ANNEX B - Preliminary Assessment of CeCs in the Philippines*

I. Introduction

In the Philippines, Community e-Centers (CeCs) are seen as the principal vehicle for bridging the digital divide. As shared facilities, CeCs can provide effective and affordable access to ICT, and empower communities and residents by opening opportunities in education, commerce, tourism, public health, and to participate in governance, among others.

This paper documents initial lessons learned in the course of an evaluation of CeCs set up under the Philippine Government's CeC Program, which was undertaken as part of a larger effort to identify how these facilities can best be used as conduits for e-governance.[1]

The conclusions and observations in this paper, it should be noted, are hardly scientific given the relatively short experience that the country has had on CeCs, which, in turn, limited the number of CeCs that were actually visited to those with at least a year of actual operations. Nonetheless, there are lessons to be learned, and clues that should prove useful for government and other community stakeholders.

The following section provides an introduction to this effort, and discusses the overall framework and methodology.

This is followed by a comprehensive discussion on the study results, which provides a snapshot of the typical CeC and CeC user; including findings on CeC infrastructures, organizational structures, ICT services, and e-governance services.

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[1] This paper supports a main document ('High Impact, Pro-Poor E-Governance Applications') prepared by the same authors, which proposes a methodology for identifying and assessing 'killer e-governance applications' and provides an in-depth discussion of best practices and models of e-governance through CeCs.

II. Methodology

The study focused on several research tools, and a combination of methods to capture the 'public value' or benefit and effectiveness of applications and services deployed through CeCs.

Specifically, data gathering techniques included the following:

- *Summary assessment,* including a socio-economic scanning of CeC development in the Philippines, with emphasis on the CICT's CeC Program. Preliminary interviews with key government, private sector and civil society entities and personalities were conducted to identify existing initiatives, models and best practices; validate priorities and options for bridging the digital divide and promoting e-governance; as well as to tease out other ideas and recommendations to maximize the effectivity of the research and data gathering process.[2]

  Key persons interviewed included:

  - eLGU programme managers from CICT's National Computer Center (NCC).
  - Programme managers of CICT's CeC – PMO.
  - Programme managers of the TelOf CeC Program.
  - Key personnel of CICT's Human Capital Development Group (HCDG).
  - Service providers of CeC deployment namely: the Development Academy of the Philippines (DAP) and the CVisNet.

- *Detailed assessments to gather primary data* from CeCs were also conducted. Several tools were employed to arrive at a detailed evaluation of CeC Programs, services and operations.

  First, the CICT's NCC identified selected sustainable CeCs operating for at least one year, as well as those CeCs with innovative solutions, best practices and local champions for consideration as samples for the study.

  The research team then visited 12 eLGU CeCs across the country with four CeCs in each major island grouping (Luzon, Visayas and Mindanao), and conducted:

  - In-depth interviews with CeC proponents, managers, stakeholders, partners and volunteers, to determine CeC services, policies, programmes, costing and future directions. Policy and process reviews were also incorporated to assess the sustainability of CeC operations. A total of 12 interviews with CeC managers were conducted by the team.[3]

[2] See Annex 1 for a summary of interview results.
[3] See Annex 2 for a summary of the CeC manager survey form and Annex 3 for interview highlights.

- Client Exit Surveys with existing users to determine the satisfaction and response of current users in terms of CeC services and operations. The survey also helped to provide a quantitative overview of community information and communication needs, priorities and usage patterns such as frequency, sources, target priority uses and penetration of product and services. Finally, the survey was used to develop a sample profile of current CeC users and the CeC services and e-governance solutions they access.[4]

- Needs assessments through a Focused Group Discussion (FGD) in pre-selected CeCs to clarify and deepen the understanding of issues, and patterns that emerged from the interviews and survey were also conducted, with an emphasis on gathering participants' perspectives on ICT needs and exploring the diversity of viewpoints rather than pushing towards consensus. A total of six FGDs were conducted for the study.[5]

- An online survey to determine the various services that are currently being offered. This should provide baseline information on the available e-government solutions, and will help to create a profile and compendium of existing e-government services deployed through the CeCs.

[4] See Annex 4 for the client exit survey questionnaires and Annex 5 for the result of the survey.
[5] See Annex 6 for the FGD questionnaires and Annex 7 for a summary of FGD results.

III. Study Results: Philippine experience in e-governance through CeCs by the numbers

To obtain a snapshot assessment of the effectiveness and benefits of CeCs, and their services. the Team visited a total of 12 CeCs located across the country: five in Luzon, four in the Visayas region, and three in Mindanao.[6]

Of the 12 CeCs, three CeCs (Bayombong in Nueva Vizcaya, Manolo Fortich in Bukidnon, and Basak Pardo in Cebu) were established through the initiative of local government units (LGUs).[7]

The rest were set up under initiatives of the CICT's NCC, but still working through and with the LGUs.

A. CeC Profile

All of the CeCs serve as one-stop shops to address the ICT needs of the community, and offer a variety of services, including Internet access, office applications, printing, desktop publishing, photocopying, telephony and voice over Internet protocol (VoIP), and ICT training, among others.

Infrastructure

All the NCC-deployed CeCs were provided with four computer units, a 4-in-1 scanner, printer, photocopier and facsimile machine, network system and cabling system. LGUs, on the other hand, provided at least one workstation, space, facilities and manpower through their municipal funds.

Enterprising LGUs solicited additional workstations from civic groups, OFWs and business institutions. For example, the CeC in Barugo, Leyte, which had the most number of computers, obtained 21 computers (out of 25) from their community's OFWs. The Tanauan CeC was also able to solicit additional five units from their OFW community, which they turned over to the public high school. Other CeCs were equipped with multimedia equipment such as LCD projector, scanner, digital camera, laminator and fax machine.

The eLGU CeC Program encourages the use of free and open source software (FOSS) for the operating systems, and for the main productivity applications such as Open Office.

While the choice of FOSS systems and applications did result in a lower initial investment, it would appear that it is not necessarily a better choice for long-term sustainability.

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[6] See Annex 8 for the Municipalities' profiles.
[7] See Annex 9 for a summary of CeCs' profile and services.

Based on interviews with CeC operators, most would currently prefer to use Microsoft Windows as their operating system because of its perceived interoperability and compatibility with other devises, easier networking solutions and capabilities, and the sheer volume of downloadable applications it supports.

On the other hand, they found the Linux version of the operating system deployed by the NCC more difficult to configure and understand relative to Windows. And while the NCC does provide training, most of the CeC staff could not fully comprehend the system due to lack of appropriate ICT skills. CeC staff, who are often non-IT professionals, have a hard time configuring Linux since it requires more technical know-how.

Most important, they encountered compatibility problems with some hardware, which require drivers that are written only for Windows. These include webcams, scanners, printers, storage drives, among others, which are crucial to the services offered and to the customers of the CeCs.

Thus, to make the CeC more viable, most of the CeCs installed a dual boot system where users can use either Windows or Linux operating systems.

On the other hand, FOSS applications that can also run on the Windows platform such as Open Office are slowly gaining popularity in the Philippines due to similarity of features, content and approach to licensed productivity suites such as Microsoft Office.

CeCs also use a host of other productivity and security software. All CeCs have anti-virus software that are either downloaded or purchased. A few have Java development tools, animation software, accounting and database applications and e-learning solutions.

All the visited CeCs are now on broadband, the cost of which has significantly decreased over the past months due to competition and rapid deployment by the private sector telecommunications companies. Half of the CeCs visited use DSL connectivity from national or local telecommunications companies.

A number of CeCs are now using the 'Smart Bro' wireless broadband connection deployed by Smart Telecoms where clients use a wifi system from an antennae installed at their location with direct line of sight to the cellphone base station. Smart Telecoms claim that they cover about 90 percent of the population and almost all base stations will be equipped with broadband capability.

Table 1 summarizes the infrastructure profiles of visited CeCs.

Table 1. CeC Infrastructure

	Computer	Printer	Photocopier	Digital Camera	Scanner	Webcam	Headset	Other equipment	Windows	Linux	MS Office	Open Office	Photo editing tools	Anti-virus	Internet tools	
Nueva Vizcaya	14	3	●		●	●		LCD projector	●		●	●	●	●	●	DSL
Bayombong	13	3	●	●	●	●	●	LCD duplicating machine	●		●	●	●	●	●	Smart Bro
Roces. Ave	6	2	●		●	●		fax	●		●			●	●	DSL
Pinamalayan	6	2			●	●			●	●	●	●		●	●	Smart Bro
Calamba	17	2	●	●	●	●	●		●		●		●	●	●	DSL
Barugo	25	2	●		●	●		CD writer, computer books	●	●	●	●	●	●	●	DSL
Tanauan	9	4	●	●	●	●			●	●	●		●	●	●	DSL
San Remigio	6	2			●	●		CD writer	●	●	●	●	●	●	●	DSL
Basak Pardo	6	2							●		●			●	●	DSL
Manolo Fortich	6	●				●	●	Handset for VoIP	●		●			●	●	DSL
Maramag	5	1	●		●	●		Laminator, risograph, fax phone, handset for VoIP	●	●	●	●	●	●	●	Smart Bro
Balingasag	6	2	●	●	●	●		LCD projector	●		●			●	●	Smart Bro

Location

Almost all CeCs are located inside the municipal hall or within the municipal compound for several reasons.

