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Philippine Megalopoli: Manila, Cebu, and Davao

菲律宾都市圈：马尼拉、宿雾和达浮澳



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Abstract | 摘要

Metro Manila is the main economic driver of the Philippines contributing an average of 33% of the country's Gross Domestic Product despite it being relatively one of the smallest regions (0.21% of land area) in the country. According to a population study called "Mutations," Metro Manila has one of the fastest growing populations in the world with 60 persons per hour.

The primacy of Metro Manila creates an unhealthy imbalance in the development of the country. There will be a demand to develop better planned and well-integrated, vertical communities. It will also be necessary to integrate the nearby regions in the North and in the South of the National Capital Region to be able to spread developments and act as counter-magnets for internal migration and redistribution of wealth.

In my Harvard Graduate Studies, I submitted a research detailing the numerous potentials of Metro Manila, which is called Manila Megalopolis 2020.

Keywords: Cebu Metropolis, Davao Metropolis, Manila Megalopolis, Philippines, Regional Integration, Vertical Urbanism

相较之下，马尼拉大都会区虽然是全国最小的区域之一（仅0.21% 的全国土地面积），它却是菲律宾经济增长的主要动力，占约国内生产总值的百分之三十三。根据称为「Mutations」的人口调查，马尼拉大都会区以每小时约六十人的速率成长，成为世界最快人口增长城市之一。

然而，首位化的大都会马尼拉却让国家发展失衡，这呈现出对于良好规划整合、垂直化社区的需求。这也将也必须整合首都南、北两边周边区域，进而能扩大发展并产生土地迁移的反磁性效应，以及资源再分配。

当我在哈佛大学念研究所时，我提出了一份关于马尼拉大都会所具有的无量潜能之研究报告：2020年马尼拉都市圈。

关键词：宿雾市、达浮澳市、马尼拉都市圈、菲律宾、区域整合、垂直城市化

The Philippines has more than 7,107 islands clustered into three major groups: Luzon, Visayas, and Mindanao. For years, Luzon, most especially Metro Manila, has been at the spotlight in being the business, government, education, religion, culture, and sports capital of the Philippines. But going forward to 5, 10, 20, 50, and even 100 years into the future, growth and development of the country should not be limited to a central city. The rest of Luzon, Visayas, and Mindanao, specifically the cities of Cebu and Davao, have the potential to become the major cities outside of Luzon.

In 2013, Metro Manila was recognized as one of the 20 largest megacities in the world. It is reported to have a night time population of 11.8 million and an estimated day time population of 16 million. According to a Harvard study, "Mutations," Metro Manila has the highest population growth rate of 60

菲律宾是由7,107个岛屿所组成，其中分为吕宋岛、维萨亚斯群岛和民答那峨岛三大岛群。多年来，吕宋岛上的马尼拉都会区一直是菲律宾在商业、政府、教育、宗教、文化，以及运动的重镇。但在未来的五年、十年、二十年、五十年，甚至是一百年后，菲律宾的发展不应该只局限于这个中心城市。在吕宋岛、维萨亚斯群岛和民答那峨岛的其他区域，尤其是宿雾和达浮澳等城市，皆拥有成为位于吕宋岛之外大城市的潜能。

2013年，马尼拉大都会区被认定为是世界20个巨型都市之一。报告中指出，都会区的夜间人口约有一千一百八十八万人，而日间活动人口则约有一千六百万。根据哈佛的研究报告「Mutations」指出，2000年时，马尼拉大都会出现了世上最高的人口成长率，以每小时六十人的速度成长。这个结果是来自于出生率与来自全国其他省份地区的农村人口迁移。

persons per hour in the year 2000. This is a result of birth rate, but more due to rural to urban internal migration from the provinces and regions around the country.

Metro Manila, also called the National Capital Region (NCR), is only 0.21% of the country's total land area, yet approximately accounts for 13% of the country's national population and contributes an average of 35% of the Gross Domestic Product. It is the center of government, business, trade and commerce, education, and the engine of economic growth for the country. Today, it is rapidly expanding on all four sides towards the Northern Luzon or Region III (also known as central Luzon); towards the south Luzon, also known as the CALABARZON region; eastwards towards the mountains or the Pacific Ocean; and westward towards Manila Bay. The three regions comprise the highest share of the Gross Domestic Product of the country.

Housing in the National Capital Region is expected to increase in price, not limited to the central business district of Makati (Figure 1). One of the effects of being priced out of the city for employees is the increase of traffic congestion. The average commuting time for Metro Manila citizens is three hours going to work, and three hours going home, with a distance of 10 to 20 kilometers. While there are 2 million private vehicles that occupy most of the road, they account for only 2% of the entire population.

Recommendations to Address Unbalanced Urban Growth in Metro Manila

The stifling traffic congestion of Metro Manila can be attributed to these major factors: land use patterns, expensive housing in central business districts caused by surrounding low-density and gated subdivisions, the bias towards automobiles, and the lack of urban growth centers outside Metro Manila.

Metro Manila is a real picture of what happens to the mobility of central cities surrounded by low-density, low-rise housing as opposed to more compact vertical urbanism or vertical tall buildings. House prices surge because of scarcity and supply. The movement of people, goods, and vehicles towards the city during peak hours in the morning and exiting at night clogs major thoroughfares.

Gated communities should be opened up as alternative routes during peak hours. This low-density housing should be converted to a denser form in the future.



Figure 1. Rockwell Center in Makati City (Source: Palafox Associates)

图1. 马卡蒂市的Rockwell中心（来源：帕拉福克斯建筑师事务所）

It would also be necessary to make sidewalks wider and safer, most especially the ones that connect public transits (i.e. bus stations and railways). Through this, redeveloped mass-transits that are clean, convenient, safe, and on-time would become more appealing to private car owners.

Third, congestion pricing in major thoroughfares and increasing the price of parking may also be considered. There is a need to reduce the usage of the road to give enough space for Bus Rapid Transits to travel faster, which would result in it becoming the preferred mode of transport due to faster travel times.

