



Language Choice in Philippine Government Websites: Sociolinguistic Issues and Implications



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[*Abstract*]

Government websites provide useful and timely information to the public such as government's history, organizational values, codes of ethics, public services, facts about public official, among others. Using *language choice* as framework, the study seeks to examine what language is used, in what contents, and in what kind of website. The study employed online observation in 235 Philippine government websites (.gov.ph) via content analysis. As a result, English is overwhelmingly used; while Filipino, the Philippines' national language, and only a handful of regional languages, are minimally used in the contents. Discussion will follow how multilingualism can improve the dissemination of information and communication more conveniently and efficiently from the government to its citizens.

Keywords: language, Internet, language choice, Philippine government websites, multilingualism

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I . Languages in websites: Global issues

With the conception of the world wide web (hereafter, the Web) in 1989, emerging internet technologies and applications brought huge changes how personal, organizational, institutional, national, and transnational interactions are processed and made (Fawkes and Gregory 2001; Okin 2005). To date, almost all internet activities are done using the Web. Some of these are communicating via the use of electronic mail, chat, blog, vlog, personal/direct message, forum, video conference, online streaming, social networking; file sharing; surfing and browsing, and doing online transactions (e.g., electronic banking, electronic shopping, electronic government, electronic learning; electronic commerce) (Herring 2013).

In its basic sense, a website is a collection of publicly accessible, interlinked web pages that share a single domain name. These publicly accessible websites then, make up the Web. Created and maintained by an individual, group, business, institution, or organization, websites serve a variety of purpose such as personal, commercial, government, information, organization, social networking, and entertainment.

While a website uses different creative multimedia such as pictures, audios, and videos, written language still comprises most of the website's contents. In fact, the whole purpose of the Web was meant to be read; via scanning/skiming information through texts and hyperlinks (3). With the emergence of newer technologies and applications, websites are becoming more creative and "more appealing" to internet users. Typically, a website consists of 1) Masthead/header, the uppermost part where logo(s), search box, social media links, pictures, and other important multimedia files are found. 2) Navigation, a collection of links for the many different sections of the website. 3) Content Slider or Content Area, where the main contents are efficiently shown/deposited; and where an internet user can click thumbnails, links, blurbs, or topic headers to read a specific content. 4) Sidebar, the collection of links leading more contents that were not included in the content area. 5) Contact Section/Footer, includes all contact details about the website's owner (e.g., telephone, mobile, email, physical address,

other online accounts), Frequently Asked Questions, terms of use, privacy settings, etc.

In all these sections, particularly in the content area, language plays a vital role in transferring/sending the message across all borders. The fact that the website can be visited by any internet user coming from any country, the language(s) used in these contents should be familiar to them. Otherwise, the internet users will not read and understand the contents, thus leaving the website completely.

To date, while any language (with available and appropriate computer coding) can be used in websites, not all 7,177 living languages as reported by Ethnologue (Summer Institute of Linguistics 2020) are used in the Web. In fact, only 12 of these living languages are used in 98% of all the websites (Tremino 2020). In Facebook, which is tagged as a “multilingual” social networking site for example, only 111 languages are supported and can be used. Moreover, longitudinal research show that English dominates the language of websites (Bokor 2018; Lavoie and O’Neill 2000).

Consequently, there is a growing gap between the languages of First World countries vis-à-vis languages of Third World countries particularly in their representation and function on the Internet (Canazza 2009; Cullen 2001; Warschauer 2003). Also, English as the mostly used language in websites and on the internet in general, is tagged as “minor languages killer,” “imperialist,” “predatory” (Fishman 1991; Greiffenstern 2010; Phillipson 1992). This language situation in websites pose a concern to countries/speech communities who are not using English/international language as their primary language: 1) there is a growing language shift from their primary language to an international language; 2) there is a need to justify in creating softwares and applications in their primary language; 3) there is a practical decline in using their primary language in website contents (Concepcion 2016). Thus, there is a need to secure all languages and promote language diversity on the internet (UNESCO 2015).

The status quo of languages in websites and the internet in general attracted a legitimate point of discussion particularly in the

contexts of multilingualism/language diversity and language rights (2015). While the language(s) or choice of languages used to communicate in international online forums has received considerable scholarly attention (Crystal 2001; Danet and Herring 2007; Durham 2003; Wodak and Wright, 2007; Wright 2004), languages used in websites has received less empirical attention. To date, research have examined the degree to which institutional websites provide “localized” versions in the native languages of their intended audiences (Kelly-Holmes 2006; Singh and Boughton 2005; Singh et al. 2007); and, to a minimal extent, whether websites using other languages provide versions in English (Mateos et al. 2001); and what languages are used in university websites based on different countries around the world (Callahan and Herring 2012).

There is an emerging focus on websites coming from the perspective of public administration and governance. Studies suggest that most national and local governments are adapting to the Internet in much the same way that they have adapted to traditional media. That is, these governments are utilizing the Internet’s potential as a storehouse, distributor, and processor of information, and as a one-way communication channel, eventually going beyond the static stage of information provision and dissemination (Ilago 2001). Unfortunately, while the concepts of “information” and “communication” are related and intertwined to government websites, there has been lacking empirical studies on what and how languages are used in these websites (Tannen and Trester 2013).

Government websites are committed in principle, in conveying the significant messages for the betterment of the citizens. From this context, it can be argued that government websites are powerful tools for disseminating information and communication from the government to the people (Caldrow 1999). Thus, there is a need to analyze how language play a critical role as a medium in the contents of the websites. By addressing 1) what language is used in the contents of the government websites, and 2) how this trend/pattern contributes to larger sociolinguistic issues and implications, a snippet on the role of language choice in government websites can be discoursed.

II. Language choice as framework

Looking at a day-to-day situation, language choice means the careful selection of word, phrase, clause, sentence, or whole language within a speaker's linguistic repertoire. While the occurrence of language choice seems natural and unplanned, speakers choose an appropriate register, genre, style, medium, or tone of voice in relation to the interlocutor (who), topic (what), context (where) and medium (how) in every conversation (Dweik and Qawar 2015: 4).

Language choice is contextualized in communities where there are 2 or more languages used (i.e., any language used in spoken and/or written communication). In a multilingual setting, the functions of these languages require a special norm for the speakers, and a functional specialization of the languages involved. This means that one language may normally be used at home or with close friends, whereas another language may be used for commerce and trade, and even a third one for dealing with government agencies (Fasold 1990). As a crucial endeavor in sociolinguistic research, analysis of language choice using deterministic, person-oriented, and functional considerations is proposed (Appel and Muysken 2005: 22-23).

2.1 Deterministic considerations

Language choice depends on the speaker's experiences situated in different settings, different language repertoires that are available to the speaker, different interlocutors, and different topics. Fishman (1965) proposed a basic question, *who speaks what language to whom and when?* as point of departure. Here, knowing the various language factors involved is crucial in determining what language to be used, such as group membership or identity, situation, topic, among others. While language choice is dependent on same factors for all language behaviors, the many interconnected factors may lead to many possibilities. To avoid this excessive fragmentation, the notion of *domain* (1965; Spolsky 2009), a clustering of characteristic situations or settings around a prototypical theme that structures the speakers' perceptions of these situations is suggested (Appel and Muysken 2005: 24). Thus, it is significant to determine what are the

relevant domains, which can differ from community to community.

