular post offices	1,946	1,355	1,077
	2012	**2013**	**2014**
Mail volume handled *(M)*	240	179	221
Posted and delivered mails	240	179	221
Received from foreign countries	18	82	114
Gross value added in communications	**2015**	**2016**	**2017**
At current prices (MP)	361,786	377,092	391,369
At constant 2000 prices (MP)	349,568	363,973	376,645
Implicit price index (2000=100)	103.5	103.6	103.9
Information and communication establishments	**2013**	**2014**	**2015[p]**
With TE of 20 and over			
Number	887	883	744
Total employment	130,632	128,986	131,760
Paid employees	130,308	128,665	131,613
Unpaid workers	324	321	147

[a] As of June
[p] Preliminary

Continued

Source: PSA, 2018a

ANNEX 4.31.COMMUNICATIONS *CONTINUED*

	2013	2014	2015[P]
Information and communication establishments - *Con't.*			
With TE of 20 and over			
Total compensation *(MP)*	75,610.8	74,222.6	82,622.7
Total revenue/income *(MP)*	525,532.3	507,478.9	519,084.6
Total cost/expense *(MP)*	427,892.5	408,270.9	437,338.0
Value added *(MP)*	251,584.2	219,774.9	209,391.3
Gross additions to fixed assets *(MP)*	90,226.5	62,948.6	67,041.6
Change in inventories *(MP)*	813.6	(1,809.8)	(1,183.2)
Subsidies *(MP)*	182.7	225.4	618.3
With TE of less than 20			
Number	2,387	2,036	...
Total employment	13,115	12,150	...
Paid employees	12,393	11,634	...
Unpaid workers	722	516	...
Total compensation *(MP)*	2,611.9	2,816.0	...
Total revenue/income *(MP)*	16,519.5	39,889.1	...
Total cost/expense *(MP)*	14,567.7	34,014.4	...
Value added *(MP)*	6,334.8	15,343.5	...
Gross additions to fixed assets *(MP)*	443.4	942.9	...
Change in inventories *(MP)*	(42.0)	(52.6)	...
Subsidies *(MP)*	-	-	...

Sources: PSA, *2013-2015 Annual Survey of Philippine Business and Industry, NTC, PIA,* and PPC

Telecommunications Statistics from the Board of Investments, 2018

Indicator	2012	2013	2014	2015	2016
Total Fixed Line Subscription	3.1 million	3.5 million	3.1 million	3.2 million	3.8 million
Fixed-Telephone Subscriptions per 100 Inhabitants	3.6	3.2	3.1	3.2	3.0
Total mobile Phone Subscription	102.0 million	102.8 million	111.3 million	120.3 million	126.5 million
Mobile Phone Users per 100 Inhabitants	105.45	104.50	111.22	115.75	109.17
Fixed Broadband Subscriptions	2.15 million	2.57 million	2.90 million	3.46 million	2.6 million
Fixed Broadband Subscription per 100 Inhabitants	2.22	2.61	2.90	3.40	8.0
Percentage of	36.24	48.10	49.60	53.70	55.50

ANNEX 4.32. NUMBER OF EXISTING RADIO STATIONS BY REGION 2007-2013

Region	2007	2008	2009	2010	2011	2012	2013
Philippines	192,935	185,086	203,718	195,233	222,061	213,352	357,398
National Capital Region	51,947	35,612	39,731	39,731	39,731	39,731	162,412
Cordillera Administrative							
Region	3,751	3,751	3,689	3,689	3,689	3,244	3,244
Ilocos	5,401	2,769	2,836	4,556	3,852	4,198	5,644
Cagayan Valley	3,484	3,398	3,252	4,945	6,629	6,289	12,412
Central Luzon	27,435	28,540	34,945	36,344	37,428	3,578	4,013
Southern Tagalog	35,712	39,566	42,021	30,685	33,182	34,846	42,845
Bicol	5,723	5,737	5,845	6,260	6,970	7,579	8,856
Western Visayas	7,577	8,133	9,107	9,783	9,820	12,099	13,393
Central Visayas	15,919	19,338	19,338	18,786	28,817	28,817	28,817
Eastern Visayas	2,393	2,841	2,900	3,115	3,744	4,668	5,368
Western Mindanao	2,974	2,998	5,668	793	825	17,313	17,313
Northern Mindanao	15,361	15,412	16,081	17,122	26,198	21,805	23,277
Southern Mindanao	9,636	10,906	11,832	12,436	13,506	18,368	17,829
Central Mindanao	3,918	4,276	4,536	4,901	4,901	8,048	8,048
Caraga	1,704	1,809	1,937	2,087	2,769	2,769	3,927

Source: http://openstat.psa.gov.ph/sites/default/files/Table%2013.16_0.csv

ANNEX 4.33. NUMBER OF BROADCAST AND CATV STATIONS BY REGION AS OF DECEMBER 2015

Region	AM	FM	TV	CATV	TV Relay	TV Translator	DTU/DBS	MMDS
Philippines	411	1,014	436	1,457	51	54	6	5
NCR	32	25	23	55	0	0	2	3
CAR	12	27	11	20	4	6	0	0
Region I	38	58	24	116	5	2	0	0
Region II	21	64	29	70	3	4	0	1
Region III	16	41	23	193	2	9	3	0
Region IV	38	116	47	298	7	3	1	0
Region V	38	111	48	150	6	7	0	0
Region VI	39	87	38	99	3	2	0	0
Region VII	29	73	26	112	4	7	0	0
Region VIII	24	64	18	108	8	0	0	0
Region IX	22	66	29	48	3	6	0	0
Region X	29	69	35	46	0	2	0	0
Region XI	21	66	18	27	2	0	0	1
Region XII	23	79	33	48	2	1	0	0
Region XIII	19	54	26	59	2	5	0	0
ARMM	10	14	8	8	0	0	0	0

Source:https://psa.gov.ph/sites/default/files/Chapter%2013%20Transportation%20and%20Communication%20-%20as%20of%2010-24_0.xls