First, for administrative simplicity, LGUs want to visually monitor the CeC operations. As such, placing it inside the municipal hall would allow easier access to the CeC.

Second, for cost-effectiveness, LGUs would not entail additional costs of renting space for the CeC and to be able to maximize shared facilities.

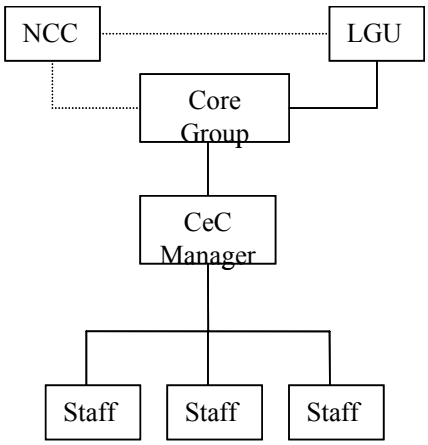
Third, since it is conceived as an eLGU Program, it is part of the computerization of the LGU.

And fourth, it serves as a showcase of effective LGU programmes and as a support tool for other LGU interventions such as one-stop shop centres.

While hosting the CeC in LGU premises have certain advantages, it also poses some disadvantages. Nine of the CeCs are located in the Municipal/City Hall compound, four of these CeCs (Maramag, Nueva Vizcaya, Calamba and San Remigio) are far from the centre of the community, making public accessibility less than is ideal. As a result, users are comprised mostly of LGU or government employees.

The other 3 CeCs are located in a more strategic area. In the case of the Balingasag CeC, it is located near schools within the centre of the community. Moreover, the Bayombong CeC is likewise located at the town centre near the public high schools. Plans of moving the Maramag CeC to the public bus terminal beside the market is in the pipeline so as to better reach the community.

Organizational Set Up / Core Group



The LGUs follow a common organizational structure recommended by the NCC. The NCC supervises the operations of the CeC for a period of one year and provides technical training to the CeC staff through DAP in Luzon area and CVISNET in Visayas and Mindanao areas.

The LGU, composed of the Mayor and the Sangguniang Bayan is the approving body for CeC policies or funding initiatives.

Policy formulation, pricing and rules of CeC operations are implemented by a 'Core Group', which ideally should be composed of representatives from different sectors of the community. It is responsible for the creation of the Strategic and Financial Plan and Operations Manual of the CeC prior to its establishment. The Core Group is also responsible for decisions on purchases, product enhancements and policy changes in the CeC.

However, not all of the CeCs' Core Group is multi-sectoral in composition. Only 4 of the CeCs have multi-sectoral Core Groups, which is composed of women, academe, business, farmers, LGU, etc. Other Core Groups are mostly composed of government sector representatives.

The CeC Manager is tasked to manage the daily operations of the CeC. However, due to lack of ICT structures at the local level, most of the CeC Managers come from existing offices and manage the CeC on a temporary or shift schedule. CeC managers usually have other jobs/mandate aside from managing the CeC. They

are either a concurrent Municipal Planning Development Office (MPDO) Officer, Mayor's assistant or in the case of Basak Pardo CeC, the Barangay Captain. On the other hand, to focus efforts on CeC management, CeCs such as the Barugo and Calamba CeCs hired permanent IT staff or contractual IT personnel tasked to man the centre daily.

Most of the CeCs are under the MPDO. The Nueva Vizcaya CeC is the only CeC under a mandated IT Division set in place by the Provincial Government. The Barugo CeC is under the ICT Department, which is connected to the MPDO of the said municipality. The Tanauan CeC is under an IT unit of the LGU.

Most of the CeCs have hired 3-4 staff for customer and technical assistance not just for the CeC but for the entire LGU. They also serve as IT support for the whole organization such as maintenance of the entire IT system of the LGU. In the case of Balingasag CeC, they have a group of volunteers for the CeC's cleanliness and orderliness, customer assistance, security and cashier.

ICT Services

The CeCs offer a wide array of services from basic word processing to advanced website development and e-government applications. CeC managers and staff have been trained to offer various ICT services.

1. Internet Access

Of the various CeC services, Internet service is one of the most accessed services. Clients use the Internet to chat, email, research for school work, find friends, download multimedia and use government online services. CeCs with webcams and headsets for chatting are observed to have more frequent and regular clients. Users also frequent the CeC to use office applications (both Open Office and MS Office), print and photocopy documents, and also for VoIP and telephony.

2. Basic and Advanced Trainings

Eight CeCs offer basic ICT literacy training including the use of office applications and how to use the Internet. This is one way of increasing the knowledge base of citizens skilled with the use of ICT and at the same time increase the demand for CeC services – the trainings help to increase the number of community residents who will find the CeCs useful.

Of the eight CeCs offering training, three are equipped to offer advance training courses such as web design, information systems management and e-learning. ICT training not only provides ICT skills to the community but also serves as a source of revenue such as in the case of the Tanauan CeC where the LGU charge fees for advanced training. One-on-one computer tutorials are also offered by CeCs that do not offer formal ICT training services.

3. Internet Telephony

A number of CeCs use VoIP services so as to provide cheaper overseas calls to the community. The San Remigio CeC for instance can be reached via communication link with their website. CeCs in Maramag and Manolo Fortich have VoIP handsets that clients can use for international calling. Further, the Manolo Fortich CeC was able to utilize VoIP through webcam in interviewing possible applicants for overseas work. The CeCs can earn revenues from cheaper calling services, as well as promote jobs generation.

4. Other Services

Other CeCs offer creative services such as video editing, CD-ROM burning, designing and producing souvenir programmes and invitations, card printing, games, and video showing, among others. These services not only increase the viability and sustainability of the CeC but address the informational needs of the community in a single office.

Table 2, below, summarizes the services offered by the CeCs.

Table 2. CeC Services

	Internet	Office Applications	Desktop publishing	Basic ICT training	VoIP	Website presence	Others
Nueva Vizcaya	●	●	●	+web design, GIS, information system mgt.		●	Network/linkaging, e-gov
Bayombong	●	●	●				Video showing
Roces Ave.	●	●	●				Video showing, games
Pinamalayan	●	●	●			●	Computer tutorial, computer repair
Calamba	●	●	●			●	Computer tutorial, CD-ROM burning, video editing,
Barugo	●	●	●	+skills training of teachers		●	e-Gov
Tanauan	●	●	●	●		●	e-Gov video showing,
San Remigio	●	●	●	+web design	●	●	e-Gov, souvenir programme,

							video showing, games, CD-ROM burning, card printing, ecotourism
Basak Pardo	●	●	●	●	●	●	e-Gov
Manolo Fortich	●	●	●	●	●	●	Jobs , e-gov
Maramag	●	●	●	●	●	●	
Balingasag	●	●	●	●		●	Video showing

Cost of Services

CeCs differ on how they price their products and services. Most CeCs charge on a pay-per-use basis, or else request for users to give donations for the maintenance of the CeCs. Although some, as is the case for the CeCs in Nueva Vizcaya and Manolo Fortich, do offer all their services for free to the community.

To be sure, however, both of the latter CeCs would choose to charge for the use of the CeCs, except that neither have been able to muster the political will, or have been able to adequately explain why charges are necessary to their respective constitutuents. As it stands for now, both local governments are constrained by a traditional view among constituents that that government services should be free, and that CeC services have already been paid for by taxes.

On the other hand, more progressive and innovative LGUs believe that minimal user fees should be charged to keep the CeC sustainable, provide more and better services and be up to date with technology developments. CeCs that charge user fees either remit all revenues to the treasury or deposit in a trust fund that can be accessed for repairs or equipment upgrade.

It is crucial to note that charging minimal, i.e., reasonable charges, apparently has little effect in terms of usage by community members. The argument could be made that if LGUs could only muster the will, they would find that people are willing, and able to pay for CeC services.