The development of urban growth centers outside Metro Manila will also be necessary to act as counter-magnets. Building international airports in Clark, Batangas, and other urban growth centers will also boost urban developments outside Metro Manila.

Urban Development in Other Regions

According to the thrust of the government, tourism is a good source of economic growth generator. In February 2016 alone, tourism generated about 27 billion pesos. With the thrust in tourism, spending and consumption have drastically helped the regions in Visayas, Mindanao, and the rest of

马尼拉大都会也被称为菲律宾的国家首都区，其土地面积仅占全过土地的0.21%，人口比例约为全国的13%，但却占菲律宾国内生产总值的35%。它是为政府组织、商业、贸易、教育、以及国家经济增长动力的中心点。今天，这个大都会正快速的向北吕宋或第三大区（也被称为中央吕宋）的四边扩散中；朝吕宋南边，也就是卡拉巴松区前进；向东到达山边或太平洋；西至马尼拉湾。这三个区域涵盖了整个国家里大多数的国内生产总值。

国家首都区内的房价也是在预期中上涨，并不止于马卡蒂商业区（图1）。而日趋拥挤的交通状况却也是使在市中心工作的人们对当地房价望之却步的原因之一。马尼拉大都会里十到二十公里的路程，需花上当区居民约三个小时前往工作地点，另外三个小时返家。路上有两百万辆私有车辆，而这仅占总人口的2%。

对于马尼拉大都会区不平衡发展的建议

马尼拉大都会区内令人窒息的拥挤交通可归于几个原因：土地使用型态、中心商业区里昂贵的房价造成低密度的周边环境和门禁型社区、车辆使用趋势，以及马尼拉大都会区周遭低迷的成长率。

马尼拉大都会真实地表现出被低密度与低楼层房屋所围绕的流动型中心城市型态，这与其高密度的垂直化都市，抑或称为群簇的高耸大楼群，呈现强烈的对比。房价

Luzon to gain new investments and capital for business and commerce. The top three drivers of growth for the cities in Visayas and Mindanao are tourism, infrastructure, and Business Process Outsourcing.

All throughout the Philippines, new tall building structures are also being proposed and constructed in emerging metropolises as answer to the increasing demand of services, most of them focusing on developing their own central business districts and commercial establishments to make citizens realize that Metro Manila and its CBDs are not the only business hubs to reckon with.

The Cebu Business Park, a 50-hectare special economic zone developed by Cebu Holdings is a bustling community that integrates the commercial, residential, and leisure aspects of the city and region, created at a time when there was yet no business district south of Manila (Figure 2). The business park's centerpiece is the nine-hectare Ayala Center Cebu shopping mall. Further down south is the growing development of Aeon Towers and Felcris Center in Davao City.

Central Visayas and Metro Cebu

In Visayas, all the regions within it are experiencing urban growth and expansion. Today, Central Visayas is considered as one of the top contributors to the country's GDP, growing at a rate of 9.7% (National Economic Development Authority). The most popular city in the Central Visayas area is Cebu City. Not far from Cebu, another city in the Western Visayas (growing at a rate of 4.9%) is Iloilo city. Both Metro Cebu and Metro Iloilo have significantly improved their road and transportation infrastructure. Both cities have built international airports and building infrastructures for the RORO (roll on/roll off) port system. With this recent development, both cities now serve as a gateway for domestic and foreign tourists.

With the redevelopment of the Mactan International Airport in Cebu, it is expected that there will be significant increase in foreign direct flows.

Apart from the influx of both domestic and international arrivals, capital flows for business and commercial developments are booming. Ten years ago, high-rise buildings, super-regional shopping centers and international super brands were scarcely found in these cities. Today, all of these can be visibly seen (Figures 3 & 4).

也因供需不平衡而高涨。白天的巅峰时段人们、货物和车辆同时进入市区，以及夜晚的离城皆造成主要干道的堵塞。

门禁型社区应该在交通尖峰时段开放以作为替代道路，而那些低楼层建筑也应该在将来改建成高楼。

人行道也必须被拓宽并增加安全性，尤其是连结大众交通工具的路段（例如，公交车站和火车站）。如此改善了大众运输工具的整洁度、方便性、安全性，以及准时性，能让拥有私人车辆的人们更愿意搭乘。

第三，在主要道路上施行随流量变化计价和提高停车费也应被纳入考量。也需要降低道路使用量，以供快捷巴士足够的行车空间。

马尼拉都会区外围的都市成长亦可被当作是对转磁力而带动必须有的都会发展。而，在克拉克、八打雁省，以及其他都市发展区内建设国际机场也将能够带动马尼拉大都会的周边发展。

其他地区的都市发展

根据政府的发展趋势，观光产业能够带动经济发展的重要来源。单是2016年二月份，观光业已为国家带进270亿比索的收益。目前当地观光业的趋势，以大大的帮

助维萨亚斯群岛、民答那峨岛，以及马尼拉都会区以外的吕宋岛内的商业投资及资金进入到当地。带动萨亚斯群岛和民答那峨岛内城市成长的三项重要动力为观光产业、公共建设，以及业务流程外包。

在全菲律宾的新兴大都会里，新大楼建案陆续的推出和建设，以因应日益增长的服务需求，这些建设主要专注于发展当地自己的中央商业地区及商业机构、营业机构，使当地居民了解马尼拉大都会的中心商务区并非唯一。

在马尼拉南区尚未有任何的商业区时，Cebu Holdings 打造了这间占地五十公顷的宿雾商业园区，这个特殊经济区整合了该区的商业、住宅和休闲等面向。而这个商业园区的核心是占地九公顷的阿亚拉购物中心（图2）。再往南走则是达沃市正在发展中的Aeon Towers和Felcris Center。

中维萨亚斯和宿雾大都会

维萨亚斯群岛中的各区域的都市皆正在扩张。现今，中维萨亚斯的9.7%数值贡献被认为是全国数一数二高的国内生产毛额产生区域（国家经济发展局）。宿雾市是中维萨亚斯地区中最受瞩目的城市。与宿雾相差不多的是西维萨亚斯的伊洛伊洛市（4.9%的成长率）。宿雾市和伊洛伊洛市皆显著改善市内的路况与大众交通工具。