ANNEX 4.34. SUMMARY OF TOURISM ECONOMIC INDICATORS

Tourism Direct Gross Value Added (TDGVA) and Gross Domestic Product (GDP) at current prices, 2000 - 2017 (in million pesos)					
	TDGVA	Growth rate	GDP	Growth rate	Share of TDGVA to GDP (%)
2000	205,156		3,580,714		5.7
2001	229,941	12.1	3,888,801	8.6	5.9
2002	239,399	4.1	4,198,345	8.0	5.7
2003	260,347	8.8	4,548,102	8.3	5.7
2004	305,021	17.2	5,120,435	12.6	6.0
2005	357,842	17.3	5,677,750	10.9	6.3
2006	396,449	10.8	6,271,157	10.5	6.3
2007	440,952	11.2	6,892,721	9.9	6.4
2008	435,861	(1.2)	7,720,903	12.0	5.6
2009	466,109	6.9	8,026,143	4.0	5.8
2010	558,578	19.8	9,003,480	12.2	6.2
2011	660,096	18.2	9,708,332	7.8	6.8
2012	836,506	26.7	10,567,336	8.8	7.9
2013	941,749	12.6	11,538,410	9.2	8.2
2014	1,131,276	20.1	12,634,187	9.5	9.0
2015	1,351,198	19.4	13,322,041	5.4	10.1
2016	1,553,672	15.0	14,479,945	8.7	10.7
2017	1,929,267	24.2	15,806,359	9.2	12.2

Employment of Tourism Industries versus Total Employment, 2000 -2017 (In thousand persons)					
	Tourism Employment	Growth rate	Total Employment	Growth rate	Share of Tourism to Total Employment (%)
2000	2,639		28,294		9.3
2001	2,724	3.2	29,154	3.0	9.3
2002	2,799	2.8	30,062	3.1	9.3
2003	2,940	5.0	30,627	1.9	9.6
2004	3,077	4.6	31,611	3.2	9.7
2005	3,136	1.9	32,312	2.2	9.7
2006	3,449	10.0	32,962	2.0	10.5
2007	3,549	2.9	33,564	1.8	10.6
2008	3,642	2.6	34,089	1.6	10.7
2009	3,912	7.4	35,060	2.8	11.2
2010	4,126	5.5	36,047	2.8	11.4
2011	4,266	3.4	36,614	1.6	11.7
2012	4,561	6.9	37,600	2.7	12.1
2013	4,709	3.2	38,118	1.4	12.4
2014	4,820	2.3	38,092	-0.1	12.7
2015	4,971	3.2	38,741	1.7	12.83
2016	5,224	5.1	40,837	5.4	12.79
2017	5,269	0.9	40,335	-1.2	13.06

Source: https://psa.gov.ph/sites/default/files/8.%20Derived%20Indicators%202000-2016.xlsx

ANNEX 4.34. SUMMARY OF TOURISM ECONOMIC INDICATORS *CONTINUED*

Domestic Tourism Expenditure and Household Final Consumption Expenditure (HFCE) (at current prices), 2000 - 2017 (In million Pesos)					
	Domestic Tourism Expenditure	Growth rate	HFCE	Growth rate	Share of Domestic Tourism Expenditure to HFCE (%)
2000	182,059		2,585,276		7.0
2001	222,951	22.5	2,863,459	10.8	7.8
2002	214,270	(3.9)	3,102,445	8.3	6.9
2003	240,930	12.4	3,381,616	9.0	7.1
2004	298,222	23.8	3,814,889	12.8	7.8
2005	392,415	31.6	4,259,131	11.6	9.2
2006	424,277	8.1	4,677,986	9.8	9.1
2007	529,969	24.9	5,064,463	8.3	10.5
2008	472,332	(10.9)	5,739,592	13.3	8.2
2009	508,813	7.7	5,993,427	4.4	8.5
2010	684,618	34.6	6,442,033	7.5	10.6
2011	885,903	29.4	7,132,581	10.7	12.4
2012	998,433	12.7	7,837,881	9.9	12.7
2013	1,136,995	13.9	8,463,826	8.0	13.4
2014	1,403,813	23.5	9,163,823	8.3	15.3
2015	1,770,749	26.1	9,825,883	7.2	18.0
2016	2,108,216	19.1	10,672,797	8.6	19.8
2017	2,644,833	25.5	11,613,430	8.8	22.8

ANNEX 4.35. TOURIST ARRIVALS 2015-2018

TOURIST ARRIVALS TO PH 2015 - 2018 (Jan-Jul) (Volume in Thousand, Share in Percent)

Top 10*	2015	2016	2017	% Share	% GR	2018							Jan-Jul		% Share	% GR
						Jan	Feb	Mar	Apr	May	Jun	Jul	2017	2018		
1. Korea	1,339.68	1,475.08	1,607.82	*24.28*	*9.00*	198.15	156.56	122.39	114.97	113.49	110.14	121.54	927.22	937.23	*21.76*	*1.08*
2. China	490.84	675.66	968.45	*14.63*	*43.33*	111.34	145.54	114.55	109.79	78.07	85.80	119.01	545.73	764.09	*17.74*	*40.01*
3. USA	779.22	869.46	957.81	*14.47*	*10.16*	109.15	84.83	90.96	85.57	92.75	94.56	91.66	599.46	649.50	*15.08*	*8.35*
4. Japan	495.66	535.24	584.18	*8.82*	*9.14*	57.04	60.26	63.88	49.02	45.74	40.12	50.59	341.46	366.65	*8.51*	*7.38*
5. Australia	241.19	251.10	259.43	*3.92*	*3.32*	30.92	19.48	23.62	25.29	21.28	19.66	20.82	150.98	161.08	*3.74*	*6.69*
6. Taiwan	177.67	229.30	236.78	*3.58*	*3.26*	18.95	21.91	19.02	22.95	18.55	19.17	22.05	147.47	142.59	*3.31*	*-3.31*
7. Canada	156.36	175.63	200.64	*3.03*	*14.24*	28.91	19.28	22.31	19.15	19.48	11.97	17.37	123.40	138.47	*3.21*	*12.21*
8. UK	154.59	173.30	182.71	*2.76*	*5.43*	18.11	15.44	22.97	17.91	15.35	12.66	18.85	110.90	121.29	*2.82*	*9.36*
9. Singapore	181.18	176.06	168.64	*2.55*	*-4.21*	13.63	14.49	16.28	15.49	15.97	15.87	13.14	97.74	104.88	*2.43*	*7.30*
10. Malaysia	155.81	139.13	143.57	*2.17*	*3.19*	12.01	12.32	12.76	11.77	12.18	12.62	11.04	82.84	84.70	*1.97*	*2.24*
Others	1,188.49	1,267.04	1,310.89	19.80	(85.90)	134.29	123.73	134.02	119.21	104.88	106.18	115.26	798.43	837.57	*19.44*	*4.90*
TOTAL	**5,360.68**	**5,967.01**	**6,620.91**	***100.00***	***10.96***	**732.51**	**673.83**	**642.76**	**591.14**	**537.74**	**528.75**	**601.32**	**3,925.63**	**4,308.04**	***100.00***	***9.74***