Prices being charged by pay-per-use CeCs are generally lower compared with other Internet shops in the community. This is not surprising principally because some of the costs of operation, such as space, utilities and salaries, are actually being subsidized by the LGU. Second, as a form of service to the citizens, CeCs managed by LGUs deliberately price their services lower than market rates to make ICT more affordable for the community. On the other hand, a few CeCs such as the Tanauan CeC follow the rates of the market to encourage competition and avoid crowding out investments in the ICT sector, although it still does provide discounts for students and senior citizens.

CeC services that bring the highest revenue differ from one CeC to another. For instance, Internet service is the top revenue stream for half of the CeCs visited. Printing and photocopying are also revenue generating services for the Maramag CeC, Calamba CeC, and Pinamalayan CeC. On the other hand, CeCs in Leyte (Tanauan and Barugo) identified ICT Training as the service that brings the highest revenue. Lastly, in San Remigio, games is one of its services that brings the highest revenue aside from Internet and telephony service (VoIP).

Online and e-Government Services

Aside from basic ICT services, CeCs serve as vehicles for the online deployment of government services and e-solutions offered by national agencies and LGUs.

A number of municipalities have government online services that can be accessed through the LGU website.

- Government forms for birth certificate, business permits, certifications, bidding forms, etc. can be downloaded from the websites of Pinamalayan, Nueva Vizcaya and San Remigio.

- The constituents of San Remigio, Tanauan and Basak Pardo can post their complaints and grievances through their respective websites' online forums.

- A number of CeCs offer e-government applications deployed by the CICT/NCC. CeCs in Nueva Vizcaya and Balingasag have installed the Real Property Tax System and Treasury Operations Management applications, while Barugo and Balingasag LGUs have installed the Business Permit Licensing application.

- Ten of the twelve CeCs visited have websites of their municipalities. Developed by NCC to jumpstart e-governance by LGUs, these websites are mostly informational in nature. Profiles of their municipalities, tourism information, information on requirements of obtaining certificates (birth/death/marriage, etc), municipal news, etc. are some of the information that can be found on their websites. Contact information of government officials can also be found in the LGU websites. A few LGUs have interactive applications that allow citizens to post their comments and suggestions.

- LGU websites managed by the local governments of Basak Pardo, San Remigio, Pinamalayan, Calamba, and Tanauan already allow virtual bidding/ procurement as part of their online services.

- The Manolo Fortich and San Remigio CeCs were able to utilize VoIP solutions to enhance governance. San Remigio was able to utilize its website in promoting their municipality as an eco-tourism destination. Its website contains a unique feature that enables potential tourists to communicate

with the CeC for free through VoIP. On the other hand, the Manolo Fortich CeC was bale to use VoIP for online jobs interview with overseas employers through VoIP.

- The Basak Pardo CeC is, by far, the most advanced CeC in terms of the deployment and impact of ICT in the performance and use of government functions. The barangay captain sends memoranda and official letters to its staff and officials through emails. Accomplishments reports of the officials and barangay are also sent through email, making the entire staff monitoring and performance assessment paperless. Aside from basic information about the barangay, the CeC offers a range of e-government services, including tax inquiry and payment, business permit application, online barangay clearance, and online grievance system, among others. Their GIS-based mapping system (that allows the barangay to use online maps for disaster management) and a voter's information system (that provides not only an electronic list of all voters in the barangay, but also allows each voter to easily confirm their vital information and see an online map of where they are supposed to vote) are two examples of best practices on the use of ICT for governance.

Table 3 summarizes the various online and e-governance services of CeCs.

B. CeC User Profile

To determine the satisfaction and response of current users to CeC services and operations, client exit surveys were conducted in selected CeCs. The survey results provide clues on community information and communication needs, priorities and usage patterns such as frequency, sources, target priority uses, and penetration of product and services.

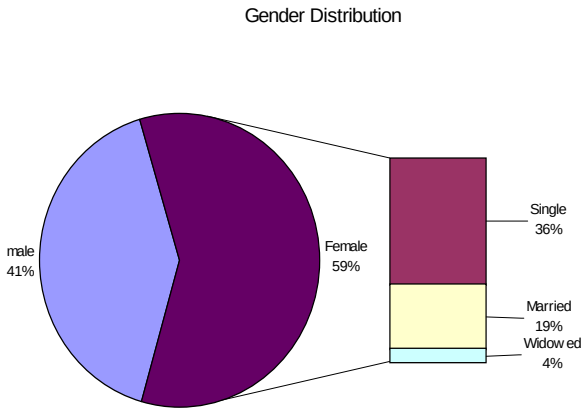
A total of 135 respondents participated in the survey conducted in 8 selected CeCs that have been in operation for more than a year namely: Bayombong in Nueva Vizcaya, Pinamalayan in Oriental Mindoro, Calamba in Laguna, Barugo in Leyte, Tanauan in Leyte, San Remigio in Cebu, Maramag in Bukidnon, and Balingasag in Misamis Oriental.

Typical users of CeC facilities would be under the 30 years of age (61 percent of users), single (61 percent of users) and female (59 percent of users). They use the CeC principally for Internet access, telephony, productivity applications and ICT training courses.

Table 3. Summary of e-Governance Applications

Location of the CeC	e-Governance Applications	
	Basic Services	Website Content
Nueva Vizcaya	1. RPTS 2. Treasury oper. mgt. 3. Biz permit licensing	1. Detailed barangay level information 2. Provincial profile 3. Directory of officials 4. Downloadable forms
Pinamalayan, Oriental Mindoro	1. Bidding/procurement	1.Information on the requirements in the registration of the business 2. Municipal profile 3. Downloadable forms
Calamba, Laguna	1. Bidding/procurement	1. Information on municipality, demographics
Barugo, Leyte		1.Blog content of the municipality 2. Login required to download government forms
Tanauan, Leyte	1. Bidding/procurement 2. RPTS 3. VoIP	1. Information on requirements for application of birth certificate, marriage and death certificate 2. Links to other government agencies 3. Complaints can be posted online through the guestbook 4. Tourism information 5. Municipal news 6. Currently developing a database-driven website
San Remigio, Cebu	1. Bidding/procurement 2. VoIP 3. Online job search	1.Tourism information 2.Free VoIP call from the website 3.Links to other government agencies 4. Downloadable forms 5.Online forum (constituents can post their complaints)
Maramag, Bukidnon		1. Tourism information 2. Municipal profile 3. Directory of municipal officials and offices 4. Municipal news 5. Information regarding requirements for bidders
Balingasag, Misamis Oriental	1. RPTS 2. Treasury oper. mgt 3. Biz permit licensing	1. Blog content of the website 2. Municipal profile 3. Pictures of historical sites

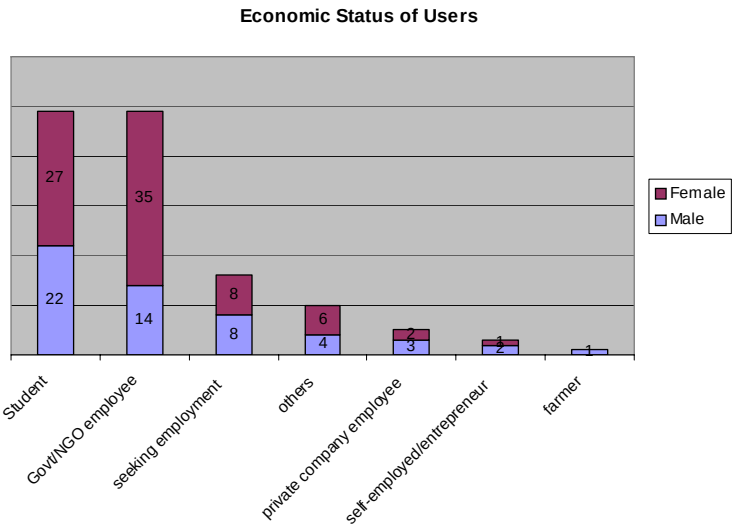
Of the nearly 60 percent female respondents who use CeC services, 36 percent are single, 19 percent are married and 4 percent are widowed. Female users would likely use CeC services for chatting, email, communicating with friends and loved ones, and availing ICT training courses.



CeC users also vary across sectors and economic status. Students from both public and private schools represent 36 percent of all users. Most of them are high school students with a few from the tertiary level. More female students use

the centre than do their male counterparts.

Government employees, mostly from the LGU and secondary public high schools, represent another 36 percent of all users. As would be expected, LGU-based CeCs that are located within the municipal hall premises are usually accessed by LGU staff who work at the LGU or public high school teachers. Female government employees such as teachers access the centre more than male government employees do. In fact, close to 70 percent of government employees who access the centre are females. The rest of the users who access the centre come from the private sector, academe, self-employed entrepreneurs, farmers and retirees.



Of the 135 respondents, only around 30 percent (or 42 respondents) already own a computer, while only 24 percent (or 32 respondents) have their own telephone line at home. Over half of those who own a computer are government employees (51 percent), who use it principally for work, and also for their children to use for schoolwork, while 29 percent are students. Similarly, most of the users with their own telephone lines are government employees or students.