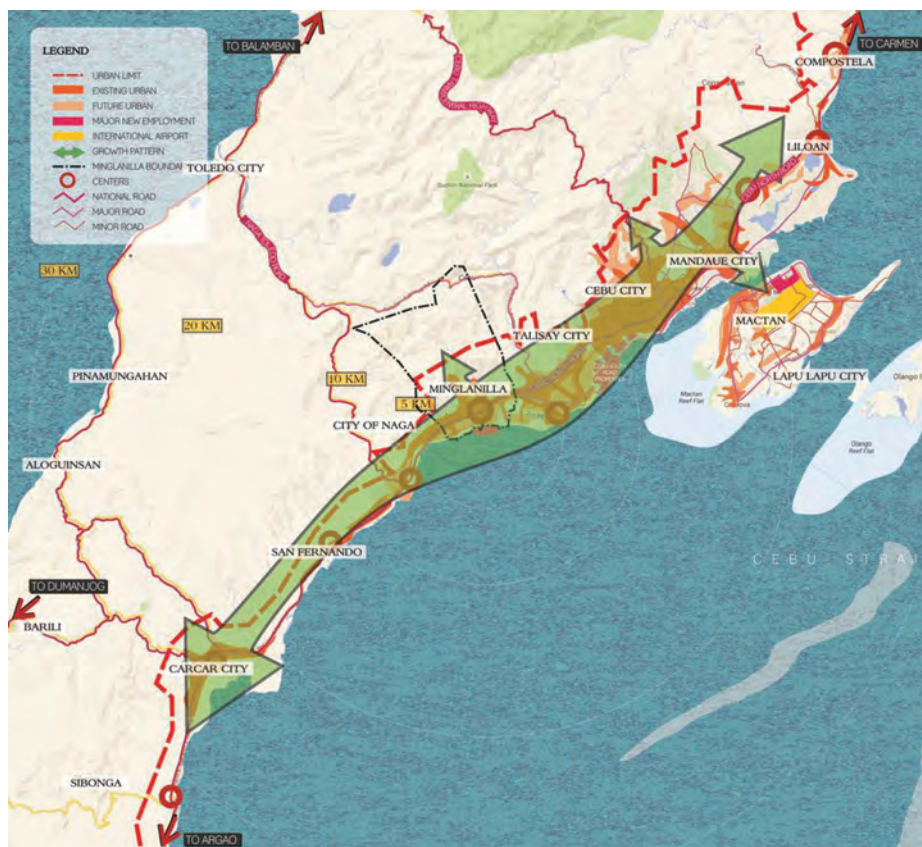


Figure 2. Development growth of Cebu (Source: Palafox Associates)
图2. 宿雾市的发展成长（来源：帕拉福克斯建筑事务所）



Figure 3. Upcoming mixed-use development in Cebu City (Source: Palafox Associates)
图3. 宿雾市即将发展的混合用途区（来源：帕拉福克斯建筑师事务所）



Figure 4. Upcoming mixed-use development in Metro Cebu (Source: Palafox Associates)
图4. 宿雾市即将发展的混合用途区（来源：帕拉福克斯建筑师事务所）

两个城市都建国际机场并打造驶进/驶出船舶系统。因为最近的这些建设发展，这两个城市同时成为国内与国际线旅客的进出口。

宿雾的麦克坦国际机场改建工程预期将会大幅增加国际直飞航线。

除了国内和国际旅客的大量涌入，商业资金和商务发展正蓬勃发展。十年前，高楼大厦、超区域性购物中心和国际知名品牌几乎不存在于这些城市里。现在，它们却是随处可见（图3、4）。

民答那峨岛和达沃市

民答那峨岛是东盟东部增长区的一部分，属于1994年于达沃市所成立的BIMP-EAGA（文莱、印尼、马来西亚、菲律宾）的次合作区域一员。次合作区将目标放于统合策略相近的城市以加强，如农业、工业、贸易和旅游等重点目标领域（图5）。除了能从合作中获得利益，也因南区的商业崛起，如卡加延德奥罗、桑托斯将军城和达沃等城市正值经济成长，明显的成为企业投资点和观光地区。

民答那峨岛区内显著改善其道路和大众交通设施皆为都市的成长、扩张，以及商业化做好准备。

达沃市区内的资金与金融投资，还有金融机构持续增加。相较于民答那峨岛区的其

Mindanao and Davao City

Mindanao is part of the East ASEAN growth area and engages in a sub-regional cooperation initiative of the BIMP-EAGA (Brunei Darussalam, Indonesia, Malaysia, Philippines) which was formally launched in 1994 in Davao City (Figure 5). The sub-regional cooperation aims to utilize the strategic proximity of the cities and enhance key target areas such as agro-industries, trade and tourism. Aside from the benefits derived from the cooperation, cities such as Cagayan de Oro, General Santos, and Davao City are experiencing significant economic growth, and are visibly becoming a destination of business investment and local tourism because of their emergence as the commercial and business centers of the south.

In the Mindanao Region, road and transportation infrastructure have also dramatically improved and paved the way for urban growth, expansion, and commercialization.



Figure 5. Aerial view of Davao City (Source: Palafox Associates)
图5. 达沃澳市的鸟瞰视角（来源：帕拉福克斯建筑师事务所）



Figure 6. Felcris Centrale, a new mixed-use development in Davao City (Source: Palafox Associates)

图6. Felcris Centrale, 达沃澳新的混合用途区 (来源: 帕拉佛克斯建筑师事务所)

The Davao region consistently increased in capital and financial investment, and financial institutions. Compared to the other regions in Mindanao, Davao is known to be more peaceful. And this is one of the reasons that Davao City prides itself as a stable platform for business (Figure 6).