**Ranking based on Jan-Jul 2018 performance.*

Prepared by the Bureau of Trade and Industrial Policy Research
as of 12 September 2018

ANNEX 4.36. INTERNAL TOURISM

NTERNAL TOURISM EXPENDITURE BY PRODUCTS, 2000 - 2017					
Products (In Million PhP)	**2013**	**2014**	**2015**	**2016**	**2017**
A. Consumption Products					
A.1 Tourism characteristic products					
1- Accommodation services for visitors	296,493	374,425	466,539	527,060	663,582
2-Food and beverage serving services	116,596	140,567	172,474	198,436	273,385
3-Transport services	164,935	197,334	239,623	281,519	356,842
4-Travel agencies and other reservation services	78,910	97,269	122,646	142,587	176,765
5-Entertainment and recreation services	88,993	111,492	137,545	160,188	213,227
6-Country-specific tourism characteristic services					
6.a-Shopping	205,643	252,785	302,052	351,451	452,517
7-Miscellaneous	410,724	506,835	636,359	758,673	957,077
TOTAL INTERNAL TOURISM EXPENDITURE	1,362,295	1,680,706	2,077,238	2,419,914	3,093,395
Growth Rates					
Products	**2013-14**	**2014-15**	**2015-16**	**2016-17**	
A. Consumption Products					
A.1 Tourism characteristic products					
1- Accommodation services for visitors	26.3	24.6	13.0	25.9	
2-Food and beverage serving services	20.6	22.7	15.1	37.8	
3-Transport services	19.6	21.4	17.5	26.8	
4-Travel agencies and other reservation services	23.3	26.1	16.3	24.0	
5-Entertainment and recreation services	25.3	23.4	16.5	33.1	
6-Country-specific tourism characteristic services					
6.a-Shopping	22.9	19.5	16.4	28.8	
7-Miscellaneous	23.4	25.6	19.2	26.2	
TOTAL INTERNAL TOURISM EXPENDITURE	23.4	23.6	16.5	27.8	

Source: PSA, 2018d

ANNEX 4.37. ANNUAL PER CAPITA CONSUMPTION OF AGRICULTURAL COMMODITIES BY COMMODITY, REFERENCE PERIOD AND SOCIO-ECONOMIC CLASS OF HOUSEHOLDS

	1999-2000				2008-2009				2012			
	..AB: Upper Class	..C: Middle Class	..D: Lower Class	..E: Extremely Lower Class	..AB: Upper Class	..C: Middle Class	..D: Lower Class	..E: Extremely Lower Class	..AB: Upper Class	..C: Middle Class	..D: Lower Class	..E: Extremely Lower Class
Rice	115.8	113.41	105.35	97.14	118.56	122.616	121.368	111.384	122.865	117.694	113.702	109.534
Corn	3.54	4.73	11.39	16.54	0.572	2.184	6.656	13.364	2.703	4.2	10.253	21.131
Instant Noodles	..	..	..	..	3.224	3.224	2.86	2.444	2.928	2.607	2.411	2.111
Bread	**0**	**0**	**0**	**0**	**4.524**	**5.252**	**4.108**	**3.172**	**13.409**	**11.575**	**9.374**	**6.281**
Pandesal	..	..	..	..	4.524	5.252	4.108	3.172	7.949	7.234	6.474	3.801
Sliced / loaf bread	..	..	..	..	..	..	..	..	3.686	2.495	0.858	0.446
Buns	..	..	..	..	..	..	..	..	1.774	1.846	2.042	2.034
Root crops	**12.07**	**11.96**	**17.78**	**19.65**	**6.552**	**7.696**	**8.84**	**10.608**	**8.544**	**7.84**	**9.164**	**11.941**
Camote	3.85	5.77	8.11	7.9	2.288	3.38	4.108	4.836	3.945	3.736	4.332	5.191
Cassava	2.34	3.22	7.38	9.67	0.936	1.924	3.172	4.316	1.541	1.591	2.904	4.74
Gabi	1.04	1.2	1.46	1.77	0.728	0.988	1.04	1.196	1.052	1.01	1.203	1.792
White Potato	**4.84**	**1.77**	**0.83**	**0.31**	**2.6**	**1.404**	**0.52**	**0.26**	**2.006**	**1.503**	**0.725**	**0.218**
Vegetables	**31**	**28.9**	**21.94**	**17.43**	**33.488**	**29.692**	**22.412**	**17.94**	**34.608**	**30.93**	**24.41**	**19.323**
Eggplant	4	4.16	4.06	3.38	4.68	4.732	4.212	3.692	4.857	4.43	4.109	3.69
Ampalaya	1.46	1.82	0.94	0.73	4.16	3.432	2.444	1.664	3.54	3.114	2.295	1.542
Chayote	..	..	..	..	1.924	2.08	1.404	1.248	1.847	1.786	1.289	1.042
Okra	..	..	..	..	1.404	1.456	1.248	1.144	0.935	1.065	0.938	0.965
Carrots	2.44	1.77	0.52	0.21	..	..	..	..	1.285	0.988	0.316	0.096
Cabbage	4.42	2.96	1.77	0.83	3.016	2.184	1.144	0.624	2.703	2.174	1.196	0.518
Camote Tops	0.42	0.57	0.78	1.14	..	..	..	..	..	..	..	..
Pechay	1.3	1.66	0.88	0.57	1.664	1.3	0.832	0.572	1.752	1.456	1.04	0.746
Stringbeans	1.46	1.82	1.61	1.61	2.028	2.444	2.34	2.08	1.883	1.763	1.879	1.919
Tomato	5.25	4.42	3.02	2.39	4.68	3.536	2.496	1.664	5.051	4.211	2.924	2.026
Habitchuelas	..	..	..	..	0.468	0.468	0.208	0.104	0.406	0.356	0.17	0.118
Garlic	0.99	0.88	0.57	0.42	2.08	1.82	1.196	0.884	2.53	1.942	1.342	0.773

ANNEX 4.37. ANNUAL PER CAPITA CONSUMPTION OF AGRICULTURAL COMMODITIES BY COMMODITY, REFERENCE PERIOD AND SOCIO-ECONOMIC CLASS OF HOUSEHOLDS ***CONTINUED***

