Project Report
ICT-enhanced GNH Society in Bhutan

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プロジェクト報告
ICTで実現するブータンのGNH（国民総幸福）社会

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ABSTRACT

In 1970s, the great Fourth King of Bhutan noticed economic wellbeing does not usually result in an equitable society. His Majesty envisioned the need of a development philosophy to balance economic development with the emotional and spiritual wellbeing of the people. Therefore, Gross National Happiness（GNH）was prioritized as the development philosophy rather than Gross National Product（GNP）soon after his enthronement in 1972（Thinley, 2005）.

Today, GNH as a developmental paradigm is seriously implemented in all areas of development including higher education and Information Communication Technology（ICT）. ICT can affect the achievement of the component goals of Gross National Happiness, both positively and negatively. The concept of ICT-enhanced GNH society has become an interesting aspect of Bhutan's progress towards the goal of GNH.

要　旨

ブータン王立大学シェルブシェ・カレッジと本学との大学間交流協定に基づいて、2016年2月5日に東京文京学習センターで実施した公開講演会の講演を演題にそってまとめる。放送大学教育振興会助成金プロジェクトの3年間（2013年-2015年）の成果報告書である（**図1**）。

1.　INTRODUCTION（Wangdi, T.）

Bhutan is located in southern Asia between China and India. Bhutan has been fortunate to be ruled by five selfless kings, and the present king is His Majesty King Jigme Khesar Namgyel Wangchuck. The form of government since 2008 has been **Democratic Constitutional Monarchy** and Bhutan has had so far two prime ministers. Bhutan has a population of approximately 776,600（World Population Review, 2015）. There are 205 Gewogs（Group of Villages）and 20 Dzongkhags（Districts）in the country, Thimphu Dzongkhag serves as the capital of Bhutan.

In 1972, the Fourth King of Bhutan noticed economic wellbeing does not usually result in an equitable society. Bhutan needed a development philosophy to

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balance economic development with the emotional and spiritual wellbeing of the people. Gross National Happiness（GNH）was prioritized as the development philosophy rather than Gross National Product（GNP）.

"Gross National Happiness, as the guiding philosophy of Bhutan's development process, was pronounced by His Majesty King Jigme Singye Wangchuck, soon after his enthronement in 1972."（Thinley, 2005）GNH is a holistic, comprehensive and a balanced approach to develop and it is being carried out through the four pillars, nine domains and thirty-three indicators（**Figure 2**）.

This report is an outcome of the joint work done in collaboration with the Open University of Japan, Chiba Prefecture and Sherubtse College, Royal University of Bhutan. The content of the report are personal reflections arrived at through review of articles and online journals and not thorough researched work. The team from Sherubtse College would like to acknowledge the Management of Open University of Japan and Professor Akinobu Kawai, Professor Makiko Miwa, and Professor Tsuneo Yamada, Open University of Japan for the wonderful opportunity and financial support for the project. The interaction during the presentation at Japan was an eye opening experience for the team.

2. Higher Educations and Gross National Happiness（GNH）in Bhutan

Higher Education in the form of the Royal University of Bhutan was formally founded in 2003 through the Royal Charter issued by the fourth Druk Gyalpo, His Majesty Jigme Singye Wangchuck. The Royal Charter decreed that the Royal University of Bhutan be founded to provide, through the dissemination of knowledge and the advancement of learning and the granting of awards, for the economic and cultural development of the Kingdom of Bhutan and to promote the cultural enrichment, personal development and the wellbeing of its people. The University's vision reflects as "An internationally recognized University steeped in GNH values". The University's vision and mission reflects the philosophy of Gross National Happiness as envisioned by our great Kings and articulates the nation's unique voice in its effort to preserve and promote the rich and unique natural, cultural, social and spiritual heritage. The Royal University of Bhutan, which represents the ideology of higher education, is a powerful tool to preserve, transmit and advance knowledge on GNH.

The essence of happiness and wellbeing has always been an important aspect of Bhutan's development philosophy. In 1970's, His Majesty King Jigme Singye Wangchuck, the great Fourth Druk Gyalpo gave a new insight into our development philosophy by clearly mentioning the intention and the importance of wellbeing and happiness and further states that, if the government cannot create happiness for its people, then there is no purpose for government to exist （**Photo 1**）. It is interpreted to suggest that the resources of the nation or state should be designed to promote wellbeing and happiness in simple terms. It is a new perspective to development models in the light of local values and local knowledge. In 1960's when Bhutan started the five year development plans, we had to rely heavily on outside experts to frame our government policies and implement them. But all or most of these experts had a weaker anchor in the values and tradition of our country, which often overlooked a universal desire, happiness and peace which were more important to the Bhutanese people than materialistic enhancement.