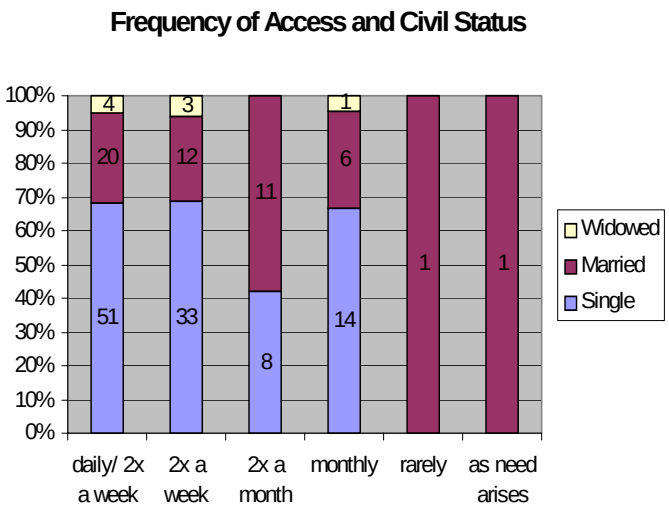
C. CeC Usage Pattern

In order to establish a general picture of how, when and what the users access from the CeC, the survey included questions to determine user behaviour and usage patterns.

General Findings

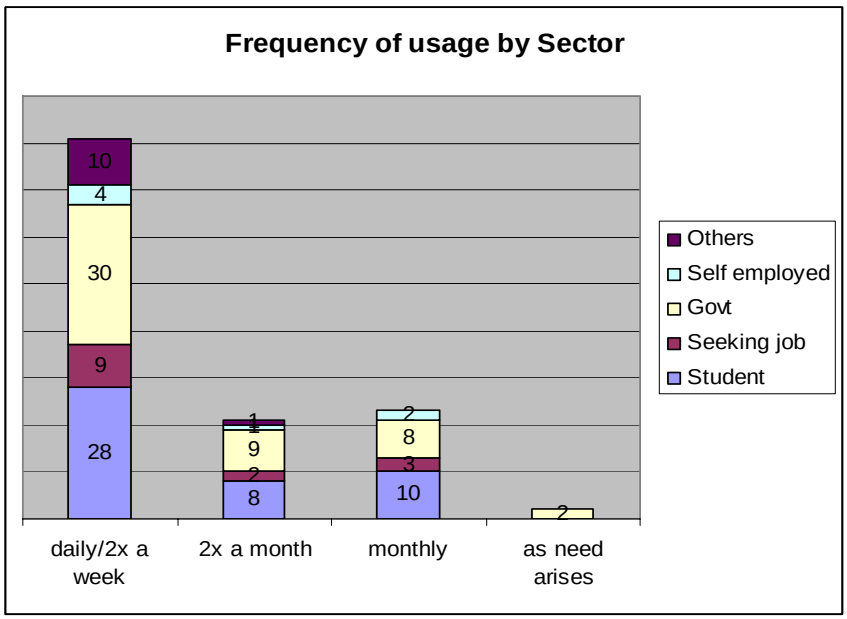
- More than 60 percent of users visit the CeC either daily or more than once a week. For purposes of this study, persons who visit the CeC more than once a week are considered 'regular users' and it is the usage pattern of this group that will be analyzed.

- As noted previously, because of the proximity of the LGU-run CeCs to government offices and schools, government workers, teachers and students comprise the bulk of regular CeC users.



  Thus, government employees would use the CeC facilities – often located in the municipal hall where they work – during their break to email, research, chat, read news, download information and/or communicate with their loved ones. Meanwhile, schools too, are usually located near the municipal hall making the CeC very accessible to teachers and students for research, e-learning, emailing, finding friends, searching for jobs and downloading information. Not surprisingly then, the majority of all government employees (60 percent) and students (57 percent) who access the centre are regular users, i.e., they visit the CeC at least twice a week.

- Unmarried users (single and widowed), who represent nearly 75 percent of all regular users, use the CeC to find work, chat, email and surf the web.



- Surprisingly, based on the survey results, the income of users does not appear to be directly associated with frequency of usage. For instance, citizens who use the centre regularly (ie, persons who are using the centre for more than 2 months) have income levels of Php 5,000 and below followed by users with income levels between Php 5,000 to 10,000. Moreover, people from lower income brackets of Php 5,000 and below tend to be regular users more than people with higher income.

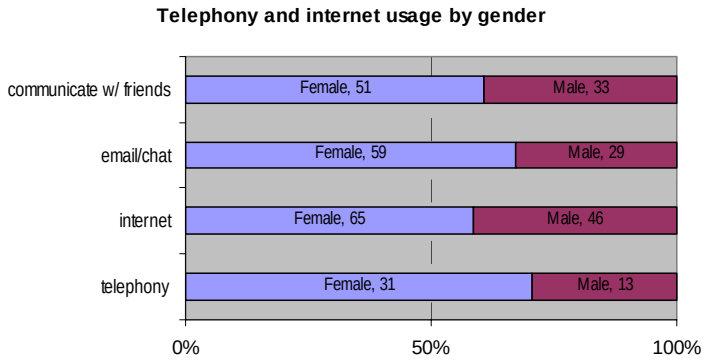
  One very important insight that is revealed by this data is that even people with lower levels of income are willing and able to pay reasonable rates for CeC services. To be sure, it should be noted that CeCs are generally more affordable than other commercial Internet cafes, as stated previously. Moreover, people with higher incomes likely would have other sources for access to the Internet, perhaps through more expensive Internet cafes, or through their own computers with Internet access in their homes.

- Students frequent the centre to finish their school requirements, search for learning materials, use online communities such as myspace and friendster, chat using yahoo or msn messenger, sometimes with webcam, encode and print.

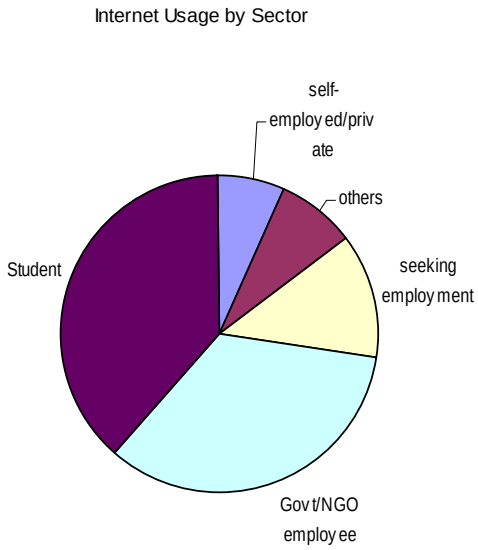
- Government employees avail of encoding services, research on work assignments, print memoranda, view government issuances, access Government Service Insurance System (GSIS) accounts and communicate with their loved ones. Others use it to find work, livelihood materials, research, read news and weather, ICT training, among others.

- Female users outnumber male users. Females usually use CeC services for Internet surfing, chatting, communicating with friends, read news online, apply for a job and avail of ICT literacy courses. It is interesting to note that in terms of telephony usage such as phone calls, VoIP and emailing/chatting, females outnumber males three to one. They usually frequent online sites such as friendster, myspace, classmate, hi5 and chat applications such as msn and yahoo messengers. Based on the team's observation, webcam that is used for chatting is among the top demanded product of the centre especially by females who have chat mates from other countries.

  Anecdotal evidence suggests that CeC facilities are being used extensively by females seeking companionship or even marriage, in part as a means of opening doors to better lives. While the view of the study team is that, given user rights to privacy, it is not the place of government to either encourage or discourage such use or practice. Nonetheless, it seems prudent to suggest that LGUs should offer, through the CeCs, information or training on the possible dangers and consequences of such, largely to protect their constituents against possible online fraud, mischief, identity theft or worse.



- In almost all CeCs, Internet access is the top accessed service, and usually, but not always, the highest revenue generating service. Students access the Internet more than most, with government employees ranking second. About 12 percent of all users access the Internet principally to look and apply for jobs, for instance by using the PhilJobNet web portal.



- Internet usage varies across age distribution. For instance, citizens above 40 years old rarely use the Internet compared to younger age brackets. On the other hand, people below 30 years old, represented by students and government employees list Internet access as among the top services they use at the centre. Based on interviews, most users aged 50 years and above lack the necessary skills in using the Internet and are too shy to ask CeC staff for tutorials. Further, most users 50 years old and above are already retired and do not see the value of Internet in their lives.