	1999-2000				2008-2009				2012			
	..AB: Upper Class	..C: Middle Class	..D: Lower Class	..E: Extremely Lower Class	..AB: Upper Class	..C: Middle Class	..D: Lower Class	..E: Extremely Lower Class	..AB: Upper Class	..C: Middle Class	..D: Lower Class	..E: Extremely Lower Class
Onion	3.33	2.6	1.77	1.46	3.068	2.496	1.82	1.352	3.268	3.063	2.268	1.494
Ginger	0.68	0.83	0.62	0.47	..	..	..	..	..	..	..	..
Gourd	0.83	0.73	0.62	0.68	..	..	..	..	0.972	1.051	1.09	0.864
Squash	2.81	2.6	2.7	2.24	3.432	2.86	2.288	2.184	2.791	2.732	2.717	2.807
Mongo	1.04	1.61	1.66	1.09	0.884	0.884	0.78	0.728	0.788	0.799	0.837	0.723
Peanut	0.57	0.47	0.42	0.21	..	..	..	..	..	..	..	..
Fruits	**43.64**	**44.61**	**25.27**	**20.48**	**30.784**	**29.328**	**22.048**	**18.772**	**34.764**	**32.789**	**27.021**	**26.582**
Banana (all variety)	27.2	29.54	17.42	15.44	19.5	19.708	16.224	14.56	..	..	..	..
Banana (except saba)	..	..	..	..	..	..	..	..	15.15	14.938	11.045	8.98
Saba	..	..	..	..	..	..	..	..	6.486	7.313	9.16	12.128
Mango, Ripe	6.5	5.82	2.91	1.51	6.188	4.992	2.756	1.872	5.896	5.285	2.985	2.045
Pineapple	2.76	2.65	1.61	1.56	2.184	2.028	1.04	0.676	2.574	1.498	0.897	0.838
Papaya, Ripe	2.55	1.82	1.09	0.88	2.912	2.6	2.028	1.664	3.023	2.221	1.913	1.915
Calamansi	2.03	3.22	1.51	0.78	..	..	..	..	1.635	1.534	1.021	0.676
Watermelon	2.6	1.56	0.73	0.31	..	..	..	..	..	..	..	..
MEAT AND POULTRY	**47.17**	**37.69**	**25.16**	**15.07**	**44.304**	**33.124**	**19.812**	**12.168**	**37.097**	**33.179**	**20.578**	**12.36**
Pork	18.16	16.17	10.76	6.55	18.096	13.936	8.476	5.096	15.764	13.96	8.504	4.744
Beef	7.12	4.94	1.98	1.4	4.784	2.496	0.832	0.364	3.04	1.87	0.567	0.381
Carabeef	0.57	0.47	0.36	0.21	0.468	0.26	0.26	0.052	0.143	0.242	0.119	0.07
Chevon	0.47	0.42	0.21	0.1	0.104	0.104	0.052	a/	0.06	0.164	0.074	0.073
Chicken	14.51	10.97	7.02	4.21	15.496	11.856	7.28	4.42	12.256	11.684	7.324	4.338
Duck	0.05	0.1	0.1	0.1	..	..	..	..	0.074	0.136	0.137	0.089
Chicken Egg	5.72	4.26	4.37	2.24	5.356	4.472	2.912	2.236	5.641	4.895	3.682	2.474
Duck Egg	0.57	0.36	0.36	0.26	..	..	..	..	0.119	0.228	0.171	0.191

ANNEX 4.37. ANNUAL PER CAPITA CONSUMPTION OF AGRICULTURAL COMMODITIES BY COMMODITY, REFERENCE PERIOD AND SOCIO-ECONOMIC CLASS OF HOUSEHOLDS *CONTINUED*

	1999-2000				2008-2009				2012			
	..AB: Upper Class	..C: Middle Class	..D: Lower Class	..E: Extremely Lower Class	..AB: Upper Class	..C: Middle Class	..D: Lower Class	..E: Extremely Lower Class	..AB: Upper Class	..C: Middle Class	..D: Lower Class	..E: Extremely Lower Class
FISH AND MARINE	**30.32**	**27.87**	**25.89**	**23.77**	**22.152**	**18.72**	**13.78**	**9.88**	**24.007**	**22.269**	**17.605**	**13.348**
Milkfish	5.67	4.32	2.65	1.61	9.568	6.864	3.744	1.872	6.392	5.46	3.299	1.668
Tilapia	..	..	..	..	8.216	6.76	4.368	2.964	6.291	6.312	4.502	2.998
Roundscad	..	..	..	..	4.368	5.096	5.668	5.044	5.025	5.498	6.051	5.114
Dalagang bukid	..	..	..	..	..	..	..	..	1.271	0.746	0.499	0.561
Tuna (all species)	..	..	..	..	..	..	..	..	3.236	2.787	2.333	1.98
Shrimp	..	..	..	..	..	..	..	..	1.408	1.013	0.466	0.305
Mussels	..	..	..	..	..	..	..	..	0.384	0.453	0.455	0.722
Other Fish Species	17.84	16.9	17	16.74	..	..	..	..	..	..	..	..
Crustaceans	3.43	2.08	1.09	0.78	..	..	..	..	..	..	..	..
Mollusks	1.2	1.56	1.61	0.94	..	..	..	..	..	..	..	..
Other Fishery and Aquatic Products	0.88	0.83	0.73	0.68	..	..	..	..	..	..	..	..
Dried Fish	1.3	2.18	2.81	3.02	..	..	..	..	..	..	..	..
MILK	**6.34**	**7.07**	**4.41**	**4.1**	**0.52**	**0.364**	**0.052**	**0.052**	**0.294**	**0.357**	**0.149**	**0.045**
Fresh or Pasteurized Milk, Raw Milk	0.47	0.42	0.36	0.31	0.52	0.364	0.052	0.052	0.294	0.357	0.149	0.045
Powdered Milk	4.73	3.69	3.17	3.43	..	..	..	..	..	..	..	..
Liquid Milk	1.14	2.96	0.88	0.36	..	..	..	..	..	..	..	..