On the other hand, apart from the community's behavior, it is also possible to look at the characteristics of languages involved. Ferguson (1959) proposed the notion of *diglossia*, a situation where two variety of a language system are used simultaneously in a speech community. There is a formal (high/prestigious) and a vernacular (popular) variety, having its own function (i.e., political speeches versus everyday informal conversations).

2.2 Person-oriented considerations

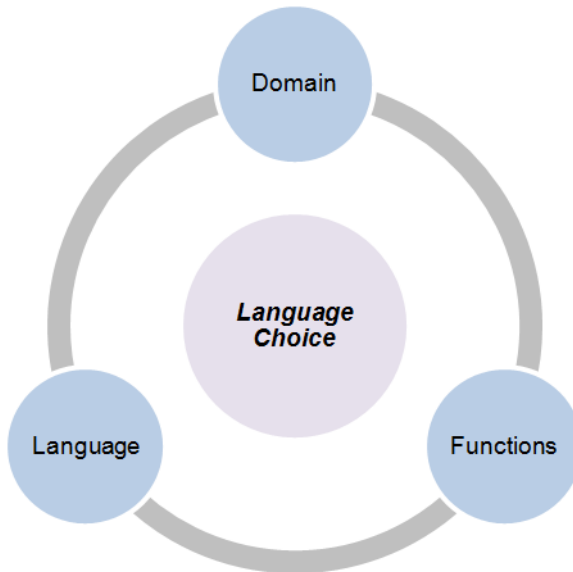
Apart from social norms, another way of looking how a speaker chooses a language is understanding a speaker's series of decisions. Considering the hierarchical set of binary choices seen as a "decision tree," related to factors such as ethnicity of the interlocutor, the style, and the topic of conversation determine which language is finally chosen. To accommodate unexpected responses not included in the descriptive tree, interpretations are done to indicate a special intention, an irony, change of style, among others. As a response, Giles et. al (1973) developed the Interpersonal speech accommodation theory, which highlights that language choice can be further explained by referring to situational factors; and aspects of the interpersonal relations should also be taken to account. In this view, an individual can induce someone else to evaluate him or her more favorably by reducing the number of dissimilarities between him/her and the other. As such, speakers will automatically adjust themselves to each other. The social meaning of language is negotiated between the speaker and the hearer, an ongoing process of interpretation in context. (Appel and Muysken 2005: 24).

2.3 Functional considerations

Drawing from the research of Jakobson (1960), Halliday (1975), and Muhlhauser (1981) on the functions of language, different/specific language may fulfill functions in the lives of speakers. On the other hand, Ferguson (1996) looks at language choice in its "official" function in terms of language planning and policy. The question of "what" language and its official function(s) in the country is a

matter of national concern: What language(s) should be the official language(s) of the government (i.e., used in laws, administration, and the armed forces); what should be used as medium of instruction at the various levels of the educational system; and what language(s) will be accepted for use on the television, radio, print, Internet, etc. Decisions on language questions are notoriously influenced by emotional issues such as tribal, regional, and religious identification, national rivalries, preservation of elites, and so on. (272-273).

Clearly, language choice revolves around 1) the speakers/ society/domain, 2) the language per se, and 3) the functions/ purposes of (using) that language. For the context of the study, government website(s) clearly is the domain where a definitive social context of language or communication can be observed. Language in turn, is seen as body of words and the systems for its use common to a people who are of the same community or nation, the same geographical area, or the same cultural tradition. While functions refer to the specific purpose why a language is used.



<Figure 1> Language choice as framework.

III. Philippine government websites: A situation

Due to the internet's versatile and popular use, the Philippine government under President Joseph Ejercito Estrada on June 14, 2000 enacted the Electronic Commerce Act or Republic Act 8792, which mandates its departments and agencies to have a website in the Web. By 2004, only three years after the implementation of the E-commerce Act, almost all local governments (97.5% of provinces [77 out of 79], 99% of cities [114 out of 115], and 99.7% percent of municipalities [1,496 out of 1,500]) had websites. A major part of this development could be attributed to the enactment of the E-commerce Act and the implementation of subsequent programs to support the law's adoption by government agencies and local government units (Siar 2005).

Philippine government websites officially use the domain name¹ "dot gov dot ph" (.gov.ph), allowing the public to access information as well to communicate with their duly elected politicians. To further develop the electronic governance² infrastructure in the Philippines, the E-Governance Master Plan (EGMP) was created in 2012. This plan basically stipulates the framework to fully develop electronic governance in the country by accomplishing three processes: 1) An ICT assessment must be conducted in different agencies of the government to prepare not only the ICT infrastructure, but also the tools, equipment, application systems and content, and employees; 2) The building blocks of E-governance, which include citizens and business sectors should also be prepared and informed; 3) The details, scope and limitations of the E-governance of the country as well as its policies and objectives must be finalized.

One notable section in EGMP maps the levels of government websites vis-à-vis the level of transactions, thus making end results easy and "user friendly." These levels are categorized as: 1)

¹ A domain name is the address where Internet users access a website.

² Electronic Governance or E-Governance in this paper is understood as the utilization of Information and Communications Technology (ICT) for providing government services to the citizens. Through the means of e-governance, public information and government services are made available to citizens in a suitable, systematic, transparent, and accessible way.

Emerging, a simple static website showing basic information on the department or agency; 2) *Enhanced*, includes regularly updated data, a portal or links to other departments or agencies, and a section where internet users can download documents; 3) *Interactive*, means more dynamic websites with search features. Information is updated on a daily or weekly basis. 4) *Transactional*, the user can perform secure transactions electronically; 5) *Fully Integrated*, able to provide all requirements, documents, forms from the website, interaction from the user and the agency through two-way communication (e.g., email or instant messaging); thus, giving the public a direct means of sending and receiving responses to and from the agency.

On the other hand, based on the data of previous studies (Ilago 2001; Siar 2005; Olaño 2014; Khalid and Lavilles 2019), Philippine government websites can be categorized into three: national, local, and government-owned and controlled corporations (hereafter, GOCCs). Websites of department/institutional offices and national agencies belong to the national, while websites of cities, provinces, and municipalities belong to local; and websites of GOCCs that conduct both commercial and non-commercial activities belong to GOCCs. Administration and maintenance of each category come from corresponding offices of the national government (i.e., Office of the President, Office of the Vice President, etc.), local governments (i.e., cities, provinces, and municipalities), and organizational/institutional offices, respectively. In response to Electronic Commerce Act or Republic Act 8792, these websites serve as an avenue where internet users can learn about the government's history, government information, organizational values, codes of ethics, information about elected official, etc.; and where internet users can easily apply for government services online (Concepcion 2016).