In 2008, our Fifth Druk Gyalpo, King Jigme Khesar Namgyel Wangchuck, gave a different dimension to the philosophy of Gross National Happiness by putting it into our constitution as a development paradigm. His Majesty the 5th Druk Gyalpo clearly expressed that while the philosophy of GNH is inherently Bhutanese; its ideas have positive relevance to any nation, community or peoples. The concept of GNH as a development philosophy has evolved into a national conscience, and is a bridge between the fundamental values of kindness, equality, and humanity and the necessary pursuit of economic growth such that it helps the nation in making better and wiser decisions for the wellbeing and happiness of all Bhutanese. During my recent visit to Sado Island in Japan, courtesy to Open University of Japan. I was explained Sado experienced a sudden economic boom during the Edo era when gold was found in 1601 at Aikawa. A major source of revenue for the *Tokugawa shogunate*, the mines were worked in very severe conditions. Today, Sado is an important tourist destination and home to the Japanese crested ibis （**Photo 2**）. Although the population is in decline due to rural urban migration, Sado is a very good example of which I presume to be a GNH Island. There is a consistent pursuit of economic growth through use of technology and modern ideology while asserting happiness through the preservation of local traditional knowledge and environment. People are content and the idea of GNH is pursued very much by the local people.

Although Bhutan's higher education system started very recently（2003）, many aspiring Bhutanese went to Sherubtse College, the only degree College for many years, which was affiliated to Delhi University and some went abroad to pursue higher education. Apart from these people, those who enrolled in Monastic education system and other forms of informal education acquire many vital values and principles outside of formal education institutes. T.S Powdyel（2004）notes："Our myriad humble homes and hamlets have been our university of a special kind to［t］each us the timeless lessons of humility and tolerance, the power of love and compassion, the need to care and share, the laws of action and consequence, the essence of simplicity and the value of *thadamtsi*, the love of our sacred institutions, and the goodness of humanity." Although our modern higher education system had a strong outside influence as we had to connect to the outside world, there is, still in our curriculums, a strong inherent influence from our local lives and ideals. Similarly, most of the curricula are developed along holistic lines, to incorporate deep critical thinking, indigenous knowledge, local wisdom, contemplative education, sustainability education and eco-literacy into their teaching. Through these aspects and more, the University is working to fully transform and embody and reflect GNH values and principles as seriously pursued in the key aspirations："Use GNH values and principles as the educational foundation for the University's programmes."

An important aspect and responsibility of the University is to "To build an adequate pool of motivated, dynamic and qualified human resources" T. S. Powdyel（2004）aptly puts "... knowledge will decide the quality and destiny of nations." The kind of knowledge and education that we transmit will dictate the outcome of our citizens tomorrow. Enhancing the quality of learning and teaching is a crucial factor for ensuring employability. The University ensures that its graduates are not only employable within the country but are also readily absorbable in the international job market. The University is also required to graduate students who would not only look for jobs but create jobs as entrepreneurs, since the private sector is still nascent and employment in the public sector is limited. Beside generation of employment the University also looks towards graduating students who are better prepared to carry out further studies, contribute to society/nation building, meaningfully participate in democracy and emerge as global citizens. But most importantly the University ensures to produce graduates who can balance economic development with environmental conservation, uphold their culture and tradition, be conscious of the use of resources and good governance. Therefore, the University consistently focuses on enhancing the quality of teaching-learning and relevancy of its programmes based on GNH philosophy.

Besides these values, our students learn many other knowledge and skills, which are very essential to day-to-day living such as arts and crafts, outside of formal educational institutes. Promoting holistic life-long learning in Colleges, including vital literacies required for wellbeing, such as ecological, civic, cultural, health, nutrition, science, financial, and other literacies is an integral part of GNH philosophy to promote wellbeing and happiness. Such education contributes to the knowledge, values, creativity, skills, human capital, and civic sensibility of citizens. It strongly boosts a nation's economy and enables efficient and wise decision-making. Education qualification is found to positively impact the quality of life experienced by people although the degree of impact differs across countries（Doh S. Shinn 1986）. As a GNH University, it is vital that the programmes, and other related activities of the University fulfils a balanced need of the body and the mind within a peaceful and secure environment.

One of the main goals of the Royal University of Bhutan is to "build a culture of development oriented and policy relevant research that will enhance sustainable wellbeing and happiness." The University can play an important role in enhancing GNH through research and dialogue on the causes and conditions of happiness. By carrying out research which is of social relevance and impact, the University can contribute in making policy change and informed decision in various agencies and ministries.