Regional Integration

Despite having an average national economic growth of 6%, the cities and regions are experiencing critical planning, resiliency, and sustainability problems. Apart from the three to six-hour traffic experienced within the National Capital Region; Iloilo, Cebu, Cagayan de Oro and General Santos are visibly suffering from traffic and mobility congestion as well. From Luzon to Mindanao, the cities and regions are also experiencing environmental degradation (i.e., polluting of rivers and estuaries and worsening air quality along major roads), negative impacts of climate change (i.e., flooding and urban vulnerability to earthquakes), undisciplined real estate and commercial development (urban sprawl), and visible incidence of social gentrification and social inequity (Figure 7).

One can only imagine how traffic congestion in Metro Manila will play out by 2020 if it is adding tens of thousands of cars a year and about a hundred thousand cars nationally. According to a study done by the Japan International Cooperation Agency (JICA), Metro Manila is losing 57 million dollars or 2.4 billion pesos daily of potential revenue. This could even balloon to six billion pesos by 2030.

它区域, 达沃市被公认为是较为安全, 这也是达沃市自诩为稳定商业发展平台的原因之一 (图6)。

区域整合

尽管拥有6%的全国平均经济成长率, 这些城市与区域正值关键性的规划、复原和永续等课题。除了国家首都区面临三到六小时的通勤问题, 伊洛伊洛、宿务、卡加延德奥罗和桑托斯将军城也有着显著的交通拥挤所苦。从吕宋到民答那峨, 城市与地区也面临着环境恶化 (如河川湖泊污染和主要道路空气品质的恶化)、气候变化造成的负面影响 (如水患和因地震造成的城

市损伤)、不守法的房地产商及商业发展 (无计画地扩展的都市), 和明显可见的社会中产阶层化和不平等 (图7)。

如果每年有数以万计的车辆的增加, 全国约增加一百万辆车, 我们可以想像到2020年时马尼拉大都会的交通将会如何的拥挤。根据日本国际协力机构的调查, 每天马尼拉失去五千七百万美金或是二十四亿比索的潜在收益。至2030年时, 这个数字可能会激增至六十亿比索。

如帝皇般的马尼拉大都会占有重要的地位, 这造成国内其它较贫穷的省份或岛屿获得不平衡的成长机会。尽管以为地方分权做努力, 但是还是能明显观察到地区差距。地方分权需要朝向区域整合前进。

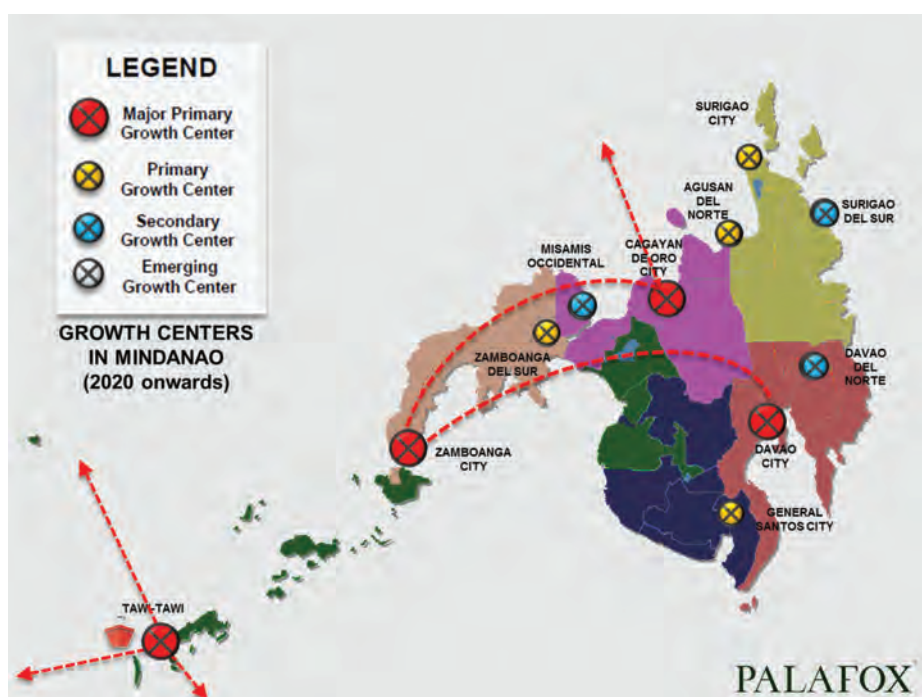


Figure 7. Growth centers in Mindanao (Source: Palafox Associates)

图7. 民答那峨岛的发展中 (来源: 帕拉佛克斯建筑师事务所)

The primacy of “imperial” Metro Manila resulted in the imbalance of growth and opportunities favoring Metro Manila over the poorer provinces and islands of the country. Though despite the decentralization efforts, it is observable that it is not enough and regional disparities are glaring. Decentralization must move towards regional integration.

Regional integration is the collaboration of decentralized cities, working together to move towards a more sustainable development. Often, it is inadequately simplified to road connectivity and accessibility of cities and provinces. The usual elements identified are the development of farm to market roads and being able to travel, view, and even work in areas that are not within the proximity of a person's current home.

But in the light of integration, the crucial elements are synergy and collaboration, especially in these areas' usage and utilization of ports and airports; urban to rural and rural to urban population migration; harnessing natural environment; trade, commerce, and industries; housing; cultural assimilation; institutions such as hospitals, education, places of worship, sources of energy, sources of potable water, and disposal of waste. Integration is the agglomerate, aggregate, or synthesis of all the factors that affects the person in the city, whether it is direct or indirect.

In 2011, there were large differences in the regional distribution of national and local roads. Region IV (Southern Tagalog) accounts for the highest absolute share of the road network at 11% of the total, but has one of the lowest densities of roads per sq km. Road density is highest in Metro Manila (7.5 per sq km) and lowest in Caraga.

Holistically, the Philippines is estimated to have 213,151 km of roads, out of which 54,481 km are paved. Less than half of the national roads are considered to be of good quality. The poor quality has resulted in high vehicle operating costs. The Pan-Philippine Highway, also known as the Maharlika Highway is a 3,517 km network of roads, bridges, and ferry services that connects the islands of Luzon, Samar, Leyte and Mindanao and serves as the country's principal transport backbone. National roads account for only 14% of the total road network, provincial roads 13%, and city and municipal roads at 11%. The rest are classified as barangay (district) roads, which are mostly unpaved village-access roads built by DPWH but handed over to the local government units (LGUs). The total length of

national expressways is more than 286 kilometers.