Unit: In Kilograms (Liters for liquid items)
Source: Country Stat

ANNEX 4.38. DAILY PER CAPITA CALORIES SUPPLY OF SELECTED AGRICULTURAL COMMODITIES

COMMODITY	2012	2013	2014	2015	2016
Rice	1162.64	1130.94	1118.45	1091.74	1054.76
Corn	171.16	186.86	213.88	200.43	219.65
Coconut	41.38	39.32	37.06	36.51	33.62
Sugarcane	2.25	2.06	2.06	1.86	1.79
Coffee	0.53	0.44	0.27	0.55	0.54
Banana	77.34	62.14	59.67	81.40	78.77
Pineapple	7.39	7.14	7.20	7.95	6.94
Mango	9.00	9.54	10.02	10.16	8.98
Calamansi	1.24	1.12	1.08	1.08	0.77
Papaya	1.13	1.10	1.13	1.13	1.04
Pomelo	0.39	0.38	0.37	0.37	0.34
Tomato	0.76	0.77	0.78	0.77	0.74
Garlic	0.57	0.39	1.21	2.56	2.11
Onion	1.09	1.09	1.63	1.63	1.93
Cabbage	0.63	0.62	0.61	0.59	0.57
Eggplant	0.12	0.12	0.12	0.12	0.12
Peanut	8.86	6.79	9.98	10.56	10.31
Mongo	6.17	6.27	5.59	5.90	5.90
Cassava	6.87	7.26	7.64	7.98	7.98
Sweet potato	12.78	12.83	12.43	12.60	12.25
Potato	1.71	1.61	1.65	1.86	1.82
Beef	13.29	13.29	14.18	14.13	14.89
Carabeef	6.93	6.20	6.81	6.87	6.65
Pork	166.67	169.80	173.26	176.99	184.12
Chevon	2.95	2.95	2.95	2.95	2.88
Chicken	86.97	88.92	92.70	97.64	99.81
Duck	3.16	3.03	3.03	2.90	2.82
Chicken egg	65.40	65.28	62.31	65.58	66.88
Milkfish	4.60	4.65	4.52	4.35	4.38
Roundscad	2.75	3.14	2.98	2.53	2.35
Tilapia	5.42	5.40	5.29	5.22	4.96
Tuna	6.50	6.75	7.29	8.47	7.28
Shrimps & Prawns	0.76	0.71	0.66	0.71	0.64
Crabs	0.50	0.41	0.45	0.45	0.45
Oysters	0.41	0.47	0.45	0.39	0.39

Unit: In Grams
Source: PSA, 2016b, p. 7

ANNEX 4.39. CURRENT HEALTH EXPENDITURES BY REVENUES OF HEALTH FINANCING SCHEMES, 2014-2016

Revenues of health care financing schemes	2014	2015	2016	Percent Distribution			Growth Rate	
				2014	2015	2016	2014-2015	2015-2016
TOTAL	**521,465**	**575,841**	**630,900**	**100.0**	**100.0**	**100.0**	**10.4**	**9.6**
Transfers from government domestic revenue (allocated to health purposes)	**114,157**	**153,762**	**169,855**	**21.9**	**26.7**	**26.9**	**34.7**	**10.5**
Internal transfers and grants	85,644	101,850	113,834	16.4	17.7	18.0	18.9	11.8
Transfers by government on behalf of specific groups	28,513	51,912	56,021	5.5	9.0	8.9	82.1	7.9
Transfers distributed by government from foreign origin	**7,372**	**7,984**	**13,965**	**1.4**	**1.4**	**2.2**	**8.3**	**74.9**
Social insurance contributions	**29,719**	**26,462**	**26,916**	**5.7**	**4.6**	**4.3**	**(11.0)**	**1.7**
Social insurance contributions from employees	14,860	13,231	13,458	2.8	2.3	2.1	(11.0)	1.7
Social insurance contributions from employers	14,860	13,231	13,458	2.8	2.3	2.1	(11.0)	1.7
Voluntary prepayment	**70,420**	**62,215**	**67,329**	**13.5**	**10.8**	**10.7**	**(11.7)**	**8.2**
Voluntary prepayment from individuals/ households	23,041	21,372	22,354	4.4	3.7	3.5	(7.2)	4.6
Other voluntary prepaid revenues	47,379	40,844	44,975	9.1	7.1	7.1	(13.8)	10.1
Other domestic revenues n.e.c.	**299,797**	**325,419**	**352,836**	**57.5**	**56.5**	**55.9**	**8.5**	**8.4**
Other revenues from households n.e.c.	290,422	315,411	341,929	55.7	54.8	54.2	8.6	8.4
Other revenues from corporations n.e.c.	9,375	10,008	10,906	1.8	1.7	1.7	6.7	9.0

Unit: In Million Pesos
Source: https://psa.gov.ph/content/total-health-expenditures-grew-105-percent-2016

ANNEX 4.40. PREVALENCE OF MALNUTRITION AMONG CHILDREN 0-60 MONTHS OLD BY REGION, 2013 AND 2015

	Underweight		Stunting		Wasting		Overweight	
	2013	2015	2013	2015	2013	2015	2013	2015
Philippines	19.9	21.6	30.3	33.5	7.9	7.1	5	3.8
Region IV-B - MIMAROPA	27.5	31.6	39	45	9.8	9.6	6.5	6
Region VIII - Eastern Visayas	21.7	30	36.8	42.1	7.8	8.4	6.2	5.9
Region V - Bicol	24.6	28.5	35.6	40.7	8.5	8.2	6.6	4.9
Region VI - Western Visayas	26	26.5	39.8	40.2	7.4	8.1	3.9	4.1
Region XII - SOCCSKSARGEN	23.8	26		40.2	7.5	8.1	5.7	3.8
ARMM - Muslim Mindanao	21.9	25	36.9	39.9	8.7	7.6	4.6	3.3
Region XIII - Caraga	19.8	23.9	38.7	38.1	8.3	7.5	6.1	3.2
Region VII - Central Visayas	23.1	22.8	34.6	37.7	7.9	7.1	5.4	3.2
Region IX - Zamboanga Peninsula	24.5	21.5	33.6	37	8	7.1	5.5	3.2
Region X - Northern Mindanao	17.7	20.8	32.4	36.8	7.9	6.9	3.4	2.7
Region XI - Davao Region	18.8	20.8	34.3	36.3	6.7	6.9	3.5	2.7
Region II - Cagayan Valley	20.6	19.9	29.8	31.6	9.8	6.7	3.8	2.6
Region I - Ilocos	21.4	19.4	27.4	31.5	7.5	6.5	3.6	2.6
Region IV-A - CALABARZON	18.1	19	26.9	28.8	6.4	6.4	2.6	2.6
CAR - Cordillera Administrative	16.5	16.8	25.3	27.7	8.9	6.3	3.2	2.3
Region III - Central Luzon	17.7	16.7	22.4	25.2	5.9	4.4	4.8	1.9
National Capital Region	12.9	15.2	23.1	22.9	7	3.9	3.7	1.6

Source: PSA Database, 2017 (In Percent) http://openstat.psa.gov.ph/dataset/health/resource/589488b1-f204-43a5-a3f9-0746bf404b30#{view-graph:{graphOptions:{hooks:{processOffset:{},bindEvents:{}}}},graphOptions:{hooks:{processOffset:{},bindEvents:{}}}}