- One of the most popular applications of the Internet is the use of email and chat programs. Users typically use free email servers such as Hotmail, Yahoo and Gmail. On the other hand, instant messenger programs such as MSN and Yahoo messengers are popular especially among students and government employees.

- In terms of sectors that use email or chat, government employees registered as the top users with 39 percent of all users. Government employees are slowly utilizing email services as tools for more efficient work especially in

sending correspondences across offices, communicating with colleagues, and receiving government memoranda and issuances.

- Students represent another 33 percent of all sectors that use email or chat services. Popular applications for students include finding or creating friends online through chat and instant messengers especially webcams equipped personal computers (PCs) for chatting.

- Based on trends observed for this study, Internet usage such as email and chat tend to decrease as one become older. On the other hand, in terms of civil status, there are 2 single users of email or chat for every one married user.

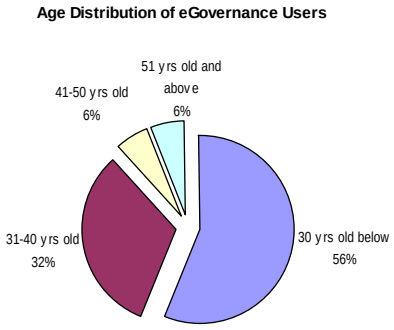
- A number of CeCs offer basic ICT literacy courses on word processing, spreadsheet and presentation, and on how to use the Internet. Females avail of the training services more than males do. Further, government employees and those seeking for work avail of training courses to augment their skills on ICT, especially how to use word processing and the Internet.

<u>e-Governance Findings</u>

- Almost all CeCs visited by the Team offer some form of e-governance. Applications range from barely informational such as project and service information to interactive applications such as online processing of documents, online grievance system and VoIP for tourism queries.

- Again, women access online government services more than men do (60 percent). Female users search government sites for employment, to download forms and read government news, and to access e-learning content.

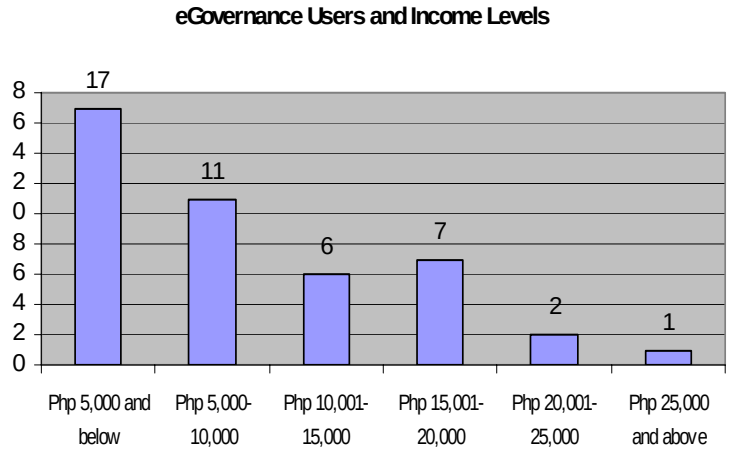
- In terms of age distribution, citizens aged 30 years and below represent 52 percent of all who access government online services.



- Downloading of government forms such as birth certificate applications, business permits, clearances, etc. are among the top e-governance

applications being accessed by CeC users. Half of all e-governance users are government employees. Government staff uses e-governance applications such as GSIS loan information and processing, birth certificate requests, passport renewal, business permit applications, research on work assignments, and viewing of issuances and memoranda, among others. Meanwhile, citizens within the working age group (40 years old and below) access e-governance applications and download forms that they would need for employment or business development. Lastly, students and government employees are the top downloaders of educational materials.

- Income levels appear to have no effect on the usage of e-governance applications. Indeed, survey results show that the lower the income level, the higher the usage of e-governance applications. For instance, 39 percent of all e-governance users have monthly income levels of Php 5,000 or less and another 25 percent belongs to the Php 5,000- Php 10,000 monthly income bracket. At the very least, this reveals that e-governance services are considered relevant and useful, particularly to citizens with lower incomes, and should be seriously considered and deployed especially in connection with government efforts to bridge the digital divide.



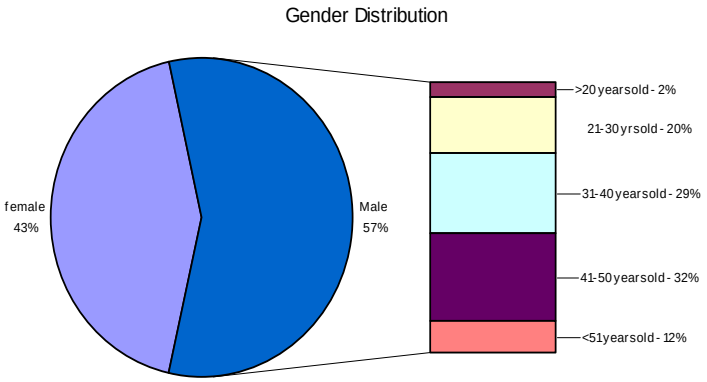
- CeCs can play a role in helping to institutionalize the use of ICT to make LGU operations and communications more efficient, which can also translate into better public service delivery to citizens.

  CeCs can start with simple steps. For example, CeCs can assist the LGU by creating an email account for all its employees. This is very helpful in developing a paperless administration and facilitates intra-LGU communications. CeCs should make sure that LGU staff are well acquainted with the various services being offered online and should be able to guide users to access services. Third, CeCs can also make the gov.ph portal as the homepage for their Internet browsers, and can likewise encourage and assist LGUs to provide a link of the Philippine portal with the LGU website.

D. Needs Assessment

CeC services, especially e-government services, should be aligned with the citizens' information needs. A needs assessment, through FGDs and exit surveys were conducted to flesh out unarticulated demand for e-governance applications. (see Annex 7 for a summary of FGD results).

Respondent Profile



A total of 60 citizens from different sectors and age groups, from six CeCs (two each from Luzon, Visayas and Mindanao) participated in the needs assessment process. Thirty-one or 52 percent of the respondents were men while and twenty-nine or 48 percent were women. More than half of the male participants belong to the 31-50 years old bracket while the female counterparts are younger belonging to age 21-40 years old. 42 respondents were employed by the government either from the LGU or the regional offices.

ICT Skills and Trainings

- Almost all of the respondents were familiar with computers, and understood the basic uses of the computer such as word processing, spreadsheet, games, multimedia, and the Internet, among others.

- ICT skills were accumulated from different and several channels. Students learned to use the computer and the Internet from their schools as part of their courses or through family and friends. On the other hand, government employees or office workers learned computer skills from their own initiative as it is generally used in their work. Others developed their skills through the ICT programmes of the CeC or through tutorial sessions with a CeC staff.

- The respondents indicated an interest in taking advanced ICT training if offered by the CeC in the areas of Internet research, presentation making, digital editing, and word processing and spreadsheets, provided that the training is conducted for free or at minimal cost. Interest in enrolling in ICT courses would increase if offered after office hours or during weekends.

Currently, most CeCs offer basic ICT skills development during CeC operating hours, and as a result, only a handful of government employees availed of the service.

Communications Needs

- Sixty percent of those who participated in the needs assessment have immediate family members working abroad as Overseas Filipino Workers (OFWs). Others said they have friends or distant relatives working abroad. Gaining a deeper understanding of the role of the CeC as a channel for more affordable means of communication – particularly as a provider of VoIP – is therefore an important issue.

- All of the respondents have access to voice calls either through a mobile phone or a landline telephone. Only 23 percent or 14 respondents have landline phones but all have cellular or mobile phones.

- Mobile phones are the preferred choice for communicating with their friends or loved ones abroad. It is cheaper to receive calls from abroad, rather than calling abroad from the Philippines. Given that OFWs would likely have a greater capacity to pay for the long distance call, Filipinos are likely to send a text message, or deliberately make a missed call, following which they are called back by the OFW with whom they wish to speak with.

  VoIP makes such callbacks unnecessary. Several respondents with access to broadband Internet at home already use instant messaging and VoIP (e.g. through webcam chatting or Skype). Some of those without Internet connectivity at home visit their CeC to access the webcam and VoIP services. They also prefer to use emails rather than the traditional snail mail system as emails are faster, cheaper and have the ability to send audio, video and pictures files.

Other CeC Services

CeCs offer a wide array of services, not all of them necessarily ICT-related, such as basic telephony, computer applications, printing, scanning, Internet applications, and online government services, among others, not only to serve the community better, but also to enhance its sustainability and income generating capabilities. In other words, CeCs should act as a one-stop shop that caters to community interests and needs by offering services that allow community users to use its facilities for activities including research and other work-related activities, communications (email, chatting, VoIP), searching for jobs, and accessing government services online.

Table 4 summarizes the top CeC services being accessed by the citizens.