Various informal transport services such as tricycles, pedicabs, and jeepneys provide most of the urban transport needs of the city. The cost of congestion in Metro Manila alone is estimated to be around 100 billion pesos, or 4.6% of the country's GDP.

Challenges of Regional Integration

One can only imagine what will become of the metropolis and other urban areas if they are struck with a magnitude 7 earthquake or even with a Haiyan-intensity typhoon which devastated Samar and Leyte. According to the Metro Manila Earthquake Impact Reduction study (MMEIRS) in 2004, approximately 170,000 households will be severely damaged and millions of people will be displaced.

The study painted a grim picture of dystopia where help will not be available for three days because of road blocks and collapse of infrastructure.

Currently, the cities are also challenged with an increase in demand for power and energy requirements. Mindanao is experiencing a power crisis, and Luzon is also racing against time to adequately provide the needs of the metropolis.

The cities are also confronted with the issue of solid waste management, and keeping the rivers, estuaries and coastlines free from debris and toxic materials. But there are already movements to develop biomass plants and acquire technology to improve current sanitary landfills. Unfortunately, the government and private sector cannot do it alone. As the pace that citizens are consuming and throwing out trash, more and more we begin to wonder where it will be buried or treated.

It is no secret that the urban areas are not at all resilient and sustainable. Based on global standards, the country has a long way to go. This is not to say that the government is not doing anything about it, but they should explore the possibility of creating and strictly implementing urban and regional comprehensive land use plans. There are existing plans in place, but, according to forecasts, it will take 20 more years to develop the necessary infrastructure, if and only if, the current pace is maintained.

区域整合是一种边缘城镇的合作方式，合作迈向更能持续的发展道路。通常简化不适当的道路以增加城镇与省份间的通连与易达性。一般所知的要素是开发从农场到市场的道路，并能够前往非居家附近的地方旅行、拜访，甚至于工作。

按照整合理念，关键要素在于协力与合作，尤其是在于这些地区的港口与机场的使用与统一；城市至农村和农村到城市的人口迁移；自然环境的利用；贸易、商业，以及工业发展；房屋的建设；文化融合；医院、学校、宗教信仰道场、发电厂、饮用水场和垃圾处理场等的建立。

在2011年时，国道与地方道路分布仍然有相当大的差距。第四区（南塔加拉）占有相当高的路网比例，约为总数的11%，然而他却也是每平方公里路网密度最低的地区之一。道路网络密度最高的地区位于马尼拉大都会（7.5每平方公里），最低的地区是卡拉加区。

整体而言，菲律宾估计有213,151公里长的道路，其中54,481公里有铺上柏油。低于一半以上的国道被认为是优良的道路。不良的道路导致高车辆营运成本。泛菲律宾公路，也称之为Maharlika Highway，全长3,517公里，由公路、桥梁及渡轮串连，连结吕宋岛、萨马岛、莱特岛及民答那峨岛，为国内的主要交通骨干道路。国道占仅全国路网的14%、13%为省道，而城市和自治市道路占11%。剩下的其它道路则被归为巴朗圭（地区道路），这些多未铺设柏油道路由公共工程和公路部所造，然后交给地方政府管理。全国高速公路总长为286公里。

各式如三轮车、人力车和吉普尼等非正式的运输服务提供市区大多数的交通需求，但却造成马尼拉大都会估计约一千亿比索，约4.6%的国内生产总值的损失（The Philippine Report, 2014）。

区域整合所面临的挑战

如果七级地震来袭或是像重伤萨马岛和莱特岛般强度的海燕台风来袭，我们难以想像大都会或其它城市会变成什么样子。根据2004年马尼拉大都会地震冲击减缓（MMEIRS）研究指出，如果大地震来袭，约有十七万民宅会遭到严重损毁，以及上百万的民众流离失所。这个研究刻画出反乌托邦的严峻画面，当灾难来袭，会因为道路中断和基础设施的损毁，而有三天的时间无法得到救援。

目前，这些城市有着电力和能源需求增加的问题。民答那峨岛正面临着电力危机，而吕宋岛也分秒必争地充分提供大都市所需求的电力。

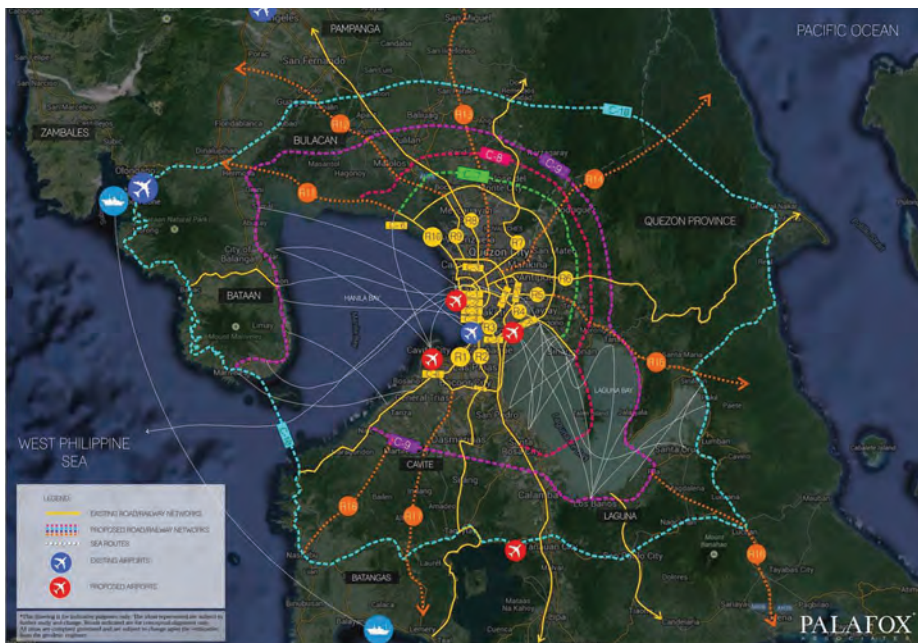


Figure 8. Proposal to connect Metro Manila with the rest of Luzon through more circumferential roads, tunnels, bridges, and airports, among others (Source: Palafox Associates)

图8 将马尼拉大都市与吕宋岛其它地方联系起来的方案：建设更多的周长道路、隧道、桥、机场、等等。（来源：帕拉福克斯建筑师事务所）

Recommendations

To address these issues, the national government should create a national sustainability plan, empowering cities and regions to integrate these plans without letting local governments create their own isolated plans. Green architecture, vertical urbanism, and proper urban and regional planning should be put into practice. The cities and emerging metropolitan areas should be planned and developed into mixed-use, compact, and vertical cities, doing away with obsolete low-density urban sprawl.