Although the contents in government websites change from time to time, there are general contents common to each category. Government websites in the national category for example, contain information about the specific office or agency, vision-mission statements, monthly or annual reports, projects, downloadable public documents. Government websites in the local category on the other hand, has history and demographics, profile of their officials,

vision and goals, achievements and accomplishments, facts and figures, policies, memoranda, regulations, local legislations, investment opportunities, and tourism information about a particular city or province. The extent of these contents varies from each local government. GOOCs websites on the other hand contain a description/ explanation of the specific GOOC, news, advisories, and a dedicated section where an internet user can transact public services. While few websites offer news and current information on national and local events, most of the websites are not updated on a regular basis, making some contents “bits” of history. Moreover, all websites have email addresses, telephone numbers, and physical addresses through which the administration office could be contacted.

From the discussion, since government websites are usually used for information dissemination through its contents, a growing number of these websites can now be used for processing public documents, (e.g., applying/downloading of needed forms, applying for loans, updating public service benefits, updating orders and queries, etc.). In this context, the Philippine government is still adjusting to improve the level 3 (*Interactive*) status of its websites (Olaño 2014).

<Table 1> Categories and Contents of Philippine Government Websites.

	Philippine government websites		
	<u>national</u>	<u>local</u>	<u>GOCCs</u>
composition	national offices and agencies	cities, provinces, municipalities	government-owned and/or controlled corporations
typical contents	information about the specific office or agency, vision-mission statements, monthly or annual reports, projects, and public documents	history and demographics, profile of their officials, vision and goals, achievements and accomplishments, facts and figures, policies, memoranda, regulations and local legislations, investment opportunities, tourism information	description/explanation of the specific GOOC, news, advisories, dedicated section for public service transaction

IV. Methodology

To assess the language choice in Philippine government websites, this study applied a two-step approach. First, a database of all possible “.gov.ph” websites was created. The list was based on Concepcion’s study (2016), *The Official Philippines Gazette* (The Official Journal of the Republic of the Philippines), United Nation (UN) Electronic Government Maturity Model (2012), Department of Interior and Local Government (DILG) website, and Office of the Government Corporate Counsel website. Only those websites that contain a domain of “.gov.ph” were considered for the study. The list has a total of 265 websites (see Appendix 1).

Next, each website was visited once within the evaluation period from May 2018 to June 2019. Out of the total 265 websites, 23 were found inaccessible and 7 were under construction; thus, this study covered 235 websites. For ease, only the homepage (or the default/primary welcome page) of each website was observed, comprising the convenience sample for the study. The language of contents, and kind of contents found therein were recorded and categorized based on a scheme. The language used in the user interface (a collection of “clickable” words or parts of the website needed by the internet user to navigate it) was also observed and recorded. Contents of links/hyperlinks in each website were not considered part of the content (e.g., a “clickable” content or a downloadable form/document). The results were fed to a spreadsheet, and the data were then analyzed using descriptive statistical methods.

V. Findings and discussion: Language choice in Philippine government websites

English language remains the primary language used in almost all the contents. Filipino language on the other hand, is used minimally in some contents of the websites observed in the study, while a few major regional languages are used in minimal contents particularly in municipality/province websites. In the national websites’ category, only 7 websites have minimal contents using Filipino; and only one

website, www.kwf.gov.ph (the official website of Komisyon sa Wikang Filipino [Filipino Language Commission]) uses Filipino in all its contents. Also noted, www.gov.ph being the primary portal of all Philippine government websites, uses English in all its contents. Moreover, in the local websites' category, city websites predominantly use English. Filipino is minimally used, or none in the contents. Same observation was found in province and municipality websites. It was also noted that 15 from the total number of websites observed have minimal contents using a particular regional language.

As observed, there are common types of contents in the national, local, and GOOCs websites where a certain language is used. First, English is commonly used in 1) vision-mission-goals-statements, 2) information about the office, city/municipality, or organization/corporation, 3) annual reports, 4) projects, 5) history and demographics, 6) profile of officials, 7) achievements and accomplishments, 8) facts and figures, 9) policies, 10) memoranda, 11) regulations and local legislations, 12) investment opportunities, 13) tourism information, and 14) processes for public service transactions. Second, Filipino is commonly used in 1) local news, 2) trivia on local culture and tourism, 3) digital posters, 4) greetings, 5) tag lines of municipalities, 6) titles of links, and 7) side stories. Third, regional languages are used in 1) local news, 2) features, 3) digital posters, 4) greetings, and 5) tag lines of municipalities, and 6) side stories.

On the other hand, aside for www.kwf.gov.ph, all websites use English in the user interface. In the case of the KWF website's user interface, Filipino words are used like: "misyon at bisyon," (mission and vision) "mandato," (mandate) "organisasyon," (organization) "tungkulin," (function) "kasaysayan," (history) "mga balita," (news) "tungkol sa KWF," (about KWF) "makipag-ugnay," (contact us) "mga timpalak at gawad ng KWF," (KWF contests and grants) "kulo at kolorum," (title of lecture series) "aklat ng bayan," (title of book project), "mga download" (downloads).

Certain generalizations can be posited from the observed websites, as responses to the study's research questions. First, on

what language is used in Philippine government websites. There are four main patterns in such context: 1) English, 2) English and Filipino, 3) English, Filipino, and regional language, and 4) English and regional language. The extensive use of English as a primary language proves the many motivations that support its continued global dominance, as identified by Fishman (1991) and Phillipson (1992). In the context of the Internet and the Web, English is seen as a well-established and a practical language to be used in cross-cultural/international communication. Filipino and regional languages on the other hand, are intended to a narrower scope of audience (Concepcion 2016). In the case of the Philippine government websites, Filipino and regional languages mostly remain the secondary and tertiary languages respectively in the contents. In fact, this observation of language choice is evident vis-à-vis the kind of websites. Languages used in the contents tend to become monolingual (English) and bilingual (English, Filipino) in national, city, and GCOOs websites; and tend to become trilingual (English, Filipino, regional language) in municipality/province websites.

Second, on what language is used in what contents. As observed, contents that are used for the main information and public service application/transaction tend to use English; while contents that are used for mundane communication and cultural discussion tend to use Filipino and/or regional language(s) (Concepcion 2016: 166; Khalid and Labilles 2019: 104).

Third, on what language is used in what kind of website. As proposed in the study, Philippine government websites are categorized in the context of its administration and scope (e.g., national, local, GOOCs). In the scope of possible internet users who “could” view these websites, national and GOOCs websites have a larger audience scope compared to local websites. It can be deduced that it is a matter of practical choice on what language to be used. International or official language (e.g., English) for both international and national users, national or official language (e.g., Filipino) for national users; and regional lingua franca or regional official language for national and specific regional users.

<Table 2> Summary of findings.