ANNEX 4.41. SELECTED NOTIFIABLE DISEASES REPORTED 2007-2014

Notifiable Diseases	2007	2008	2009	2010	2011	2012	2013	2014
Acute Lower Respiratory Tract Infection and Pneumonia	605,471	780,199	615,817	381,123	581,025	526,638	745,302	488,415
Diarrhea	545,136	438,959	323,795	132,553	221,048	247,218	102,063	108,327
Acute Febrile Illness	19,050	33,691	20,250	13,927	39,491	47,143	21,225	16,453
Measles	4,491	5,139	2,651	2,988	6,725	2,673	2,231	14,118
Typhoid & Paratyphoid Fever	9,618	11,119	6,297	2,025	10,331	12,511	4,574	8,106
Dengue Hemorrhagic Fever	11,915	13,014	5,617	12,616	1,541	9,197	13,450	3,813
Schistosomiasis	5,595	8 ,918	2,703	271	494	1,372	638	2,348
Viral Hepatitis	5,234	4,226	1,220	3,169	1,474	1,724	1,407	1,571
Whooping Cough	156	615	813	-	118	35	328	1,308
Leptospirosis	184	426	516	214	1,381	793	584	388
Viral Meningitis and Encephalitis	49	788	191	89	18	52	269	278
Non-Neonatal Tetanus	46	245	137	20	40	79	105	219
Malaria	23,207	11,885	5,352	4,377	507	4,682	4,457	215
Rabies	833	644	79	6,535	17	512	167	207
Cholera	59	150	269	1	36	55	129	99
Leprosy	553	603	269	27,436	303	214	530	93
Neonatal Tetanus	36	31	31	1	41	24	84	51
Acute Flaccid Paralysis	-	193	62	-	12	22	83	51
Diptheria	24	6	4	-	2	167	4	5
Meningococcal Infection	20	17	8	9	2	8	20	5
Filariasis	218	39	15	151	49	96	8	2
Red tide	-	65	-	-	-	1	-	-

Source:http://openstat.psa.gov.ph/dataset/health/resource/d65abd1a-4f7e-4744-949f-6fbb112627f4#{view-graph:{graphOptions:{hooks:{processOffset:{},bindEvents:{}}}},graphOptions:{hooks:{processOffset:{},bindEvents:{}}}}

ANNEX 4.42. LEADING CAUSES OF DEATH

Top 10 Leading Causes of Death by Sex, Philippines:2016		
BOTH SEXES	**Total**	**Percent**
All causes of death	**582,183**	**100.0**
Ischaemic heart diseases	74,134	12.7
Neoplasms	60,470	10.4
Pneumonia	57,809	9.9
Cerebrosvascular diseases	56,938	9.8
Hypertensive diseases	33,452	5.7
Diabetes Mellitus	33,295	5.7
Other heart diseases	28,641	4.9
Respiratory tuberculosis	24,462	4.2
Chronic lower respiratory infections	24,365	4.2
Remainder of diseases of the genitourinary system	19,759	3.4
Other causes of death	**168,858**	**29.0**
MALE	**Male**	**Percent**
All causes of death	**334,678**	**100.0**
Ischaemic heart diseases	44,472	13.3
Cerebrosvascular diseases	31,675	9.5
Neoplasms	29,516	8.8
Pneumonia	28,993	8.7
Hypertensive diseases	17,901	5.3
Respiratory tuberculosis	17,288	5.2
Chronic lower respiratory infections	17,049	5.1
Diabetes Mellitus	16,384	4.9
Other heart diseases	14,992	4.5
Assault	13,662	4.1
Other causes of death	**102,746**	**30.7**
FEMALE	**Female**	**Percent**
All causes of death	**247,505**	**100.0**
Neoplasms	30,954	12.5
Ischaemic heart diseases	29,662	12.0
Pneumonia	28,816	11.6
Cerebrosvascular diseases	25,263	10.2
Diabetes Mellitus	16,911	6.8
Hypertensive diseases	15,551	6.3
Other heart diseases	13,649	5.5
Remainder of diseases of the genitourinary system	7,981	3.2
Chronic lower respiratory infections	7,316	3.0
Respiratory tuberculosis	7,174	2.9
Other causes of death	**64,228**	**26.0**

Source: https://psa.gov.ph/content/deaths-philippines-2016

ANNEX 4.43. NUMBER OF OCCUPIED HOUSING UNITS, NUMBER OF HOUSEHOLDS, HOUSEHOLD POPULATION, AND RATIO OF HOUSEHOLDS AND HOUSEHOLD POPULATION TO OCCUPIED HOUSING UNITS BY TYPE OF BUILDING

Type of Building and City/ Municipality	Occupied Housing Units	Number of Households	Household Popula tion	Ave House-hold Size	Ratio of Households to Occupied Housing Units	Ratio of Household Population to Occupied Housing Units
PHILIPPINES	**22,421,193**	**22,969,666**	**100,543,973**	**4.38**	**1.02**	**4.48**
Single house	18,093,494	18,502,300	83,221,567	4.50	1.02	4.60
Duplex	1,600,921	1,649,429	6,805,772	4.13	1.03	4.25
Multi-unit residential	2,661,886	2,749,398	10,250,475	3.73	1.03	3.85
Commercial/ industrial/ agricultural	36,426	38,413	140,204	3.65	1.05	3.85
Institutional living quarter	3,299	3,462	11,439	3.30	1.05	3.47
Others	4,581	4,718	17,490	3.71	1.03	3.82
Not Reported	20,586	21,946	97,026	4.42	1.07	4.71

Source: http://www.psa.gov.ph/content/housing-characteristics-philippines-results-2015-census-population

ANNEX 4.44. NUMBER OF HOUSEHOLDS BY TYPE OF BUILDING, TENURE STATUS OF THE HOUSING UNIT/LOT, AND CITY/MUNICIPALITY 2015

Tenure Status of the Housing Unit and Lot and City/Municipality	Number of Households*
PHILIPPINES	**22,969,666**
Own or owner like possession of house and lot	12,693,830
Rent house/room including lot	2,770,276
Own house rent lot	703,643
Own house rent-free lot with consent of owner	4,918,665
Own house rent-free lot without consent of owner	462,304
Rent-free house and lot with consent of owner	1,349,584
Rent-free house and lot without consent of owner	67,447
Not Applicable	1,033
Not Reported	2,884

Source: http://www.psa.gov.ph/content/housing-characteristics-philippines-results-2015-census-population