Research is one of the core functions of a University in Bhutan. The Royal Charter mandates the University to promote and conduct research, and to contribute to the creation of knowledge of relevance to Bhutan. To reiterate this mandate and to enable the strategic development research in the University, the Department of Research and External Relations（DRER）was established in 2005 and it was entrusted with the task of promoting research in the University. The Institute for GNH Studies（iGNHaS）was established in 2013 as an independent, inclusive, interdisciplinary, secular, and non-partisan research think tank that will engage in high-impact research, provide trainings, and organized national and

international research events, and promote quality publications.

The Royal University of Bhutan which is the representative of higher education in Bhutan has an important role to play in promoting and furthering the concept of Gross National Happiness. As T.S. Powdyel puts is "The Royal University will serve our society's interests best and promote happiness if it aims at raising the intellectual tone of society, of cultivating the public mind, at purifying the national taste, at supplying true principles to popular enthusiasm and sobriety to the ideas of the age, at facilitating the exercise of political power, and refining the intercourse of private life".

2−2．ICT in Higher Education and GNH

In Bhutan, formal education only started in 1961 when the first development plan was implemented by the kingdom till then the education system was mostly in religious practices. During that time with no proper roads and access to different part of the country was hard; the radio was the only option, which only came in 1973, that was ten years after telecommunication network in Bhutan started. It took another 11 years for computer and technical services to be introduced in the kingdom. That was the basic computer, the first computer in Bhutan arriving in 1984. The most influential ICT technology, internet and television came into Bhutan only in 1999.

It was only recently that the government has put an earnest effort to instill ICT-integrated pedagogy in education. The ICT pedagogy is in a very early stage, so it has drawbacks, such as, this is in regard to my country, drawbacks with regards to unreliable and very slow internet speed, lack of adequate resources, lack of training in ICT-integrated pedagogy. For example, most colleges under our university use VLE, a virtual learning environment, based on Moodle, and that's a part of the ICT-integrated pedagogy, but this VLE is confined to just work plans, model descriptors, and uploading assignments. That means the teachers or the students don't have any interactive use with this. It's just a platform where faculty or teaching staff show the work to the students and give the model descriptor of the subject and has the option of uploading but there are many other facilities or features, which are still not used. Although most of our faculties use VLE, but the usage is not that interactive as it should be. The ICT-integrated pedagogy is a mode which would make the delivery of lessons more efficient, but due to constraints, like slow internet speed,

inadequate resources, and training, the motivation level for faculties is very less and they don't take the trouble of making the learning process interactive or exploring the learning environment.

The four pillars of GNH are good governance, sustainable socio-economic development, preservation and promotion of culture, and environmental conservation. The focus of the government is to enhance GNH by building a knowledge-based society empowered by ICT. That approach is what the government is taking as a dual mode where the first is to further efficiency building measures through ICT and the second would be to develop ICT related sectors for exports and local consumption. The sectors that fall under this are data centers, design enabled services (specifically animation), non-voice BPOs and Media and films. The current projects which the government is implementing are to have more IT literate people. It's a project where every school, is provided with computers and some instructor to teach basic computer skills. The next would be the customer information center or the citizens' information center which we will have in every district in the country, so that people have proper information being shared from government or they can send a request to the government. The other push the government is trying to make is to have data centers as Bhutan has potential for electricity production due to the numerous rivers. It is planning to have many data centers so that it can outsource the data centers for use, and other services such as animation which is in the stage of its infancy. There is a set of rules by the government or a set of aims that the government hopes to gain from ICT, so now I'll talk about what the ICT's role is with the four pillars which we had seen, the good governance, sustainable economic development, preservation of culture, and environmental conservation.

ICT for good governance and having good governance, as was mentioned earlier, is very important with regards to GNH for the overall development of the country with the proper GNH philosophy. Here ICT would firmly be helping in having transparency and accountability, to be more effective and efficient in the working of the government, and to have a citizen and business centricity that is like you have. What we have previously is the community information centers, and we also have business-to-government services. All this would normally be under the citizen and business centricity. And the other one is the citizen participation and engagement. These are the four major roles that ICT would play with regards to good

governance.

For sustainable economic development, the government assumes that ICT is a key enabler where ICT should be a ubiquitous, affordable, and reliable ICT structure, investment-friendly environment, vibrant sustainable ICT in industry, and business leveraging ICT for competitiveness and innovation. Just to explain in brief about this point, the government believes that ICT should be everywhere. It should be affordable, and it should be reliable to have proper sustainable economic development. The environment, or the ICT-created environment, should be investment-friendly and very vibrant and sustainable industries should be there in the country.