Government expenditure on infrastructure, especially in intermodal integration and connection, is one of the main drivers of economic development. While the Philippines is enjoying unprecedented economic growth, averaging 6% compared to the 2% and 4% average of the 1980s to the early 2000s, growth will stagnate if the concentration of development will solely be in Metro Manila.

The goal is the decentralization and integration of regions so that development will be evenly spread out. Coupled with a national sustainability development plan, improved taxation laws, freedom of information bill and fair-competition act, my vision for the Philippines is realistic and attainable. It has been a good sign that the government had increased infrastructure spending recently, and we can expect that these will have tremendous impact in the coming years.

In my term paper at Harvard Graduate School of Design, I had proposed that the two

regions integrate with Metro Manila to plan a Manila Bay Pacific Coast Megalopolis, with a population of 30 million by 2030. Emerging urban growth centers can act as counter magnets to the pull or attractiveness of the metropolis.

As the North and South of Metro Manila and the rest of Luzon develops and creates new urban growth centers, it can be expected that population migration towards Metro Manila will slow down and eventually decrease. There will also be lesser traffic congestion as about 2 million citizens from Bulacan, Cavite, Laguna, and Alabang will be diverted to nearer urban areas (Figure 8).

This dispersion of traffic, coupled with a more mature mass-transit system (through the development of MRT 1-MRT 7 and bus rapid transit), pedestrians can slowly regain a fair share of the road in the Manila Megalopolis. If Singapore, one of the top economies of the world and smaller than Manila and Laguna, has revived its city from aged districts, certainly the Philippines can also slowly adopt urban renewal and revitalization projects. With developments happening outside Metro Manila, holistically the city will experience fewer cars, be able to breathe more, and be able to widen walkways.

Citizens that live all the way in North Avenue will be able to travel faster going towards Makati CBD. Once mass transit systems are in place we can expect massive development especially along Commonwealth and all the way to Bulacan. But living in the North may prove that it might be a better option for

这些城市也遭遇到固体垃圾处理，以及保持河川、湖泊与海岸线没有垃圾与有毒物质等问题。但，也已有发展生物质能发电厂和取得垃圾掩埋场改善技术的行动。尽管政府和私人单位无法单独完成，但是依照人民现在花费与丢弃垃圾量，这让我们越来越想要知道这些垃圾是被掩埋在哪里或是如何被处理。

众所皆知都市区并非具有恢复或可持续性。依照国际标准，这个国家还有很长的路要走。这并非是在说政府没有应对此事，而是要寻求各种创造城市和区域土地综合利用计划的可行性，并严格执行。现在已经有这些计划，但根据预测，这将会会上二十年以上的时间完成基础设施建设，然而这仅止于必须能维持当前进度。

建议

然而要解决这些问题，国家政府应该要建立国家级可持续性发展计划，使城区能相结合的方案，但却不能让地方政府创造出封闭的计划。绿色建筑、垂直化城市 and 适当的城市区规划皆应被执行。城市 and 新兴城市地区应被规划并发展为混合用途、紧密，以及垂直的城市，并淘汰的过时的低密度都市蔓延。

政府在基础建设上的支出，尤其是综合运输的整合与连结，将会是经济发展的主要驱动力。相较于1980年到2000年间约为2~4%，当菲律宾正享受着前所未有的百分之六的经济成长率，但如果都市发展仅止于马尼拉大都会，这个增长将会停滞不前。

施政目标是分散发展并整合不同区域，使城市发展终能扩散出去。只要结合国家可持续性发展计划，改善税法、信息自由法和公平交易法，我对菲律宾的愿景是实际可行并能实现的。

我在哈佛设计研究院时的论文里，我曾提出两个地区与马尼拉大都会整合的计划，是在2030年打造出一个拥有三千万人口的太平洋海岸马尼拉湾都市圈。新兴都市发展中心可以作为反磁力效应拉动大都会城市的吸引力。

当马尼拉大都会的南与北边和吕宋岛的其它区域开始发展与创造新的城市发展中心，大都会的移入人口速度预计将会慢下来，最终降低。当两百万的布拉干省、甲米地、内湖省和阿拉邦等地居民转移至邻近的都市区，马尼拉的交通壅塞状况将会缓解（图8）。

这样的分散交通，连结更成熟的公共交通系统（如MRT1-MRT7的建设），并期望能成功发展快捷巴士，行人就能够慢慢的拿回在马尼拉都市圈里的路权。如果位



Figure 9. The proposed plan for San Juan City includes better walkways for pedestrians and an elevated monorail. (Source: Palafox Associates)
图9. 仙范市建设更好的人行道和高架单轨方案（来源：帕拉弗克斯建筑师事务所）

them to work in nearer new growth centers such as Bulacan than to go Makati or even Fort Bonifacio (Figure 9 & 10).

In the heart of Manila, we also expect that urban revitalization and renewal will occur especially in the Museum cluster near Luneta Park, Intramuros, and the old district of Binondo and Escolta Street. These areas will be transformed into an integrated heritage area that is highly walkable and bikable. Currently, Intramuros has begun its movement into a people-centric area from being car-plagued. These areas have been the center of commercial and cultural activities throughout the centuries, but over the years buildings have aged; cars and vendors have dominated the streets. With pedestrianization, widening of sidewalks, and the development of better transportation systems, we can expect urban renewal and revitalization to occur. Simply reversing the trend of car-orientation towards people-centric streets creates an atmosphere of social interaction and increase in foot traffic, which also attracts

new economic and business opportunities. The conversion of Escolata and Binondo into a heritage city will attract more investors, who could eventually retrofit old buildings and develop new infrastructure that would aid in the preservation of monuments and old buildings.