	Philippine government websites		
	<u>national</u>	<u>local</u>	<u>GOCCs</u>
English	(i) vision-mission-goals-statements (ii) information about the office, city/municipality, or organization/corporation, (iii) annual reports (iv) projects (v) history and demographics (vi) profile of officials (vii) achievements and accomplishments (viii) facts and figures (ix) policies (x) memoranda (xi) regulations and local legislations (xii) investment opportunities (xiii) tourism information (xiv) processes for public service transactions		
Filipino	<i>(minimal, mostly none)</i> (i) digital posters (ii) greetings	(i) local news, (ii) trivia on local culture and tourism (iii) digital posters (iv) greetings (v) tag lines of municipalities (vi) titles of links (vii) side stories	<i>(minimal)</i> (i) digital posters (ii) greetings
Regional language(s)	<i>(none)</i>	(i) local news, (ii) trivia on local culture and tourism (iii) digital posters (iv) greetings (v) tag lines of municipalities (vi) titles of links (vii) side stories	<i>(minimal, mostly none)</i> (i) digital posters

Going beyond these empirical findings, language choice in Philippine government websites can still be discoursed by understanding specific sociolinguistic situations and conditions. Drawing from the proposed tripartite language choice framework used in this study, deterministic, person-oriented, and functional considerations are points-of-discussion as to *how* language choice is manifested in these websites. First, it is assumed that Filipinos are the intended users of these government websites. Electronic governance as the rationale of the creation of these websites, Filipinos can therefore easily engage in the government's endeavors.

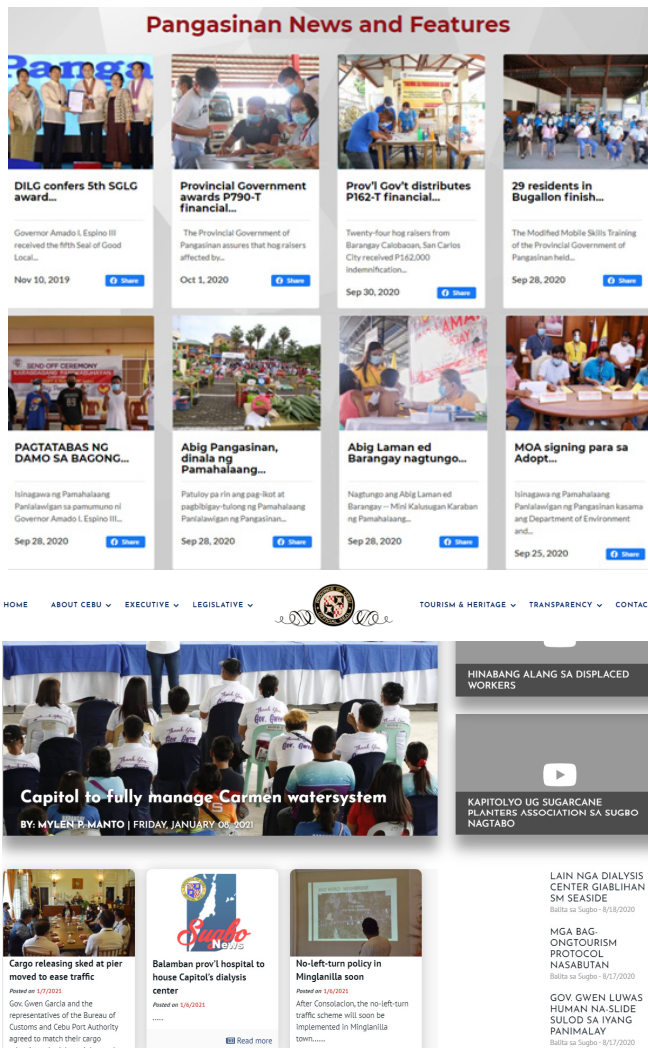
For this reason, the choice on what language should be used in these websites basically remain deterministic in nature. Aside

from the primary requirement that the language to be used should be understood by the target internet users, this should also convey the information or message in the most appropriate and best way possible. Second, since these websites are created by the government's (national, local) initiatives and maintained by webmasters³, attitudes on language are manifested in their communicative and linguistic repertoires. This means, a particular language is chosen due to its viable and practical facets by its user. For instance, many webmasters are more adept using English in the construction and interface of their websites. Moreover, there are more government web content writers using English compared to other local languages (Concepcion 2016). This person-oriented consideration is evident particularly in a one-way mode of communication in the websites' contents. These webmasters are the one sharing the information and messages to the internet users⁴, thus, the latter just consume these as they are posted in the websites. Third, it can be noted that the Philippine government websites has three main functions: give public information to the internet user, provide a platform for the internet user to communicate to government officials, and provide a platform for the internet user to transact government services. Since the websites' contents and transactional applications are made by the webmasters, language options and their choice of language(s) are non-negotiable. The internet user is the one to adjust in comprehending these considerations. In other words, the webmasters are assuming that the internet user is fluent in the same language they are using. On the other hand, the communicative function is rather more personal in nature, that is why the internet user has the choice what language to use. In this sense, a lingua franca is usually used, which the internet user assumes that the same language is understood by the end receiver (webmasters, public official, public personnel, etc.). Fourth, the idea of sentimental and instrumental value of language is very evident in these websites. Sentimental value is linked to a particular language to better internalize one's

³ A webmaster is a person responsible for maintaining one or more websites. The title may refer to web architects, web developers, site authors, website administrators, website owners, website coordinators, or website publishers.

⁴ Unlike in a two-way mode of communication, language use and language choice are negotiated between the speakers.

history, culture, and identity, while instrumental value is linked to a particular language to acquire end products and services. Although both values can be linked to a language, it still depends on the communicative competence and linguistic repertoire of the speakers involved.



<Figure 2> Manifestations of language choice in local government websites. Pangasinan (top) and Cebu City (bottom).

Government websites of Pangasinan and Cebu City for example, use different languages in their contents. Having different linguistic repertoires, the former uses three languages (English, Filipino, Pangasinan), while the latter, two languages (English, Cebuano). It can be underscored that this status quo reflects the deterministic and person-oriented considerations of both the internet users and the webmasters. Pangasinan, English, and Filipino are widely spoken in Pangasinan. As such, most educated people in the province are trilingual (Cortez 1991). Cebu city on the other hand, has a long “grudge” on Filipino, tagging it as the manila-centric national language. In fact, most Cebuano can understand Filipino when asked, but politely answer using either English or Cebuano.⁵ In the case of Cebu city, attitudes on languages also play a significant aspect how languages are used.