ICT enabling shared national consensus is to reflect the importance of building and preserving a common national identity. Promoting, evolving and preservation of culture, conservation of the environment, ICT lifestyle, ease of access to information, and learning and responsible society, so ICT in this regard, the national (conscience) should have a lifestyle, a ICT lifestyle, where it shouldn't be drifted away from our current lifestyle. We shouldn't try to go and adopt some different lifestyle. Though ICT has penetrated the world's society, we should still have to maintain a different or a unique society. The ease of access to information should be accessible by everyone or every citizen of the country (**Photo 3, 4**).

In a Learning and responsible society, you should be responsible of what you have learned and what role you play in the society. When ICT is there, the learning process and a responsible society should be generated. Having ICT penetration in your place/society, we should not forget the current/past culture we have. We should try to preserve and at times if there must change, we should never be rigid and there must be a time where you have to evolve, so evolving should be there while promoting your culture. Without environment consciousness, we in Bhutan who keep pride in having 70 percent of our country under forest cover should always keep that in mind about our environment when using ICT. We can choose to enhance environment conservation with the help of ICT technologies.

Now that we have proper ICT technologies in place and identified the problems, the University is now gearing up to enhance the ICT-integrated pedagogy in our college, which would in turn benefit the philosophy of GNH of my country (**Photo 5, 6**).

2－3. Role of Community Information Centers（Geog Information Centers）in GNH

According to a survey done by the Ministry of Labour and Human Resources in Bhutan in 2015, it was found out that 69.5 percent of the Bhutanese population lives in rural areas. 79 percent of the population practice agriculture, so going by the holistic vision of Gross National Happiness, bringing development to the rural community is very much a priority for our country, basically because a well-informed society is a happy society. Access to information is the key to improve the living conditions of people anywhere, be it in urban areas or be it in rural areas, and the Bhutanese government has focused its priorities in uplifting the living standard and uplifting the social standard of people living in rural communities, and also to promote integration of isolated communities into the global economy.

The Bhutanese government has established community information centers（CIC）to enable people to get easy access to information and public services within a minimum period of time and under less expenditure. Community Information Centers were first launched in 2011 in Bhutan, and currently there are now 195 community information centers, which were built at a cost of Ngultrum 290.2 million, and it is spread across 205 gewogs in Bhutan, and it was built under the funding of the government of India（**Photo 7**）.

Previously the community information centers were managed by the Bhutan Post, since December 2011. But in March 2015, the management of the community information centers was handed over to Bhutan Development Bank. This move was done because the government felt that the first priority to rule people was if the government could give financial access to the people. Bhutan's idea of CICs is not just to cope up with the changing scenario of the word. Bhutan looks into using CICs as an e- service provider of public service within a minimum period of time and without the people having to incur much expenditure for the various public services（**Photo 8**）.

The 21st century is a knowledge-based society and there is this huge race among different countries of the world searching for new ways or new methods of using ICT to meet socio-economic development and to take part in the global economy. Bhutan too looks forward to be very much a part of this newly developed world economy, but Bhutan does not just look at developing the economy but a very holistic form of development guides Bhutan. Bhutan's idea of having

or establishing community information centers is not just to join the race that the world is in, but more it is to cater services for the people. People here, are not just people living in urban areas because the rural population of Bhutan is very much a part of the Bhutanese population. Bhutan does not want to neglect its rural population. Thus, the community information centers in Bhutan are built to become e-service providers of public services within a minimum period of time and to help people not to incur so much expenditure for various public services. Bhutanese developmental philosophy looks at a paradigm of focusing on the wholesome development of urban and rural areas of Bhutan. The geography of Bhutan makes access to information and delivery of services a very slow process as most of the villages are far from the district head quarters. The difficulty in accessing information and public services can lead to rural-urban migration resulting in various kinds of socio-economic problems. There are certain villages that are two to three days away from the headquarters. People have to travel all the way for two to three days to the headquarters just to get a license, a trading license, so much time, so much energy, so much money is wasted. The CICs were established in different gewogs in Bhutan so that delivery of public services can be done in a shorter period of time and that people do not have to travel all the way to the headquarters to be able to access information and services. CICs provide information and access to public services within a day's time.

Recognizing use of ICT is seen as an important method in developing the rural part of Bhutan. The question then was, how do to use ITC for the development? Most people in the villages have no idea about using the computers or the Internet. This problem was solved by the construction of CICs, the operation of CICs, where CICs become the one-stop shop for people to get access to ICTs. CICs perform as service providers or the point from which people can get access to information and public services. The CICs provide offline services printing, Lamination, Scanning and Photocopying. The CICs also provide **Government to Citizen (G2C)** services and financial and banking services to trade. The CICs act as Operating Service Points to make public delivery system effective by providing one-stop, online access to information and services. G2C services are available through the CICs, which reduces time and expenditure. The services provided are Birth registration, Household information issuance, Micro trade license, Retail trade license, Security clearances and Banking services.