ANNEX 4.45. INFORMAL SETTLERS ESTIMATES, 2015

City/Municipality	Occupied Housing Units	Number of Households*	Household Population*	Average Household size	Ratio of Households to Occupied Housing Units	Ratio of Household Population to Occupied Housing Units	Household tenure Tenure: Own house rent-free lot , rent-free house and lot without consent of owner	Estimated No. of Informal Settlers
PHILIPPINES	22,421,193	22,969,666	100,543,973	4.38	1.02	4.48	529,751.00	2,318,852.62
NATIONAL CAPITAL REGION	2,968,651	3,095,484	12,786,611	4.13	1.04	4.31	123,882.00	511,723.19
REGION IV-A - CALABARZON	3,297,110	3,395,332	14,364,868	4.23	1.03	4.36	72,531.00	306,861.96
REGION VI - WESTERN VISAYAS	1,694,705	1,716,307	7,514,261	4.38	1.01	4.43	45,223.00	197,993.38
REGION III - CENTRAL LUZON	2,511,783	2,566,524	11,183,928	4.36	1.02	4.45	40,795.00	177,768.98
REGION VII - CENTRAL VISAYAS	1,675,808	1,699,058	7,359,496	4.33	1.01	4.39	38,204.00	165,481.22
REGION V - BICOL	1,207,809	1,216,369	5,780,721	4.75	1.01	4.79	25,685.00	122,066.43
REGION XI - DAVAO	1,159,719	1,177,409	4,866,957	4.13	1.02	4.20	29,132.00	120,420.51
REGION XII - SOCCSKSARGEN	1,037,676	1,050,654	4,531,521	4.31	1.01	4.37	27,800.00	119,902.73
REGION IX - ZAMBOANGA PENINSULA	1,014,814	1,042,814	4,662,591	4.47	1.03	4.59	25,276.00	113,013.11
AUTONOMOUS REGION IN MUSLIM MINDANAO	561,826	620,385	3,771,249	6.08	1.10	6.71	15,056.00	91,523.69
REGION X - NORTHERN MINDANAO	781,692	795,345	3,594,331	4.52	1.02	4.60	18,827.00	85,083.16
REGION VIII - EASTERN VISAYAS	975,625	985,418	4,422,868	4.49	1.01	4.53	16,371.00	73,478.23
REGION XIII - CARAGA	565,495	573,998	2,586,326	4.51	1.02	4.57	14,257.00	64,239.33
MIMAROPA REGION	677,301	682,668	2,946,505	4.32	1.01	4.35	12,750.00	55,031.05
REGION I - ILOCOS	1,110,987	1,151,629	5,014,622	4.35	1.04	4.51	12,486.00	54,368.70
Region II CAGAYAN VALLEY	789,269	804,524	3,443,493	4.28	1.02	4.36	8,837.00	37,823.79
CORDILLERA ADMINISTRATIVE REGION	390,923	395,748	1,713,625	4.33	1.01	4.38	2,639.00	11,427.11

Source:http://www.psa.gov.ph/content/housing-characteristics-philippines-results-2015-census-population

ANNEX 4.46. OCCUPIED HOUSING UNITS BY CONSTRUCTION MATERIALS OF THE OUTER WALLS AND ROOF, AND CITY/MUNICIPALITY 2015

Construction Materials of the Outer Walls and City/Municipality	Total Occupied Housing Units	Construction Materials of the Roof								
		Galvanized iron / aluminum	Tile/ concrete/ clay tile	Half galvanized iron and half concrete	Bamboo/ cogon/ nipa/ anahaw	Asbestos	Makeshift/ salvaged/ improvised materials	Trapal	Others	Not Reported
PHILIPPINES	**22,421,193**	**18,002,286**	**541,411**	**1,085,559**	**2,636,544**	**20,713**	**72,416**	**42,309**	**13,610**	**6,345**
Concrete/brick/ stone	11,035,032	10,338,819	462,249	147,452	67,507	12,566	2,111	1,187	2,568	573
Wood	3,909,408	2,979,913	33,244	157,591	705,322	4,884	13,693	10,865	3,638	258
Half concrete/ brick/stone and half wood	3,430,114	2,562,328	41,072	709,311	109,100	1,849	4,099	877	1,357	121
Galvanized iron/ aluminum	226,647	186,631	3,647	14,513	20,616	63	380	719	73	5
Bamboo/sawali/ cogon/nipa	3,543,338	1,761,059	-	50,839	1,706,086	-	10,053	11,291	3,187	823
Asbestos	11,767	10,089	123	490	-	1,041	-	-	24	-
Glass	2,517	1,646	473	360	-	33	-	-	5	-
Makeshift/ salvaged/ improvised materials	116,979	54,413	-	1,807	16,199	-	40,495	3,823	240	2
Trapal	40,316	18,471	-	-	7,324	-	1,307	13,103	110	1
Others	18,124	13,026	36	127	2,485	9	128	156	2,157	-
No walls	4,796	2,950	118	192	959	3	133	274	167	-
Not Reported	82,155	72,941	449	2,877	946	265	17	14	84	4,562

Source: http://www.psa.gov.ph/content/housing-characteristics-philippines-results-2015-census-population

ANNEX 4.47. CONCENTRATION LEVELS OF PARTICULATE MATTER 2.5 (PM2.5)

Region	Station	Annual Geometric Mean
NCR	Pamantasan ng Lungsod ng Valenzuela, Valenzuela City	27*
	DLSU, 2401 Taft Ave., Manila	17
	DPWH, Timog EDSA, Nia Road, Quezon City	26
	Andrews Avenue, Pasay City	31*
	Navotas City Hall, M. Naval St. Navotas City	43
	Rohm and Hass Property, Las Piñas City	29
	Polytechnic Institute, City of Malabon	34
	North Caloocan City Hall – Zapote Street, Barangay 177, Caloocan City	32
	Don Bosco Barangay Hall, Better Living Subdivision, Paranaque City	16
	Makati Park, Dr. Jose P. Rizal Extension, East Rembo, Makati City	26*
	Pateros Elementary School, Pateros City	32
	Pinaglabanan Shrine, San Juan City	7*
	Bureau of Corrections, New Bilibid Prison Reservation, Muntinlupa City	17
	Technological University of the Philippines-Taguig Campus, Taguig City	32*
	Hardin ng Pagasa, Mandaluyong City Hall, Plainview, Mandaluyong City	31*
	Brgy. Oranbo, Pasig	50*
	Parking Area of Marikina Justice Hall, Marikina City	33*
CAR	Burnham park, Baguio City	23*
I - Ilocos Region	Mariano Marcos State University, Batac, Ilocos Norte	17+
	Urdaneta, Pangasinan	42*
III - Central Luzon	Meycauayan City Hall, Meycauayan, Bulacan	28
	Heroes hall, San Fernando, City of San Fernando, Pampanga	24
IVA - CALABARZON	City of Biñan, Biñan, Laguna	11
MIMAROPA	Palawan State University, Tiniguiban Heights, Puerto Princesa, Palawan	14
V - Bicol Region	Naga City PENRO, Naga City	18
VI - Western Visayas	City Hall of Bacolod, New Government Center, Bacolod City	14
	University of San Augustin Campus, Iloilo City**	26*
IX - Zamboanga Peninsula	Western Mindanao State University, Normal Road, Zamboanga City	4*
	Ateneo De Zamboanga University, La Purisima Street, Zamboanga City	17
X - Northern Mindanao	Iligan Medical Center College, Palao, Iligan City	21
XI - Davao Region	Calinan National High School, Quirino Avenue, Davao City	21
	Davao International Airport, Catitipan, Buhangin District, Davao City	33+
XII - SOCCSKSARGEN	City of Koronadal, General Santos Drive, Koronadal City	31
	Pedro Acharon Sports Complex, Brgy. Calumpang, General Santos City	17
XIII - Caraga	Caraga State University, Ampayon, Butuan City	20*
	Butuan City Local Government Unit (Compound of City Environment Office)	19