Aside from identity, attitudes on language, and imagined audience, topic is also a factor for language choice. As observed, English tends to be the language of choice in technical, academic, or specialized in nature, while Filipino and regional languages tend to be the language of choice in common, mundane, and public topics. Although the KWF website demonstrated that the national language can be used in all the website’s contents and interface,

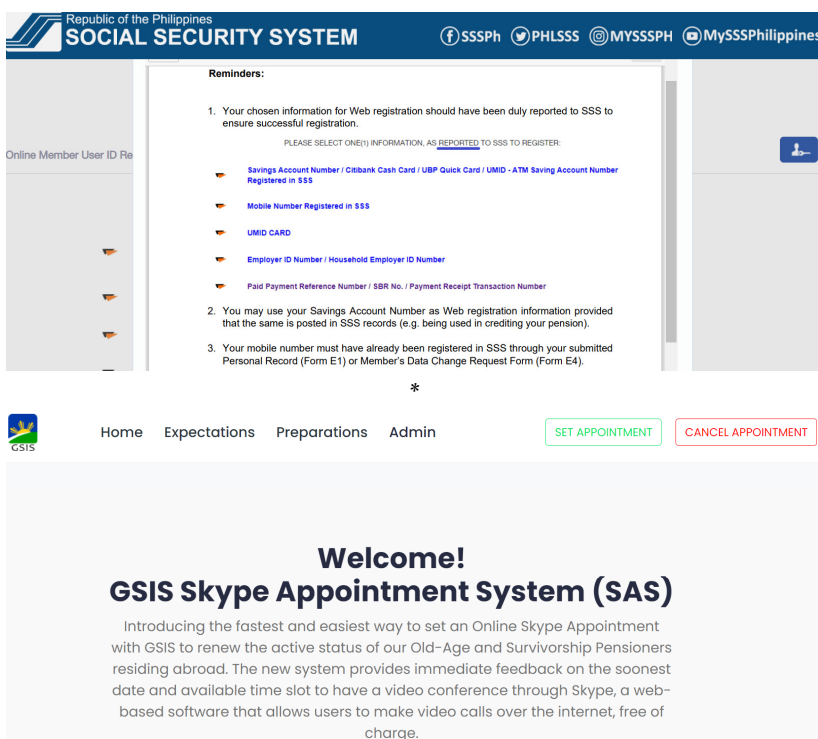


<Figure 3> A snippet of Komisyon sa Wikang Filipino's website.

⁵ Cebuanos are very proud of their language and were very displeased when the Philippine governments of 1897 and 1940, chose Tagalog as the basis in the creation of the national language.

intellectualization of Filipino has yet to be realized.⁶ There may be a bias to the exclusivity of the website's language choice due to the commission's mandate, but it can also be assumed that any language can be used in both technical and mundane topics. This will be possible, provided, that the webmasters are fluent and experts in such language, and are definite to use that language.

Shifting the discussion to some GOCCs websites, why is English the language of choice in transaction applications? This situation can be linked to two reasons. First, English as one of the official languages in the government has been legitimized not only



<Figure 4> Language choice in GOCCs websites. Social Security System (top) and Government Service Insurance System (bottom).

⁶ In the Philippines, topics such as business, law, and the hard sciences are still mostly discoursed using English. To date, translations, and localizations of concepts to Filipino (and other regional languages) still pose a challenge in the Academe.

as the default language in public forms and documents, but also as the more prestigious and standard choice (Concepcion 2016; Gonzales, 2003). Second, English remains the practical language of choice for online applications and interface. Forms and templates using the language can be easily retrieved from the Internet, thus making it easier for the webmasters to copy and create. Also, because Filipino and regional languages are deficit in standardized terms, it will be burdensome to webmasters to translate. Although machine translations are available, the suggested words are too artificial and are not usually appropriate for conversational use.

VI. Concluding remarks: sociolinguistic issues and implications

Although the context of this study is very limited to the content of the homepages in Philippine government websites, several conclusions can be made. First, English remains the primary language of contents. The motivations for this are functional and practical in the context of the Internet. When English is used, a larger scope (i.e., international audience) of possible internet users can view these websites; at the same time, be able to comprehend more kinds of contents. On the other hand, mundane communication like greetings and side stories posted from the website “targeting” the local internet users usually use the common language, in this case Filipino and/or regional languages. While the 1987 Philippine Constitution, clearly identifies Filipino and English as official languages in Government and Education institutions, this situation remains one-sided (i.e., *subtractive bilingualism*, where unequal use/functions of two languages are observed) due to the fact English is massively used as the primary language of the websites’ contents. This status quo leads to an unequal perspective about the functions of each language: English is attributed to what is “urban/cosmopolitan,” “formal information,” and “transaction of public service” in the context of the Internet. On the other hand, Filipino and the regional languages are attributed to what is “provincial/rudimentary,” “cultural information,” and “ease of communication.” While these primary, secondary, and tertiary languages have specific “functions” in the Philippine government websites, this image may

just have been reflections of offline realities. For example, English for so many years have remained the working language in printed forms needed for public service application (e.g., loans, housing, passport, police clearance, etc.) in the Philippines. It is only in the recent years when Filipino was used as a second/helping language in the forms.

Second, Filipino as the national language of the Philippines and the national lingua franca of Filipinos remain as the secondary or the “other” language in Philippine government website contents. No doubt as manifested in the KWF website, Filipino *can* be the language of content and user interface in websites. Although this reality may be an “advantage” of Filipino compared to other local languages that are yet to be working languages of website contents, the national language’s instrumental use beyond contents about local culture and history, to fully becoming the language of information and Web transaction has yet to be realized. In fact, having a “dot ph” (.ph) as official domain name registry of the Philippines in the address of a government website, does not guarantee the maximum use of Filipino in its contents.

Third, regional languages remain in the periphery. As the tertiary language in the website contents, these languages are the least used as observed in just a handful of provincial websites. As official languages and lingua franca(s) of/from the regions, they are used as supplementary alongside English and Filipino. While rarely used in the contents of the websites, regional languages still tend to deliver the “localness,” and “grassroots-ness” of information and communication to regional internet users. In the simplest motivation, internet users can be more comfortable surfing the website in their native language.

The language choice in the contents of Philippine government websites manifests how inclusion on politics and law is practiced in the context of language policies in the Philippines. For instance, policymakers of the country communicate using English among their colleagues. In fact, this observation can be seen in special televised sessions of congress and senate.⁷ Most Filipinos who are not fluent

⁷ Recently, live televised sessions of the senate on PhilHealth corruption and sessions

in the language do not understand the discourse at hand, thus, remain clueless how officials in the government “formally” discuss and solve national issues (David 2003). Furthermore, because most laws in the country are written in English, law professionals (e.g., lawyers, fiscals, prosecutors, judges, stenographers, etc.) choose this language and remain “comfortable” in using it (Dio 2015; Peralejo 2013). This can be problematic in the plain understanding of basic laws and particularly in the overall litigation process. If the defendant for example, is not proficient in the language used by the court, then it will cause misunderstanding.⁸

In contrast, although the Mother Tongue-Based Multilingual Education (MTB-MLE) mandates the use of regional languages from pre-school to grade 3, these languages remain as medium of instruction and are not elevated as working languages for knowledge production. Even Filipino subjects in the tertiary were abolished under the K-12 scheme to make room for “world class” English language competence. Overt and covert language policies in the Philippines, therefore, are framed within neo-liberal tendencies pushing for internationalization and global competitiveness (San Juan 2016). As a result, common uneducated Filipinos are disenfranchised. In the context of language choice in the government, how will the common, uneducated Filipinos understand the policies and programs of the government if a foreign language (i.e., English) will be used to mediate information and communication from the government to the people? Moreover, how can a foreign language expedite government services intended to the public’s wellness?⁹

of the congress on the change of speakership and ABS-CBN franchise renewal were discussed in English.