Ortigas, Cubao, and portions of Makati will become more urbanized and will be converted to highly walkable and bikable cities as well. It is with great news that Ortigas center is finally mulling in widening its sidewalks, and some have already undergone redevelopment. By 2021 we can also expect that the 23-kilometer long Pasig River will be utilized more for urban transportation (Figure 11). There is somewhat recent improvement in the current state of the Pasig River. Through continuous and more rigorous efforts in cleaning the river, we can expect that it will get better.

Aside from land transport infrastructure, which is greatly necessary for development,



Figure 10. Proposed tunnel connecting Bataan and Cavite (Source: Palafox Associates)
图10. 巴丹、甲米地隧道方案（来源：帕拉弗克斯建筑师事务所）

处世界经济顶端且小于马尼拉和内湖省的新加坡能够从老化的区域中复苏，菲律宾必然也可以慢慢的采用都市重建与振兴计划。随着马尼拉大都会外围城镇的建设发展，整个城市将会有较少的车辆上路、人能呼吸新鲜空气，并能够拓宽人行道。

住在北大街的人能更快速的前往马卡蒂商业区。一旦公共交通系统已经到位，我们可以预期大规模的发展，尤其是从联邦大道到布拉干。但是住在北边的居民应该能证实对他们比较好的选择是前往较近的新兴发展中心，例如去布拉干会比去马卡蒂，甚至是比去博尼法乔堡好（图9、10）。

在马尼拉的中心点，我们也可以预期市容的振兴与重建的发生，尤其是在博物馆附近的伦礼脊公园、王城区，以及旧区里的岷伦洛和耶斯寇达街。这些区域将会被改造成一个整合的能够行走与骑单车的古迹区。王城区现在也开始行动，将当区转换成以人为中心的区域，而不是被车辆占领。几个世纪以来，这几个区域一直是商业与文化中心，但是楼房已老旧、车辆已经占据了道路，且摊贩也是随处可见。随着行人步道化，人行道的加宽和大众交通工具的优化发展，我们可以期待都市重建与振兴的发生。仅只是从车辆导向的街头，反转成以人为主，就能创造出社群交流的气氛并增加在路上的行人流量，而这些都能够吸引新的经济与商机。转化耶斯寇达和岷伦洛区成为历史古城将会吸引更多的投资者，最终能翻新旧建物并发展新的基本交通建设，进而帮助保存纪念碑与旧建筑物。

奥提加斯、库宝和部分的马卡蒂将会成为高度城市化，并转为高步行与骑单车的城市。对于奥提加斯而中心言是一个很好的消息，终于在酝酿人行道的拓宽，以及其它已经在重新发展的事项。当2021年来临时我们将会看到23公里长的帕西格河被整并禁都市交通建设中（图11）。这是帕西格河的最近的改善工程。藉由持续与严密的河川清理工程，我们可以期待它变好。



Figure 11. The Pasig River Rehabilitation master plan proposes pedestrian bridges and ferry transport to ease land traffic along Metro Manila's major thoroughfares (Source: Palafox Associates)
图11. 帕西格河改善工程总概念图，人行道桥、渡船交通避免马尼拉大都市的塞车状态。（来源：帕拉弗克斯建筑师事务所）

utilization and redevelopment of ports and airports is also important. With new roads, highways, and infrastructure already partially accomplished and laid out, it is now economically viable for traders to utilize the port of Batangas as a response to port congestion of Manila. Because of shorter travel time between Manila and Batangas, it will emerge as the next trading center of Luzon and possibly a formidable economic zone for trade and warehousing. Mainly used for storage of crude oil, the port of Batangas can also expand to other raw and value added goods. With better infrastructure, the CALABARZON area could experience considerably rapid economic growth and increases in domestic and international tourism.

On the other hand, the former military bases Clark and Subic are set to become new innovation, science, and business hubs of the Philippines. The recent full operational capacity of the 93-kilometer Subic-Clark-Tarlac highway sets a precedent in the development of Central Luzon. Currently Subic enjoys being one of the premier trading centers of Luzon,

and semi-conductors and electronic parts are the number one export of the area, care of Zambales. Clark, on the other hand, has moved towards its vision of the "Clark Future City."

With the on-going improvement of the Clark International Airport and the Subic Bay port, the cities will be able to gain more from its special economic zone status, as foreign direct investment will be inclined to pour in more business ventures. Clark and Subic has the opportunity to become the Silicon Valley of the Philippines, with a fusion of the smart city design of Singapore and other global gateway cities in the world like Dubai. Specifically, Clark City will also become the new gateway of the Manila Megalopolis, extending all the way to CALABARZON. Most certainly, because of proximity, Pampanga will also be a major site for residential development.

There is a need to emphasize and appreciate how transport infrastructure and urban and regional integration should be coupled with visionary leadership, political will, good design, good planning, and good governance.