Table 4. Services of the CeC

- Internet access
- Digital printing
- Microsoft Word application and Excel
- Social and economic services (e-commerce)
- ICT training
- Online job search
- e-Learning services
- Government online services
- Scanning
- Faxing
- Games

Barriers to CeC Use and Access

The various reasons given by respondents as to why they would *not* patronize the CeC yield lessons that are just as important as factors that encourage CeC use. Understanding these concerns would not only reveal obstacles to CeC viability and sustainability, it would also help determine the best marketing and advocacy strategies that CeCs can employ to better serve its constituents.

- Most of the respondents revealed that lack of time to go to the CeC hinder them from accessing CeC services. Since most of the participants are either government employees or students, their usual free time would be during lunch breaks, after school or office hours, or during weekends. However, most CeCs operated by the LGU serve the community from 8:00 am to 5:00 pm only, from Monday to Friday. As such, the operating time of the CeC is usually not aligned with the time availability of citizens. Further, citizens stressed that during their free time, ICT training courses are being offered by the CeC that uses all PCs for training, thus further limiting their access to the CeC.

- Broadband connection are sometimes slow, unpredictable and, in some instances, down for the entire day. This would affect most of the online services of the CeC. Respondents revealed that they would go to an Internet cafe instead of the CeC if they experience slow or unpredictable Internet speed. Moreover, users would prefer Internet cafes over CeCs due to more up-to-date equipment such as more advanced webcams, faster computers, and better facilities, among others.

- Lack of availability of PCs is among the reasons for not utilizing CeC services. Since most CeCs are equipped with five to six PCs that are always occupied during peak hours, users would just prefer to go to Internet cafes equipped with more computers.

- Location is critical. Since most municipal offices are not located inside the town centre (i.e. business centre, marketplace), citizens would rather go to an Internet cafe that is inside the town centre to save time and transportation cost.

- Financial constraints also hinder citizens from accessing the CeC services. Even though the CeC offers very competitive rates and, in some instances subsidized rates, users expect additional discounts especially for students and senior citizens. Note that even the lack of pricing information can discourage users from using the CeC. One interviewee revealed that she was hesitant at first to even enter the CeC simply because she did not know how much it would cost. Preparing easily visible signs, as well as flyers and other marketing materials, that clearly indicate prices against services are obvious simple steps that can be taken to make the CeC less intimidating to those who know little about it.

E. e-Governance Needs

The main objective of the FGD is to gather data and insights on the ICT needs of the community focusing on government services. The session sought to identify the needs of the respondents pertaining to information access, education, online transactions, employment needs and business development needs.

Some e-government applications such as the GSIS electronic system that allows users to view their payment contributions or apply for a loan online are relatively well known by regular users of CeCs. The use of this service has been widely adopted particularly by government employees for whom its use is now mandatory if they want to avail of GSIS benefits.

Beyond GSIS, there is little awareness of other online e-government services, or other online activities such as e-learning, e-commerce, and online banking. Even awareness of the existence of a government portal (http://www.gov.ph) is low.

The use of email in government is prevalent, both by public workers to correspond with each other or with other agencies; and by citizens to send their comments and insights to the local government.

While there are kinks to be ironed out (e.g. respondents who have tried using the online services such as the GSIS and SSS checking of remittances and loans observed that information is not regularly updated, and that there are occasional disruptions in service), those interviewed revealed that they prefer the online service compared with the traditional offline service, recognizing it to be faster, more efficient, cheaper and transparent to all citizens.

Table 5 summarizes the e Governance needs of the respondents.

Table 5. e-Governance Needs of Respondents.

- Online GSIS and SSS checking of remittances
- Birth certificate processing and application
- Online application for passport and passport renewal
- Online application for security papers
- Online application for business permits and real property tax
- Checking of updates on memorandums of DILG
- Information on guidelines set by different government agencies
- Department of Education orders
- PRC results
- Online procurement

To date, the ten municipalities visited already have websites. Most of these are still in the Stage I, and are mostly informational in nature, although others are already moving to more advanced stages.

Profiles of their respective municipalities, tourism information, information on requirements of obtaining certificates (birth/death/marriage, etc.), requirements on bidding/procurement, municipal news, directories of government officials and their offices, etc. are some of the information that can be found on their websites.

Generally, LGU websites, where they are present, are not really being used or accessed, or else, there is little awareness of their existence.

One of the reasons why respondents have little knowledge about the LGU website was the lack of online services being offered through the website. Most of the LGU websites are merely informational, focusing on the municipality's demographic profile, economic status, infrastructure development, LGU profile, project and programmes, events and tourist attractions.

There is a need to make them more interactive and responsive to actual needs. For example, some respondents indicated that they would like to see a local jobs database that would complement the various national job search portals through which they could work within or near their community.

Second, website information is not being updated regularly thereby curbing the enthusiasm of the users and eventually usefulness of the website.

Respondents would also be keen to utilize online complaints/feedback mechanisms that would allow them to give comments and suggestions, or to lodge complaints, emphasizing too that they would expect prompt feedback or responses to their input or complaints.

Finally, security issues need to be addressed and not only at the local level. There have been instances when LGU websites were corrupted when the central server of the NCC was hacked.

IV. Recommendations and Best Practices

A. CeC sustainability and technological attributes

The sustainability and viability of a CeC depends on having an efficient day-to-day operational management with a strong organizational structure, and technology, services and applications that community residents would be willing and able to pay for.

The technology and applications need not necessarily be the latest technology. What is important is that these enable users to do what they want or need to do – keeping in touch with or remitting money to loved ones, expanding the market reach of a business, interacting with government, or even simply playing games – at a price that they can afford and are willing to pay.

CeC operators and managers should therefore have the capability to balance new technologies with the needs of the community and the costs for the sustainability of the CeC in the long run.

Hardware

CeCs have several options in terms of hardware.

LGUs, for one, can and do allocate budgets to purchase new computers. Depending on specifications, computers can be bought for around US$400 to US$600, including peripherals such as printers and scanners.

CICT-deployed CeCs are provided with at least four People's PCs. The Peoples PC is an initiative by CICT and the private sector spearheaded by Intel that aims to increase the number of computer and Internet users by providing low cost yet high quality computers to the public through partner retail outlets. People's PCs are currently priced below US$320, and includes an Intel Celeron D 315 processor, 128MB RAM memory, at least 20GB of hard disk space, CD-ROM and floppy drives, 56k internal modem and 15-inch colour monitor.

CeCs may also receive older or refurbished machines if they want to increase the number of workstations on a limited budget. Costing less than US$100 in some cases, these may not provide all the services of a full multimedia PC but will allow for basic functions such as word processing or Internet surfing.

Software

- *FOSS vs. Proprietary Software?*

  Due to the significant cost of propriety software, as well as government's commitment to protecting intellectual property rights, NCC prefers the use of OpenOffice software for CeC's computer operating systems. Technical courses on FOSS applications are therefore provided for CeC Managers and alternate managers.

  FOSS applications, however, still provides challenges for which some CeCs have found no ready answer. For one, compared with Windows, Linux is harder to configure, and their problems more difficult to solve. For instance, some CeCs found that webcams, which many customers require, are not compatible or are difficult to use with Linux. Moreover, community residents are generally more familiar with Windows. In both cases, the CeCs

would tend to lose out as the customers would go instead to competing Internet cafes.

One possible solution for CeCs is to use a dual boot system configuration that enables users to choose between Linux or Windows operating systems.

But more importantly, this problem underscores the need for CeCs to do a cost-benefit analysis if they have to choose between FOSS and proprietary software such as Windows. The cost of purchasing Windows is not trivial, but this has to be weighed against not only the availability of personnel who are trained and able to handle FOSS-based problems, as well as potential difficulties in terms of customer service and satisfaction.

Should the CeC decide to go with FOSS, mechanisms should be in place not only to train the CeC operators, but also to cascade such trainings to the community residents as well.

On a policy level, and keeping in mind a long-term view for the CeC itself, it may be worth it for government to increase support and efforts to encourage the development of a growing pool of programmers skilled in FOSS applications, who would be able to provide continuing support and trainings for CeC operators. This would make FOSS applications more feasible to adopt from the onset, and over the long-term, could also make it more likely that CeCs will use, if not create highly beneficial innovations.

For example, the CeC of the City of Calamba developed a program that allows the centre manager to control the use the workstations from the administrator computer, allowing him/her to easily determine the number of hours of use and the corresponding fee, and monitor compliance with CeC guidelines (such as disallowance of gaming or visits to pornographic sites). The CeC was able to do this because its personnel include three computer science graduates trained, among others, in FOSS applications.