⁸ Zosimo Buco, 27, a balut vendor from Leyte was wrongfully accused of murdering a civilian in Quezon City. He disclosed that he had a difficult time understanding the court process since he cannot speak and understand English. The report can be read here: https://varsitarian.net/news/20080803/paggamit_ng_wikang_filipino_sa_loob_ng_korte. Although there was a move to use Filipino in the court proceedings (e.g., Bulacan Pilot Project) in the Philippines, lack of support from the government and the law professionals halted this endeavor.

⁹ Floro Morales Herilla confided and asked help in a Facebook public group, SSS Kabalikat ng Mamamayang Pilipino about his calamity loan from the agency. Using the online process, he was not able to transact because of the English instructions. The conversation can be read here: <https://www.facebook.com/groups/275417226488471/permalink/710246943005495>.

Using English as the primary language in the contents of the national, local, and GOOCs websites might send a wrong signal to the public. The fact that only a portion of the Philippine population speak the language, it is an implication that not all information is intended for everybody’s consumption. While the Philippines has a significant E-Governance Master Plan focused on technological aspects, an appropriate inclusion of a language policy or mandate must detail the optimal use of Filipino and other regional languages. The contribution of these languages in delivering information and public service to the Filipino people via government websites should be understood as significant.

Taking into consideration these sociolinguistic issues and implications, a tripartite multilingualism can improve, if not realize the “inclusive-for-all” contents in the Philippine government websites. Using this proposition, Filipino being the national language, national lingua franca, and official language can be the language used to communicate with most of the country’s population. English, the “other” official language, can be the language aimed directly or indirectly at an international audience, or to the rest of the English-speaking population of the country. While official regional



<Figure 5> Proposed tripartite multilingualism in Philippine government websites.

languages and/or the regional lingua francas (e.g., Tagalog and Ilokano for the North, Bisaya or Cebuano for the south) can be the language(s) used to target specific ethnolinguistic groups and/or mediate local and grassroots identities. Provided with much technological and sociolinguistic support, this multilingual proposal can be realized in two ways: 1) provide all contents available in these languages, or 2) provide equal language options for the comfort of the internet user.

Due to the limited scope of this paper, it is underscored that the issue of multilingualism on the Internet is not confined in language(s)-in-websites alone. The use of language in the many applications and platforms the Internet has to offer, remains a sociolinguistic discourse. In the Philippines for example, while the number of local languages has undoubtedly increased on the Internet, their use remains restricted. Concepcion's (2016) study revealed that alongside with Filipino, almost all Philippine major local languages are used in communicative platforms. With the emergence of YouTube, Twitter, Facebook and other Social Networking Sites, Filipinos can be observed sharing videos and posts in their mother tongue.¹⁰ Considering the audience in mind, a bilingual/multilingual internet user chooses a language that will best convey the message in the greatest number of people. Regional languages and Filipino are mostly used in private messages, chatrooms, and local forums; while English, is mostly used for foreigners and in international platforms. Reflecting on Dumanig and David's (2011) study on the other hand, demonstrates how the emergence of major languages like Filipino, Cebuano, and English in Surigao has reduced the functions of Surigaonon in various domains of communication, particularly on the Internet. Clearly, attitudes and perceptions on languages are primarily formed outside the Internet setting. In essence, although a language *can* be used, internet users *may* not opt to because of its limited use and value.

Furthermore, the slow proliferation and inactive use of the many local languages of the Philippines on the Internet depend to

¹⁰ Videos or oral messages has no restrictions, while written messages should be supported by ASCII codes and fonts.

a large extent on the existence of language policies. Aside from the Philippine Constitution's mandate regarding the official status and official use of Filipino and English in the Government and Education, there is no statement whatsoever how regional languages should be maintained and strengthened. In other words, language policy in the Philippines has yet to adhere to the status quo of multilingualism in the country. Although the Internet is not as easily controlled by such language policies, developing policy parameters and objectives should still be realized.¹¹

At present, multilingualism particularly in the context of Internet in the Philippines does not reflect a "multilingual country" mindset. The concept of language choice when presenting information on the Internet, lists the options in terms of the audience: *local* (who has access and can use it) and *global* (who in the world wants to know) (Ellis 2005). As what the paper has observed in the Philippine context, the local audience may opt to choose Filipino, English, or from the many regional languages spoken in the country. Due to the utmost significance of contents, the Philippine government websites should be proactive in facilitating the integration of all Filipinos coming from different ethnolinguistic backgrounds. The fact that the language options reflect the minute-to-insignificant place of Filipino and regional languages in the websites further solidifies the low profile they are given, compared to the emphasis on English as the language of choice.

What then can be deduced from this situation of language choice in Philippine government websites? Will Filipinos accommodate by learning English, for them to use these websites? Or will they selectively choose what information to consume? The Philippine government may rethink of proactive uses of the websites from institutional and official communication, which favor only national and international languages, toward a more personal kind

¹¹ Komisyon sa Wikang Filipino and National Commission for Culture and the Arts are mandated to strengthen the national language and cultural diversity, respectively; while the Department of Information and Communications Technology, is mandated to improve the ICT infrastructure in the country. The responsibility of creating a language policy on the Internet remains an averted responsibility.

of communication, where regional languages have an expressive advantage. Also, multilingual contents and applications in the government websites should be fully realized so that information and transaction flows can be maximized.

Language plays a critical role in sending information and communication from the Philippine government to its citizens via its official websites. Access to and understanding of any information shared in the websites' contents should not be limited to only a select few. By providing, choosing, and using the appropriate language in the contents and applications, citizens can engage more in the government's endeavors.

References

- Caldrow, Janet. 1999. *The Quest for Electronic Government: A Defining Vision*. USA: Institute for Electronic Government, IBM Corporation.
- Callahan, Ewa and Susan Herring. 2012. Language Choice on University Websites: Longitudinal Trends. *International Journal of Communication*, 6: 322-355.
- Canazza, Mario. 2009. Global Effort on Bridging the Digital Divide and the Role of ICT Standardization. *Proceedings IEEE Conference on Innovations for Digital Inclusions*, (August 31 – September 1, 2009): 1-7.
- Concepcion, Gerard. 2016. e-FilNet: Pagsusuri Tungo sa Pangangasiwang Pangwika sa Gamit ng Wikang Filipino sa Internet. PhD Dissertation. University of the Philippines Diliman.
- Cortes, Rosario. 1991. *Pangasinan, 1901–1986: A Political, Socioeconomic, and Cultural History*. Manila: Cellar Book Shop.
- Cullen, Rowena. 2001. Addressing the Digital Divide. *Online Information Review*, 25 (5): 311-320.
- David, Randolph. 2003. Politika ng Wika, Wika ng Politika. *Wikang Filipino sa Loob at Labas ng Akademya't Bansa*. Benilda Santos, ed. 15-22. Quezon City: Sanggunian sa Filipino.
- Dio, Marianito. 2015. Mga Kailangan Pang Maganap upang maging