陆路交通建设的发展相当重要，但是利用并再开展港口与机场也相同的重要。随着道路、高速公路和运输基础设施部分完成与开展，现在将是要以对于贸易商在经济上可行的方式利用八打雁港口，以纾缓马尼拉的壅塞。因为八打雁港与马尼拉之间的交通时间所短，这里将会成为一个新兴的吕宋岛交易中心，也有可能成为一个巨大贸易与仓储的经济区。这里主要是原油储存区，八打雁港也可以拓展至其它原料和增值型货物。当拥有好的交通建设时，卡拉巴松区将会有大幅经济快速增长，并增加国、内外游客量。

另一方面，旧军事基地克拉克和苏比克地区则将要改建成菲律宾的创新、科学和商业中心。最近完成的长93公里的苏比克-克拉克-塔拉克高速公路在中吕宋去优先被发展是因为它的便利性，尤其是到克拉克和苏比克地区。目前苏比克享有成为吕宋岛首要的贸易中心之一，并成为半导体和电子零件的第一出口区，协助三描礼士。另一方面，克拉克转变他的远景为「可拉克未来城」。

克拉克国际机场和苏比克湾港口的持续改善工程，这城市将能够从它的经济特区地

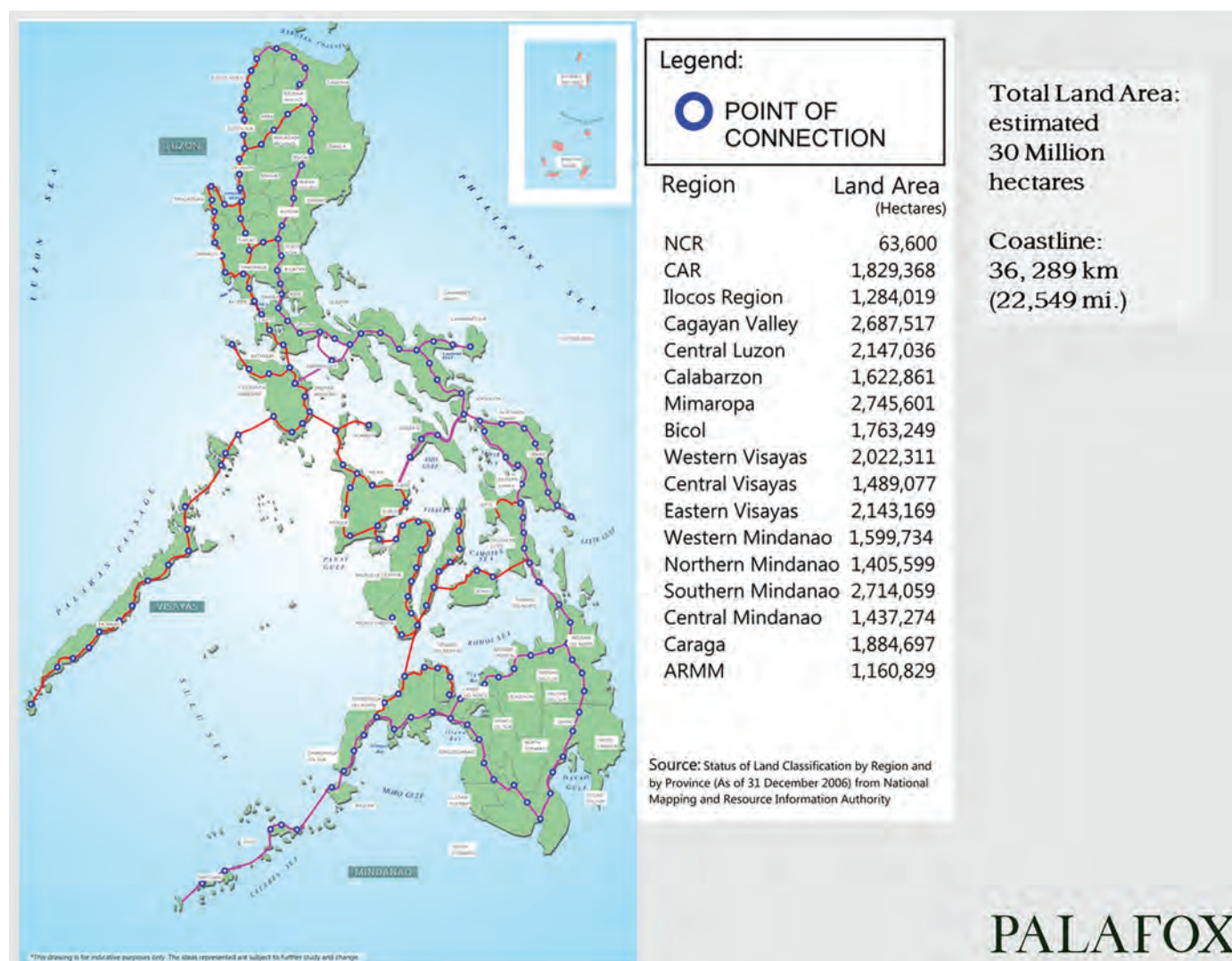


Figure 12. Proposal to connect all the islands of the Philippines (Source: Palafox Associates)
图12. 菲律宾群岛连通方案（来源：帕拉佛克斯建筑师事务所）

Comprehensive and collaborative planning is urgently needed as the rapidly growing population and urbanization estimates that there will be 35 million more Filipinos by 2050. 70 to 80 percent of them will migrate to the cities. I estimate that with a total population of 150 million by 2050, the Philippines will need 100 additional new cities. There are forecasts that the Philippines can and should be in the top 20 economies of the world by 2025 and in the top 16 by 2050. Moving forward, planning should not only be short-term and opportunistic, but also long-term and visionary. This will bring the Philippines well into the 21st century as a first world country (Figure 12).

位中获得更多利益，藉由外国企业直接投资将会倾向于倒入更多商业活动。克拉克和苏比克将有机会成为菲律宾的矽谷，它们融入了像新加坡一般的智能城市，也像杜拜一样的成为国际门户。尤其是可拉克市，它将成为马尼拉都会圈的新入口，并一路扩展至卡拉巴松区。更确定的是，邦板牙省因为外置邻近，也将成为主要住宅发展区。

我必须要强调并感谢基本交通建设、都市和区域的整合需要有愿景的领导人、政治意愿、优良的设计、好的计画，完善的管理。为了因应快速的人口成长与都市化的估计，至2050年时菲律宾人口将会增加三千五百万人。百分之七时到八十的人将会

移居至这些城市。我估计到2050年时，全国人口会到达一亿五千万人，到时菲律宾需要增加一百一上的新城市。有人预估到2025年时，菲律宾会成为，也应该会成为全球前二十名经济发展国家，2050年时升至前16名。我们要展望未来，都市规划不应该仅是短期与投机，而是要长期且富有远见。这将带领菲律宾顺利进入21世纪，并成为已开发国家（图12）。

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