Through the services they provide, the CICs play an important role in contributing to the fulfillment of Bhutan's development philosophy. Rural Empowerment and community vitality can also be achieved through information dissemination and delivery of services. The Government on the other hand becomes aware of the needs of the rural community, which helps in forming policies that would bring development in the rural parts of Bhutan. It also helps in reducing waste of resources and man power. In July 29, 2014, the National Assembly Speaker in Thimphu met his constituents who were seated in a Community Information Center in Mongar (a district that is two days journey from Thimphu) through video conferencing. In June, 2015 the first batch of 26 Community Center Operators (CCO) were trained in enhancing their ICT skills in using Virtual Zomdu (community meeting) organized by the UNDP and the Ministry of Information and Communications.

Through the CIC, the rural community can acquire information on various issues and do not have to embark on an experimental journey of urban life. The CICs offer financial services through the Bhutan Development Bank, where the farmers can get loans for small-scale business and agriculture. This would bring in changes in the trading pattern of the rural areas. They can invest in producing and showcasing indigenous products, which can promote tourism. Agriculture can also be developed which would help in reducing the over use of environment for industrialization. Income generation and saving can also be done in the rural communities helping people to realize their social status and financial status. The access to information and access to public services will not force people to travel all the way to urban areas, which would keep village life intact. This would conserve and foster community vitality, cultural identity, and different indicators of GNH can actually be achieved by the true existence of CICs. Bhutan's development philosophy is a holistic approach striving for an overall development of the country and its people. Information sharing and efficient delivery of services to the entire through the CICs will help in building a happy society through sustainable and equitable socio-economic development and promotion good governance.

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Communication Networks

Digital communication infrastructure in Bhutan is the fiber optic network, developed by The Japan International Cooperation Agency（JICA）based on the Project for Development of Domestic Telecommunication Network in the Kingdom of Bhutan（1991-1997）, in response to the request of Bhutan government represented by the Ministry of Communication. The Ministry has promoted the expansion of the telephone networks in rural areas based on its own efforts. Mr. Tshewang Gyeltshen, the president of Bhutan Telecom presented the following structure of communication infrastructure operated by the company：

• Following three services are provided：
  1. ISP：a broadband optical fiber network service build by the aids of JICA.
  2. Mobile：personal network for 60,000 household（66% of all households in Bhutan）, which caused a 3G problem of delayed download last year, but improved recently by expanding the line.
  3. PicLine（a low-speed Internet）：the "Fiber to Home" project to attempt a fiber-cable line to each household nationwide, but failed. Currently, cable TV is used in a restricted region.
• Wealthy people set up parabola satellite for cable TV, which is currently used for Internet connection.
• The problem should be resolved in 2016 by the International communication network of SAC（5.3GB）. The connection will be switched from Hong Kong to Singapore, which is also connected to England.

• The optical fiber network at Gewog has been expanding from 1GB to 21-42GB.
• Current uses of communication network is 3% for voice and 40% for data.

Cellular Phone

Education is provided in English language from elementary school in Bhutan. The Internet site of the communication provider is in English. The government body responsible for broadcasting and communication networks is the Bhutan InfoComm and Media Authority（BICMA）. Number of cellular phone users are 428,000 in September 2011（coverage is 61% of the population）.

Major providers of cellular phone

1. B-Mobile（a member of Bhutan Telecom Group）
• Market share：76.4%
• Integrate service of fixed-line phone and broadband service.
• Provide cellular phone service since 2003.

2. TashCell（Operated by the Tash InfoComm of Tash Group）
• Market share：23.6%
• Provide cellular phone service since 2007.

Community IT Center

• Offer all kinds of community service online（pay）
• Convenient service for obtaining police certification required for entrepreneuring
• Two PCs are allocated in each community IT center. One for service personnel and the other for users.
• Service personnel help first-time users how to use PC to access required services.
• Service personnel acting as intermediary for low ICT literacy people.
• Special computer terminal is located outside the office for children. Experienced child teach unexperienced ones.
• The Community IT Center was initially operated by the Bhutan Post, but transferred to the Bhutan Development Bank.
• G to C website
  • Accessible to all kinds of certificates online.
  • Community members have readily accessible to the site and the cellular phone.
• Villager Viget：a free telephone service which help community members start using iPhone.

e-Learning at School

• A husband of Japanese woman provide voice com-

mentary for tourists in English, Japanese, and Thai languages.
- A woman of an American NGO (Giff Office) support distance learning school.
  - Distance courses using Skype.
  - Unsuccessful in Papua New Guinea but succeeded in Bhutan.