- *Productivity Applications*

  Productivity applications such as document processing, spreadsheets, database processing, presentation maker, image/graphic editing and desktop publishing are commonly used in computer-related services of the CeCs.

  As stated previously, CeCs are free to use either FOSS productivity applications such as OpenOffice or proprietary productivity applications such as MS Office. The centre's budget, ease of use of the software, compatibility with other programs and equipment, and the demand of the clients should be taken into consideration in choosing the appropriate application.

Notwithstanding the above stated challenges posed by FOSS operating systems, users of CeCs generally find that the OpenOffice productivity suite have the same usability, function and interface on all of its counterparts as the MS Office productivity suite.

OpenOffice runs on both Windows and Linux platforms, and *the* key advantage of using OpenOffice is that it can be downloaded for free. This also makes it easy for government to deploy it, even in schools that are not yet connected to the Internet, through the distribution of CDs containing FOSS applications.

B. Sustainability and Funding Options

All the CeCs are subsidized in part by LGU funds. The budget for CeC's operational costs is included in the municipality's annual budget.

As such, two concerns arise. First, the operational budget provided by LGU is given on a year-by-year basis, making it difficult to develop long-term plans. Second, especially in election years, there is the possibility that a change in administration could see a lessening of support for the LGU.

It is therefore important that alternative funding options be found, preferably insulated from political whims.

Pay per Use

The obvious option for the CeC is to charge users on a pay-per-use basis. How and whether this option is exercised by the LGU is a function not only of competition (e.g., from Internet cafes), but also of the political context that it sees itself in.

Earnings can be used to help maintain CeC facilities, upgrade software, purchase new equipment and pay for personnel. CeCs could also try to set up a trust fund to assist with long-term sustainability.

Community residents may not understand why they would be made to pay for Internet access, particularly if provided within local government premises, and could be under the impression that such services should be covered by taxes already paid, or else are part of the services that LGUs should be providing anyway.

It requires a certain level of political will to charge fees in LGU-run CeCs, as well as a deliberate effort on the part of the LGU to educate their constituents on the need both for the CeC itself, and for the fees that will be charged for its use.

Thus, a number of CeCs provide its services for free to the community. A few ask for donations to generate revenues while the rest charge user fees either at same or a little lower than prevailing market prices.

In addition to Internet access, CeCs can also charge their users for services such as printing and photocopying, and for ICT training.

- *Effect of CeCs on Private Sector Investment and Competition*

  It should be noted that CeC actions, particularly in terms of pricing and striving for sustainability has a potentially profound effect on local investment and competition.

  In areas where the CeC is the pioneer, i.e., the first to provide Internet access in the area, its success inevitably encourages private citizens to set up similar facilities, having seen the CeC as a viable proof of concept.

  On the other hand, where Internet access is provided by both the CeC and existing Internet cafes, the LGU in effect competes with the private sector, but with built-in advantages. Generally, LGU-run CeCs are able to offer their services at a lower price because many of the costs are subsidized by the LGU, and some costs of the centre are shared by the LGU such as office space, staff compensation and utilities.

  LGUs need to be careful that they do not unduly stifle or discourage private sector investment in this area, although, to be sure, the demand for Internet access in the communities visited appear to be so great that private sector activity appears to have largely been unaffected (see Table 6 below).

Table 6 . Average Prices/Rates of Selected CeCs and Internet Cafes

CeC	CeC		Internet Cafe		First to be established	Effect of the CeC presence
	Internet	Printing	Internet	Printing		
Nueva Vizcaya	For free	No printing service	Php 30/hr	Php 4/page	Internet cafe	No crowding out of private investments as there is huge demand
Pinamalayan	Php 10/hr	Php 5/page	Php 20/hr	Php 8-10/page	Internet cafe	No crowding out of private investments as there is huge demand
Calamba	Php 10-students Php 12-regular	Php 3/page Php 6, if coloured	Php 20/hr	Php 3 (ink refill)	Internet cafe	The rates of Internet cafes were lowered due to competition

Barugo	Php 15/hr	Php 10/page	Php 15/hr	Php 15/page	Internet cafe	No crowding out of private investments as there is huge demand
Tanauan	Php 20/hr, Php 15/hr – students	Php 7/page, Php 5 – students	Php 20	Php 7/page	Internet cafe	No crowding out of private investments as there is huge demand
San Remigio	Php 18/hr	Php 5/page, Php 15, if coloured	Php 25-30/hr	Php 5/page, Php 30 – coloured	Internet cafe	No crowding out of private investments as there is huge demand
Maramag	Php 20/ hr	Php 5/page	Php 15/hr	Php 5-7/page	Internet cafe	No crowding out of private investments as there is huge demand
Bukidnon	For free	No printing service	Php 20/hr	Php 8/hr	Internet cafe	The rates of Internet cafes were lowered due to competition
Balingasag	Php 15/hr	Php 10/per page	Php 20/hr	Php 15/page	CeC	Internet cafes were established, the CeC created a demand for it

In sum, LGU-run CeCs do play constructive roles, even where Internet access can be provided by private sector-run Internet cafes by providing:

- A proof of concept model that could encourage the private sector to invest in similar facilities;
- Competitive challenges to Internet cafes, helping to keep prices affordable; and
- An alternative venue for citizens who may not be able to afford Internet cafe prices.

Private Sector and Non-Governmental Support

Private sector involvement could help augment funding requirements of the CeC. All the communities do have a substantial number of former residents who now work abroad. Not only are these OFWs more likely to have disposable income, many are also looking for meaningful ways to participate in Philippine development, and more immediately, in the progress of their communities of origin. Thus, the CeC of Barugo and Tanauan have been successful in obtaining donations from their community's OFWs.

Private sector participation is another source of support. The Last Mile Initiative has partnered with a number of private sector corporations, including Microsoft and Intel, to provide computers and software for some CeCs. San Remigio was able to obtain donations from Globe Telecom.

Voice over Internet Protocol (VoIP)

The formal deregulation of VoIP, and its classification as a value-added service opened doors for non-telecommunications companies to enter this market, and is now fueling an upsurge of increasingly affordable products for consumers. Globe, PLDT, Skype, Bayantel, Chikka, Mozcom and Pacific Inernet are just among the VoIP providers in the country. US-based Cisco Systems Inc. claims to have sold more than 4,000 VoIP phones in the market.

Provinces and rural areas in the country are also benefiting from VoIP facilities through the CeCs. A number of CeCs are offering VoIP services not only to enable families to call their relatives abroad, but also to generate jobs, assist OFWs and market its community as a tourist destination.

Other Fee-Based Services

CeCs can make additional revenues from other services such as CD burning and lamination of cards (for licenses, IDs, etc.). CeCs can also take advantage of CD writer/burners to record, store and distribute CDs to the community.

For example, the CeC of Tanauan compiles their folk songs in the CDs that are sold during fiestas and festivals to tourists and visitors as souvenirs. The CeC of Maramag has a laminator that is offered as a commercial service to preserve documents from alterations, spillage and damage. Identification cards of government employees are also laminated in the CeC.

Other equipment with revenue-generating potential include printers, digital cameras and photocopiers, which are in particularly high demand especially for CeCs located near schools.

C. Information Security

All CeCs that were visited were protected by anti-virus software downloaded from the Internet. Spyware, adware, Norton and AVG anti-virus software should be regularly updated by the CeC.

The CeC of Pinamalayan has an anti-virus software but as an added precaution, allows clients to save their work only on personal removable

hard drives, thumb drives or on CDs, and not on the workstation's hard drive.

D. Human Capital Development

CeC Managers and staff with formal IT background are likely to be more effective in the development of services of the CeC, including the development of the LGU website. Some of the best and most innovative CeCs visited (Tanauan, Calamba, Basak-Pardo and San Remigio) are managed by people who completed IT courses in college.

However, it is equally important that people designated as CeC Managers or as part of the staff of the CeC should have the skills to manage the CeC not only from a technical standpoint, but equally important, from the point of view of social sustainability. Will they be able to engage the community? What sorts of marketing and public relations strategies can they adopt to increase community awareness and use of the facilities? How do they determine appropriate pricing levels, if at all? How do they identify and take advantage of revenue-generating opportunities that are appropriate given the community's overall context?

High quality continuous training is also needed to ensure that the CeC managers and staff are capable of using technical resources effectively. A guideline or handbook on CeC operations should be developed to help ensure continuity in cases where key staff persons resign or are reassigned to other government positions.

Finally, community volunteers could be tapped to help out in the day-to-day operations of the CeC. To this end, CeCs should develop a programme for recruiting, training, retaining and rewarding volunteers. The CeC of Balingasag, for example, relies on a pool of volunteers to maintain the cleanliness of the centre, and provide customer assistance, in exchange for free ICT training and free use of computers at pre-designated schedules.