- Handa at Sapat Ang Wikang Filipino bilang Lingua Franca sa mga Hukuman ng Batas. Master's thesis. De La Salle Lipa.
- Dumanig Francisco and Maya Khemlani David. 2011. The Maintenance and Preservation of the Surigaonon Language in Cyberspace. https://www.academia.edu/29660596/THE_MAINTENANCE_AND_PRESERVATION_OF_THE_SURIGAONON_LANGUAGE_IN_CYBERSPACE (Accessed November 24, 2020).
- Dweik, Bader Sa'id and Hanadi Qawar. 2015. Language Choice and Language Attitudes in a Multilingual Arab Canadian Community: Quebec-Canada: A Sociolinguistic Study. *British Journal of English Linguistics*, 3 (1): 1-12.
- Ellis, Simon. 2005. Monitoring Language Diversity. *UNESCO*. http://portal.unesco.org/ci/en/ev.phpURL_ID=19199&URL_DO=DO_TOPIC&URL_SECTION=201.html (Accessed January 4, 2021).
- Fasold, Ralph. 1990. *The Sociolinguistics of Language*. Oxford: Blackwell.
- Fawkes, Johanna and Anne Gregory. 2001. Applying Communication Theories to the Internet. *Journal of Communication Management*, 5(2): 109-125.
- Ferguson, Charles. 1996. On Sociolinguistically Oriented Language Surveys. *Sociolinguistic Perspectives: Papers on Language in Society, 1959-1994*. Thom Huebner, ed. 272-276. New York: Oxford University Press.
- Fishman, Joshua. 1965. Who Speaks What Language to Whom and When? *La Linguistique*, 1 (2): 67-88.
- Fishman, Joshua. 1991. *Reversing Language Shift*. Clevedon: Multilingual Matters.
- Gonzales, Andrew. 2003. Language planning in multilingual countries: The case of the Philippines. *Summer Institute of Linguistics*. https://www.sil.org/system/files/reapdata/62/63/26/62632677906073834197400454683135964969/andrew_gonzales.pdf#:~:text=The%20national%20language%2C%20based%20on%20Tagalog%2C%20was%20renamed,education%20system%20remains%20in%20operation.%20Andrew%20Gonzalez%20 (Accessed January 3, 2021).
- Greiffenstern, Sandra. 2010. The Influence of Computers, the

- Internet, and Computer-Mediated Communication on Everyday English. *English and American Studies in German*, 1 (1): 16-18.
- Halliday, Michael. 1975. *Learning How to Mean*. London: Edward Arnold.
- Herring, Susan. 2013. Discourse in Web 2.0: Familiar, Reconfigured, and Emergent. *Discourse 2.0: Language and New Media*. Deborah Tannen and Anna Marie Trester, eds. 1-25. Washington, DC: Georgetown University Press.
- Illago, Simeon. 2001. Participation, the Internet, and Local Governance: A Review of Philippine Local Government Websites. *Asian Review of Public Administration*, 8 (2): 1-17.
- Jakobson, Roman. 1960. Linguistics and Poetics. *Style in Language*. Thomas Sebeok, ed. 350-377. Cambridge, MA: M.I.T. Press.
- Khalid, Suhaina and Rabby Labilles. 2019. Maturity Assessment of Local E-Government Websites in the Philippines. *Procedia Computer Science*, 161 (2019): 99-106.
- Muhlhausler, Peter. 1981. Structural Expansion and the Process of Creolization. *Theoretical Issues in Pidgins and Creole Studies*. Albert Valdman and Arnold Highfield, eds. 19-56. New York: Academic.
- Okin, J. 2005. *The Technology Revolution: The Not-for-Dummies Guide to the Impact, Perils, and Promise of The Internet*. Maine, USA: Ironbound Press.
- Olaño, Karmela. 2014. e-Gov.ph: Examining E-Governance in the Philippines Through the Websites and Social Media Sites of Selected National Government Agencies. Bachelor's thesis. University of the Philippines Diliman.
- Peralejo, Cezar. 2003. Mga Saliksik sa Batas at Politika. *Wikang Filipino sa Loob at Labas ng Akademya't Bansa*. Benilda Santos, ed. 50-64. Quezon City: Sanggunian sa Filipino.
- Phillipson, Robert. 1992. *Linguistic imperialism*. Oxford, UK: Oxford University Press.
- San Juan, David. 2016. Neoliberal Restructuring of Education in the Philippines: Dependency, Labor, Privatization, Critical Pedagogy, and the K to 12 System. *Asia-Pacific Social Science Review*, 16 (1):80-110.
- Siar, Sheila. 2005. E-governance at the Local Government Level in

- the Philippines: An Assessment of City Government Websites. *Philippine Journal of Development*, 32 (2): 135-168.
- Spolsky, Bernard. 2009. *Language Management*. Cambridge: Cambridge University Press.
- Summer Institute of Linguistics. 2020. *Ethnologue*. United States: SIL International.
- Tannen, Deborah and Anna Marie Trester, eds. 2013. *Discourse 2.0: Language and New Media*. USA: Georgetown University Press.
- Tremino, Miguel. 2020. The Many Languages Missing from the Internet. *BBC*. April 15. <https://www.bbc.com/future/article/20200414-the-many-languages-still-missing-from-the-internet> (Accessed September 3, 2020).
- UNESCO. 2015. *3rd Report: Recommendation concerning the Promotion and Use of Multilingualism and Universal Access to Cyberspace*. Paris, France: UNESCO.
- Warschauer, Mark. 1998. Technology and Indigenous Language Revitalization: Analyzing the experience of Hawaii. *Canadian Modern Language Review*, 55 (1): 140-61.

Appendix 1. List of Government websites

www.alkan.gov.ph	www.bayawancity.gov.ph	www.calbayog.gov.ph
www.alaminocity.gov.ph	www.boda.gov.ph	www.camarinassur.gov.ph
www.amlan.gov.ph	www.bjmp.gov.ph	www.candoncity.gov.ph
www.angelescity.gov.ph	www.blgs.gov.ph	www.capiz.gov.ph
www.antique.gov.ph	www.bohol.gov.ph	www.carrascal.gov.ph
www.armm.gov.ph	www.booksphilippines.gov.ph	www.cavite.gov.ph
www.aurora.gov.ph	www.botcenter.gov.ph	www.cda.gov.ph
www.bacarra.gov.ph	www.bucor.gov.ph	www.cebun.gov.ph
www.baciwa.gov.ph	www.bukidnon.gov.ph	www.cebucity.gov.ph
www.bacolodcity.gov.ph	www.bulacan.gov.ph	www.census.gov.ph
www.bacoar.gov.ph	www.business.gov.ph	www.cervantes.gov.ph
www.badianan.gov.ph	www.caap.gov.ph	www.ceza.gov.ph
www.bani.gov.ph	www.cabatuan.gov.ph	www.cfo.gov.ph
www.barangay.gov.ph	www.cabuyao.gov.ph	www.ched.gov.ph
www.bas.gov.ph	www.cadizcity.gov.ph	www.chr.gov.ph
www.basey.gov.ph	www.cagayan.gov.ph	www.citem.gov.ph
www.bataan.gov.ph	www.cagayandeoro.gov.ph	www.cityofbalanga.gov.ph
www.batac.gov.ph	www.cainta.gov.ph	www.cityofsanfernando.gov.ph
www.batangacity.gov.ph	www.calaca.gov.ph	www.coa.gov.ph
www.bayanihan.gov.ph	www.calambamisocc.gov.ph	www.coastguard.gov.ph