Adult education
- Provided by the Non-formal Education Center

ICT in the Royal University of Buhtan (RUB)
- Applicants submit required documents online, RUB examine these documents and inform the results to the applicants by e-mail.
- Course registration is done using a university-wide online system.
- A university-wide TV conference system is placed using the financial aid of the world bank. This system is used only for conference (not for course provision).
- Virtual Learning environment (http://www.rub.edu.bt/images/criteria2015.pdf) is operated by each campus separately.

ICT at College of Natural Resources (CNR)
- There is an IT assistant (female) regularly staying in either PC classroom (27 Windows PC), server room, or PC laboratory (30 windows 7 or Windows XP) which are always accessible for students.

ICT at Sherubtse College (Photo 9)
- There are 8 computer laboratories. One is for general IT training and other 7 are for IT major students. 7 computer laboratories are equipped with Microsoft PC, and one computer laboratory is equipped with Macintosh PC.
- OPAC of the library is using GOHE (an open source software).
- Virtual Learning Environment (VLE) is a Moodle-based learning material.
  - Each campus operates its own VLE independently.
  - SOUSI (for teacher education) deliver courses through Internet, but examination is performed on campus.
- SASSEC (South-east Asia Sub-reagional Economic Corporation): a platform for delivering courses to support farmers operated by a consortium of South Eastern universities supported by fund of Asian Bank, and deliver the following courses by 7-8 instructors. (http://sasecrtndl.cst.edu.bt/).
  - Accounting

- BHU104.7 Organic Farming : (consists of 45 minutes x 16 classes).
- Election Online, a 6-unit course for local government officers who are responsible of elections, developed by the government and instructors of Sherubtse College (www.election-bhutan.org.bt/)
- Students course registration uses a system operated by the Royal University of Bhutan. This system is independent of the VLE.
- Students can send application using e-mail (http://www.rub.edu.bt/images/criteria2015.pdf)

Based on the study reported above, we confirmed that the development of online courses in collaboration of OUJ and Sherubtse College is feasible. The communication infrastructure required for online delivery of courses outside the Sherubtse College campus is also maintained.

4. Collaborative development of e-textbooks and MOOC on GNH Society between OUJ and Sherubtse College (Yamada, T.)

4-1. OUJ MOOC
The Open University of Japan (OUJ) launched Japan Massive Open Online Course (JMOOC, http://www.jmooc.jp/en/) Consortium in November 2013 as a regional MOOC consortium with other Japanese universities and corporates. As of October 2016, JMOOC had four official platforms, "gacco" (http://gacco.org/), "OUJ MOOC" (https://www.facebook.com/oujmooc/), "OpeN Learning Japan" (http://open.netlearning.co.jp/), and "Fisdom" (https://www.fisdom.org/). "OUJ MOOC" is a multimedia e-textbook taste platform developed by CCC-TIES Consortium and managed by OUJ (**Figure 3**).

The architecture of the OUJ MOOC platform is shown in Figure 1. Considering the use in developing regions, we adopted a combination of e-textbook (specifically, e-pub 3.0 and iBook), traditional LMS (Learning Management System, specifically, Moodle) and several social networking services (SNS). As some functions of e-textbooks can be used without connecting with the Internet, it was considered as a better solution especially in developing countries. We chose "CHiLO Book" system (Hori, Ono, Kobayashi & Yamaji, 2013), which was developed by CCC-TIES.

Each learner visited the online store or our server to download a series of the e-textbooks or Web content and studied independently using an epub viewer or a web browser. The results of various quizzes and exercises were stored in the database of LMS. In addition

to Moodle, a couple of SNS such as Facebook™ and Google™ were used for user identification and learner community maintenance. Using "Group" function of Facebook™, while the provider can identify each user, the learners can ask questions, exchange ideas and share the knowledge among the community. In the video-embedded e-textbooks, while the users watched videos without the Internet connections, it took more time to download. On the other hand, we developed the video-streaming version in which YouTube™ was used for video delivery. Using the "Mozilla" Open Badge system, we issued a "small" badge in each lesson and finally gave her/him a certificate when had collected 10 small badges（cf. Yamada, 2014a：Hori, Ono, Kobayashi, Yamaji, Kita & Yamada, 2014）. In some countries, some SNSs are not available and the registration and participation were limited.