E. Location and Operating Schedule

The eLGU CeC Program requires LGUs to provide space for the CeC. Thus, almost all the CeCs are located within the premises of the municipal compound. This arrangement causes problems of accessibility for some CeCs that are far from the town proper. Ideally, to increase the likelihood of continuous community patronage, CeCs should be established on locations with heavy traffic of people, such as near schools or close to the town market.

Another factor to consider to ensure the sustainability of the CeC is its time of operations. As most of the CeCs are operated by LGUs and within the municipal building, they are usually open during office hours. However, users especially students can only access its services after their school hours. CeCs should provide more flexibility in its operations in order to reach more people.

One possibility is to limit the use of CeCs to students during school hours, and to open it up to the public – on a pay-per-use basis – after and/or on weekends.

F. Organizational Sustainability

As previously noted, the political nature of support given by LGUs for the establishment and maintenance of CeCs has a profound impact on the ability of the CeC, not only to sustain its operations, but also to plan for the long-term. Strong support from the local government executive makes life easier for the CeC. However, the relatively short terms of LGUs (3 years), make it difficult to plan beyond such period, as possible electoral changes in local governance could see a new executive who may not regard the CeC as a priority.

Local laws (to be passed by the Sanggunian or local government legislature) to:

- Establish and maintain the CeC;
- Form multi-stakeholder councils to provide supervision, monitoring and overall guidance; and/or
- Create ICT departments for the LGU

could strengthen the CeC as an institution, and insulate it from local political developments.

Thus, for example, the Nueva Vizcaya provincial LGU has an ICT department at the provincial level specifically mandated to help the province develop policies, programmes and collaborations with other organizations on the development of ICT.

In most cases, the LGU's Planning and Development Office is tasked to oversee, if not manage, the CeC. In such capacity, persons assigned to the CeC usually take on multiple concurrent roles, taking the role of CeC manager in addition to their other administrative positions with the LGU. This stretches their time and work, and compromises CeC management.

This is a reflection, not only of the LGUs limited funding and human resource, but possibly, also of the need for increased appreciation by the

LGU of the critical role of ICT in local governance and that they, therefore, need to consider assigning full-time personnel to deal with ICT, particularly CeC-related issues, if not setting up a full-fledged ICT department for the LGU.

The CICT has a key advocacy role to play in this regard – and could develop a strategy to reach out to, increase awarenes of, and provide training and logistical support for LGUs to train or hire personnel who can effectively leverage ICT for better governance and public service.

G. Community-Based Content Development

CeCs should tailor their services and offerings to suit the needs and character of their community.

For example, most communities would likely have a substantial need for services that can help prepare migrants for life overseas. CeCs can help prepare OFW by providing basic ICT training on how to use the PC and the Internet, to improve their productivity and enable them to communicate with people online. CeCs can build a database that tracks contact details, and monitors skills development (which can then be tapped to place them in appropriate positions if and when they return to the community).

If the community has an artisan community or a handicrafts industry, it can train its citizens on the use of online e-commerce sites such as eBay or Amazon.com, if not build its own e-commerce site.

As noted earlier, under the eLGU Program, CeCs are required to develop and manage their websites to include demographic and economic information, infrastructure, LGU programmes and projects, services, news and issuances, among others.

CeCs can also play a role in gender and development with emphasis on women and children. CeCs can build multimedia presentations on the rights of women and children that can be deployed through the website or an intranet system. Further, as noted earlier, women are active users of CeCs. CeCs can develop specific training modules for women in terms of using the computer and the Internet for improving livelihood opportunities, as well as increase their awareness of possible online fraud and mischief that, unfortunately, also exist in the online world.

To maximize participation of the citizens and communities, LGUs and CeCs need to make their websites more interactive. One of the reasons of low e-governance penetration is the lack of substantial and beneficial applications that citizens need and find useful.

For instance, it should be simple enough to enable commonly sought application forms (for birth certificates, business clearances, permits, etc.) to be downloadable from the website, as shown by the websites of Nueva Vizcaya and Pinamalayan.

Websites can also incorporate online consultations and interactive feedback features to encourage citizens to participate in policy making, planning, monitoring and governance.

CeCs can allow for inputs of citizens through online forums, community groups, emails and discussion boards. The websites of Tanauan, San Remigio and Basak Pardo allow constituents to post complaints on their websites through its guestbook and online forums. These complaints were then printed out and forwarded to the LGU. However, feedbacks or monitoring of the status of their complaints have yet to materialize.

It is also important to consider developing a version of the website in the local language. Relevant content using the local language can also be developed to further assimilate ICT into the daily lives of the citizens.

V. Conclusion

CeCs, as shared facilities, play an important role in bridging the digital divide, opens opportunities for improving the welfare of rural and unserved communities, and bring e-governance solutions closer even to remote areas.

The following table provides a summary of the sustainability considerations and possible initiatives that come into play in setting up and running a CeC.

Sustainability Attribute	Description/Recommendations
Business fundamentals ▪ Strategic planning	▪ Secure strategic location at accessible areas, either within the LGU premises such as inside the library, beside the mayor's office or at the LGU's business permit office, or outside the LGU beside schools or marketplaces. ▪ Develop strategic plan with all stakeholders including operations policies, marketing, financial and pricing management, staff manual, ICT course guidebook, user policies, monitoring and evaluation.
▪ Financial sustainability	▪ Develop pricing mechanism, to be approved by the Sangguniang Bayan taking into consideration cost of services, human resource cost, equipment cost, market prices, and at the same time balance fees with the capacity of community to afford CeC services. ▪ CeC services should not be priced substantially lower than prevailing market prices to cover costs of providing the service, and at the same time avoid crowding out private investments in ICT. ▪ Mobilize resources from other channels such as donor agencies, grant institutions, OFWs, tourists and migrant communities. ▪ Set up trust fund for CeC revenues and costs.
Organizational structure	▪ Identify local champion to ensure continuous support for ICT programmes. ▪ Establish ICT structures within the LGU, such as a separate ICT division inside MDPO or a department level ICT group. ▪ Establish an ICT steering committee that will develop all policies and guidelines. ▪ Engage community as advisory group for the CeC. ▪ Invest in continuous training of CeC managers and CeC staff on technical and managerial skills. Develop manual of operations/staff handbook for continuity of operations despite change of management. ▪ Engage volunteers as CeC staff.
Technology	Invest in appropriate and cost-effective technologies.
▪ Hardware	▪ At least four multimedia PCs with similar specifications as the People's PC to be augmented by refurbished units for

	tutorials, trainings, encoding, printing, etc. CeCs can also use network PCs that are more cost effective.
▪ Software	▪ Take into consideration budget resource, ease of use of the software, compatibility with other programmes, and the demand in choosing appropriate application. CeCs can use dual-boot operating system with FOSS productivity applications. Use FOSS CeC management solutions such as accounting, book keeping, automated logon account applications, etc.
▪ Productivity applications and equipment	▪ Document processing, spreadsheets, database processing, presentation maker, image/graphic editing, desktop publishing and VoIP should be available. Other equipment should include photocopier, digital camera, scanner, VoIP stand alone units and webcams.
▪ Information security	▪ Use FOSS or proprietary anti-virus and anti-hacking programs. Develop user policies to maintain information integrity such as no downloading of executable files, no using of diskettes, scanning and sharing policies, etc.
Content application	Promote the development of, and access to appropriate and relevant content to encourage the community to utilize the CeC, and more specifically, to understand and appreciate how the CeC can get them closer and more involved in e-governance. ▪ Provision of useful e-governance services such as downloading and online delivery of applications (e.g. birth certificates, business permits, etc.) ▪ Telemedicine applications, not only for direct medical diagnosis or treatment, but also through the development of online materials designed to provide the public with greater awareness of preventive initiatives as well as first aid. ▪ Promotion of e-commerce. ▪ Use of ICT for education, both to enhance teacher qualifications and skills, and to provide students with access to a wealth of information. ▪ ICT training in content development. ▪ Tutorials.

The set up and deployment of CeCs are not simple matters that merely require providing equipment, software and Internet connectivity. The approach has to be holistic and community-based.

Programmes and capacity development initiatives have to be put into place so that the CeC, wherever it is placed, is operating in a sustainable manner. It must provide relevant and useful services, content and products that community residents would be willing, and able, to pay for.

Finally, given the relatively limited number of CeCs surveyed, as well as the fact that experience is really in its nascent stages, the conclusions and observations made

here are, at best, preliminary and sometimes intuitive. Nonetheless, it is our hope that this paper will be helpful, especially to the national and local governments, as they set up and address sustainability issues pertaining to CeCs, and they explore the viability of and possibilities for other more advanced applications and services, including e-governance, through these shared facilities.