** Less than 75% data captured*
\+ Arithmetic Mean
*** Manual Monitoring Station*
Source: Department of Environment and Natural Resources, Environment Management Bureau
Unit: In Micrograms per Normal Cubic Meter
Source: PSA, 2016a

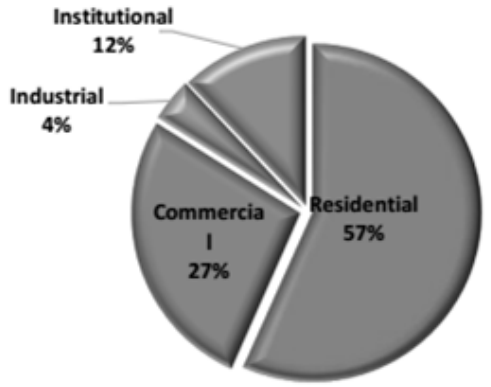
ANNEX 4.48. WASTE GENERATION

Table 1. Waste Generation of the Philippines, 2012-2016 (Tons per day)

Region	2012	2013	2014	2015	2016
1	1,709.17	1,739.54	1,769.90	1,800.27	1,830.64
2	1,100.64	1,120.19	1,139.75	1,159.31	1,178.86
3	3,631.99	3,696.52	3,761.05	3,825.58	3,890.12
4a	4,145.52	4,219.18	4,292.83	4,366.49	4,440.15
4b	909.43	925.59	941.74	957.90	974.06
5	1,878.74	1,912.12	1,945.50	1,978.88	2,012.26
6	2,700.14	2,748.11	2,796.09	2,844.06	2,892.04
7	2,605.68	2,651.97	2,698.27	2,744.57	2,790.86
8	1,479.47	1,505.75	1,532.04	1,558.33	1,584.61
9	1,391.95	1,416.68	1,441.41	1,466.15	1,490.88
10	1,693.94	1,724.03	1,754.13	1,784.23	1,814.32
11	1,818.05	1,850.35	1,882.65	1,914.95	1,947.26
12	1,348.20	1,372.15	1,396.10	1,420.06	1,444.01
13	884.69	900.41	916.13	931.85	947.57
CAR	620.64	631.67	642.70	653.72	664.75
NCR	8,601.60	8,754.43	8,907.26	9,060.09	9,212.92
ARMM	907.64	923.76	939.89	956.02	972.14
TOTAL	**37,427.46**	**38,092.46**	**38,757.46**	**39,422.46**	**40,087.45**

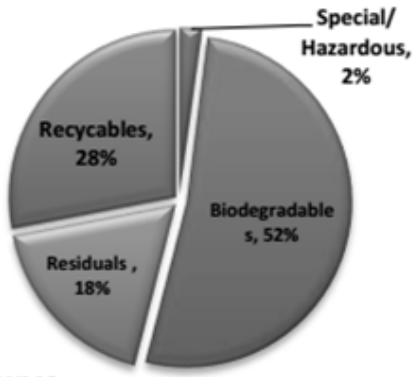
Source: NSWMC

Figure 1. Solid Waste Sources (2013)



Source: NSWMC

Figure 2. Solid Waste Composition (2015)



Source: NSWMC

Source: Senate Economic Planning Office, 2017

ANNEX4.49. NUMBER OF HOUSEHOLDS BY USUAL MANNER OF GARBAGE DISPOSAL AND BY REGION, 2010

Region	Total Number of Households	Usual Manner of Garbage Disposal						
		Picked-up by Garbage Truck	Dumping in Individual Pit (not burned)	Burning	Composting	Burying	Feeding to Animals	Others
Philippines	20,171,899	8,686,270	2,196,248	6,095,820	1,093,503	551,441	1,434,266	114,352
National Capital Region	2,759,829	2,668,519	52,530	23,506	2,303	2,810	3,012	7,148
Cordillera Administrative Region	352,403	115,238	50,067	64,945	30,317	3,931	86,869	1,037
Ilocos Region	1,050,605	222,101	127,120	566,649	57,571	35,845	39,663	1,657
Cagayan Valley	727,327	134,983	91,147	379,618	66,315	19,175	34,769	1,320
Central Luzon	2,239,011	1,184,921	134,347	796,067	38,091	50,789	27,109	7,687
CALABARZON	2,833,595	1,838,629	157,735	682,282	54,741	40,643	51,176	8,390
MIMAROPA	602,131	109,385	58,454	243,454	39,362	34,807	114,773	1,895
Bicol Region	1,111,753	232,023	116,621	413,652	53,197	47,631	244,106	4,523
Western Visayas	1,526,587	320,972	229,857	691,873	107,811	70,143	97,040	8,890
Central Visayas	1,487,710	520,750	193,942	440,086	113,644	39,565	174,361	5,363
Eastern Visayas	865,657	161,053	133,511	106,523	52,311	27,041	377,377	7,840
Zamboanga Peninsula	726,272	145,807	143,106	294,199	93,919	19,442	18,116	11,684
Northern Mindanao	917,840	265,399	139,611	380,700	78,378	27,995	21,273	4,484
Davao Region	1,011,943	411,302	165,750	265,845	98,136	34,578	22,557	13,774
SOCCSKSARGEN	916,038	183,826	180,548	355,051	98,514	56,891	34,139	7,070
Caraga	504,257	125,643	85,017	137,380	77,287	14,903	58,228	5,799
Autonomous Region in Muslim Mindanao	538,941	45,719	136,885	253,990	31,606	25,252	29,698	15,791

June 2019