Developed/developing MOOCs in international contexts

OUJ-MOOC platform is aiming at a multilingual platform. OUJ released "NIHONGO（Japanese）Starter A1 Part 1（English version）" and developing several agriculture courses in Persian context.

"NIHONGO Starter（A1）" is an English course for non-native speakers of Japanese who learn the Japanese language from the beginning. The MOOC is the first English course released by JMOOC, which targeted on overseas users. "NIHONGO Starter（A1）" is based on the JF Standard for Japanese-Language Education（http://jfstandard.jp/pdf/jfs2010_all_en.pdf）. The standard was developed by the Japan Foundation（JF）and has common definitions for six levels of language proficiency with CEFR（Common European Framework of Reference for Languages）. The MOOC is a short course of ten lessons and corresponds to the first part of Level A1 of the JF Standard for Japanese Language Education. Each lesson has two to four 'Can-dos'（competences）. The estimated learning time is 45 minutes per lesson.

From April 2014 to August 2016, we ran eight classes with the identical syllabus and course materials The total number of the registrants was 5039, which includes some duplication, although the averaged drop-out rate was more than 90 percent.

4-2. MOOCs on GNH Society

Based on the materials used at the OUJ seminar "ICT-enhanced GNH Society in Bhutan"（5 February 2016, OUJ, Tokyo）, we developed a series of four e-textbooks in April 2016. After the revising the content, we plan to remake the content into a MOOC. It will be released by the end of FY 2016（that is, March

2017）from OUJ-MOOC（**Table 1**）. We have two major objectives：The first is to disseminate the philosophy and practices of GNH to the world using MOOC：The second is to examine the possibility of some common platform for the joint online courses between OUJ and Sherubtse College.

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5. Open Distance Learning toward GNH Society（Kawai, A.）

Bhutan has undergone major political changes with the adoption of the Constitution of the Kingdom of Bhutan and first Democratic Parliamentary Elections held in 2008（Gross National Happiness Commission：iii）

Section 2 Article 9 of the Constitution is Principles of State Policy. It writes that the state shall strive to promote those conditions that will enable the pursuit of Gross National Happiness. This implies the nation building of GNH society within the framework of Constitution.

Section 1 Article 22 on Local Government writes that power and authority shall be decentralized and developed to elect Local Governments to facilitate the direct participation of the people in the development

and management of their own social, economic and environmental well-being. Bhutan Local Government comprises of 20 Dzongkhags which consist of 205 Gewogs. Gewog is the nearest state administration and the elected highest decision making body for people.

In 2011 first local government elections were held. Four years after the election, Gross National Happiness Commission (former Planning Commission) published Evaluation Report entitled Local Government Support Programme (LGSP) in Bhutan.

The very potential importance of newly introduced Communication Centres (CCs) at gewog are pointed out thus :

Public services and information delivery is a vital area that requires further attention in order to achieve the expected outcomes of the programme. It was found that LGSP made a marginal investment in this sector. However, effective coordination and synergy with parallel projects enabled the establishment of CCs that had initially started off as CICs (Communication Information Centres) (Gross National Happiness Commission : 4).

It is noted that the establishment of CCs play a very important role in public services and information delivery. Ministry of Information & Communications published "Bhutan e-Government Master Plan" in 2014, where ICT Vision is written as follows :

ICT Vision is positioned as a foundation for Gross National Happiness (GNH). It focuses on human capital investment and recognize information and ICT as key tenets of good governance, social and economic development in Bhutan. Education becomes as a high priority as Bhutan builds **a society that learns to learn.**

The three desired outcomes in order to realize ICT vision are as follows :
ICT for Good Governance ;
ICT for Bhutanese Information Society ; and
ICT as a Key Enabler for Sustainable Economic Development.

Here education is used in a broad sense including non-formal as well as formal education (**Photo 10**). It is worthy of noting that a gewog is becoming a focal point of capacity development (Gross National Happiness Commission) for local governance through participation.

ICT for Sectoral Transformation

ICT is recognized as an engine for social and economic transformation. ICT Vision identifies initial five sectors for ICT sectoral trabsformation. They are Education, Finance, Health, Agriculture and Tourism. ICT for Education and ICT for Agriculture and Forestry are to be noted (Bhutan e-Government Master Plan)

ICT for Education

With the education of an ICT integrated teaching and learning environment, the education sector will use ICT as a tool to equip teachers, educators and students with the competences and wide range of readily-available ICT resources. The application of ICT will transform the education practices in the country. Description of the initiative to develop and implement the ICT Masterplan for Education can be found under Outcome : ICT for Bhutanese Information Society.