www.concepcion.gov.ph	www.generaltinio.gov.ph	www.opapp.gov.ph
www.congress.gov.ph	www.generaltrias.gov.ph	www.ops.gov.ph
www.cordova.gov.ph	www.gensantos.gov.ph	www.ormoc.gov.ph
www.cotabatoprov.gov.ph	www.gingoo.gov.ph	www.oroquieta.gov.ph
www.cpa.gov.ph	www.glan.gov.ph	www.osetc.gov.ph
www.csc.gov.ph	www.gloria.gov.ph	www.osg.gov.ph
www.culturalcenter.gov.ph	www.gppb.gov.ph	www.ots.gov.ph
www.customs.gov.ph	www.gsis.gov.ph	www.ovp.gov.ph
www.da.gov.ph	www.guiguinto.gov.ph	www.pagasa.dost.gov.ph
www.daanbantayan.gov.ph	www.hagonoybulacan.gov.ph	www.pagc.gov.ph
www.dalaguete.gov.ph	www.hinatuan.gov.ph	www.pagibigfund.gov.ph
www.dap.edu.ph	www.hilurb.gov.ph	www.palawan.gov.ph
www.dapitan.gov.ph	www.hudcc.gov.ph	www.panay.gov.ph
www.dar.gov.ph	www.kwf.gov.ph	www.pandan.gov.ph
www.daraga.gov.ph	www.lcp.gov.ph	www.pangasinan.gov.ph
www.davaocity.gov.ph	www.lda.gov.ph	www.pasay.gov.ph
www.dbm.gov.ph	www.lwua.gov.ph	www.pateros.gov.ph
www.denr.gov.ph	www.lrta.gov.ph	www.pawb.gov.ph
www.deped.gov.ph	www.maps.napc.gov.ph	www.phs.gov.ph
www.dfa.gov.ph	www.mciaa.gov.ph	www.pca.da.gov.ph
www.dfa.gov.ph	www.miaa.gov.ph	www.pcc.gov.ph
www.didp.gov.ph	www.minda.gov.ph	www.pcdspo.gov.ph
www.dilg.gov.ph	www.mmda.gov.ph	www.pcf.gov.ph
www.dinagatlands.gov.ph	www.mwss.gov.ph	www.pcic.gov.ph
www.dingle.gov.ph	www.nbi.gov.ph	www.pcoo.gov.ph
www.dnd.gov.ph	www.ncc.gov.ph	www.pcs.gov.ph
www.doe.gov.ph	www.ncip.gov.ph	www.pctc.gov.ph
www.dof.gov.ph	www.ncmh.gov.ph	www.pdic.gov.ph
www.doh.gov.ph	www.ncrfw.gov.ph	www.pea.gov.ph
www.doj.gov.ph	www.ndc.gov.ph	www.peza.gov.ph
www.dole.gov.ph	www.nea.gov.ph	www.pfda.da.gov.ph
www.doncarlos.gov.ph	www.neda.gov.ph	www.pgh.gov.ph
www.dost.gov.ph	www.negor.gov.ph	www.phc.gov.ph
www.dotc.gov.ph	www.negros-occ.gov.ph	www.philexim.gov.ph
www.dotpcvc.gov.ph	www.newlucena.gov.ph	www.philhealth.gov.ph
www.dpwh.gov.ph	www.nfa.gov.ph	www.philpost.gov.ph
www.dswd.gov.ph	www.nha.gov.ph	www.philracom.gov.ph
www.dti.gov.ph	www.nhi.gov.ph	www.phirice.gov.ph
www.duenas.gov.ph	www.nhmfc.gov.ph	www.pinamalayan.gov.ph
www.dumangas.gov.ph	www.nkti.gov.ph	www.pids.gov.ph
www.easternsamar.gov.ph	www.nldc.gov.ph	www.pitc.gov.ph
www.econval.gov.ph	www.nsc.gov.ph	www.plo.gov.ph
www.emb.gov.ph	www.nscb.gov.ph	www.pms.gov.ph
www.escalantecity.gov.ph	www.ntc.gov.ph	www.pnp.gov.ph
www.fda.gov.ph	www.officialgazette.gov.ph	www.pnri.gov.ph
www.fti.gov.ph	www.omb.gov.ph	www.pnr.gov.ph
www.gcg.gov.ph	www.op.gov.ph	www.pnvsca.gov.ph

www.poea.gov.ph	www.sjdmcity.gov.ph
www.polomolok.gov.ph	www.socorro.gov.ph
www.popcom.gov.ph	www.solsona.gov.ph
www.postalbank.gov.ph	spda.gov.ph
www.ppsc.gov.ph	www.src.gov.ph
www.pra.gov.ph	www.sss.gov.ph
www.prc.gov.ph	www.sultankudaratprovince.gov.ph
www.psa.gov.ph	www.sulu.gov.ph
www.psalm.gov.ph	www.surigaocity.gov.ph
www.pscigrid.gov.ph	www.tabuk.gov.ph
www.pttc.gov.ph	www.tacurong.gov.ph
www.quedancoe.gov.ph	www.tagbilaran.gov.ph
www.quezon.gov.ph	www.tagudin.gov.ph
www.quezoncity.gov.ph	www.talisaycitycebu.gov.ph
www.rips.gov.ph	www.tariffcommission.gov.ph
www.ritm.gov.ph	www.telof.gov.ph
www.roxascity.gov.ph	www.tesda.gov.ph
www.rtv.m.gov.ph	www.tighauan.gov.ph
www.saintbernard.gov.ph	www.tiwi.gov.ph
www.samalcity.gov.ph	www.toledocity.gov.ph
www.sanantonio.gov.ph	www.tourism.gov.ph
www.sancarloscity.gov.ph	www.tourism.gov.ph
www.sanisidro.gov.ph	www.trc.dost.gov.ph
www.sanpablo.gov.ph	www.treasury.gov.ph
www.sanrafael.gov.ph	www.trinidad-bohol.gov.ph
www.sanremigio.gov.ph	www.tubigon.gov.ph
www.santa.gov.ph	www.tupi.gov.ph
www.santabarbara.gov.ph	www.vatreform.gov.ph
www.santamariabulacan.gov.ph	www.victoriatarlac.gov.ph
www.santamariailocosur.gov.ph	www.vigancity.gov.ph
www.sarangani.gov.ph	www.zamboanga.gov.ph
www.senate.gov.ph	www.zamboangadelsur.gov.ph

Received: Oct. 12, 2020; Reviewed: Dec. 10, 2020; Accepted: Jan 10, 2021