ICT for Agriculture : Strengthening ICT Infrastructure and Capacity at Gewog

Since the frontline extension agents in Bhutan and as the agents for the transfer of RNR information and technologies, ICT should be strengthened especially at the gewog level to maximize the utility of RNR ICT services. This will require the establishment of connectivity to the gewog RNR centres and building the ICT capacity of the gewog extension agents (agriculture. forestry and forestry). Since the infrastructure back bone is provided by MoIC, the RNR sector will focus on last mile linkages. i.e., final leg of the telecommunications networks delivering communications connectivity to the actual users. The ICT capacity of the gewog extension agents will also be looked after by providing trainings on computer and network know-hows, functionality of the RNRKMS, G2C (Government- to-citizen) services and other RNR services.

ICT for Bhutanese Information Society

ICT is changing the way individual and societies function. In Bhutan, the Government has priotized ICT as an important enabler of **information-based society that learn to learn.** The Government has been mandated to create an informed society bonded by shared national consciousness.

Goals that are identified to achieve this desired outcome of an Information Society are :

1) A Learning Society

By using ICT as an interactive medium to promote learning, the Government could include the mindset of **"learning to learn"**, with the advantage of learning from any place at any time.

2) Equal and easy access to Information

3) A Nation that embraces ICT life style

4) Preservation and Promotion of Evolving culture.

5) Enhanced Environmental Consciousness.

OUJ Experiences（OUJ：6）

The Open University of Japan（OUJ）was founded in 1983　by the Open University of Japan Foundation, under the auspices of the Ministry of Education, Culture, Sports, Science and Technology, and the Ministry of Internal Affairs and Communications. It is an accredited educational institution open to all the people in Japan. OUJ utilizes broadcasting media and other means for new and effective ways to meet the needs for **lifelong learning**. The objectives of the OUJ are to provide a wide range of people with opportunities for obtaining higher education and to promote broadcasting media and other innovative means of education for universities and other higher education institutions. OUJ has grown to become the **largest distance education institution** in Japan.

OUJ has 50 **Study Centers**（4 in Tokyo）, **7 Satellite Spaces** and 70 **Audio-visual Rooms** throughout Japan. The Study Centers are used for conducting face-to-face class sessions and credit certification examinations. In addition, tutorials, and academic counseling are offered there. There are facilities for students to view or listen to broadcast lectures, and library services are also provided at the Study Centers. They also function as venues for students to hold extracurricular activities and friendly exchanges. The Study Centers are located on campuses of public/private universities or in facilities of municipalities. The Satellite Spaces and Audio-visual Rooms are stablished for giving easier access to the above mentioned facilities to those students who live far away from the Study Centers in their prefectures. In comparison with OUJ lifelong learning system for Japanese, Bhutan has options（**Table 2**）. Bhutan has enough potential to build learning society through ICT Vision. Among colleges under RUB, networking through ICT was constructed. When some leading colleges like Sherubtse College start online courses, Community Centres at Gewogs serve people living in remoted places with online courses.

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Appendix　Record of Discussion

1. **Activities carried out through the MOU between Sherubtse College and CODE, OUJ（2013-2016）**

・Sherubtse College, Royal University of Bhutan（RUB）and the Center for Open Distance Education（CODE）, The Open University of Japan signed a Memorandum of Understanding on Academic Exchange and Research Cooperation on November 21, 2013.

・February, 2014-A staff and a student from Sherubtse were invited to visit OUJ and the study centers at Chiba prefecture and Gumma. They were given a detailed tour of the facilities offered by OUJ and its study centers in catering distance education. They were requested to make presentations on Gross National Happiness and student services at Sherubtse College

・During 2014-2016-Sherubtse College also witnessed the visit of the four professors who visited Sherubtse College on various occasions. Prof. Miwa presented on the teaching model of OUJ and they explored the various prospects of carrying out joint research and academic programmes.

・August, 2014-The Director, two staffs were invited to visit OUJ and its study centers. The Bhutanese members visiting OUJ were given a detailed tour of the facilities offered by OUJ and its study centers. They also visited the various rural areas in Japan including Sado Island where they were introduced to a concept called Gross Sado Happiness, a concept that replicated the developmental philosophy of Bhutan. GNH.

・February, 2016-the Director, IT Officer and the Coordinator of the CODE-Sherubtse collaboration from February 3rd-February 10th. During this visit, a seminar was conducted by the OUJ where in the three Bhutanese members presented on GNH and Higher Education, GNH and I.T in Higher Education and the Role of Community Information Centers in GNH The team also visited Fukui study center, Fukui University and Fukui Prefectural University to explore the possibilities of collaboration. The team also met the Governor of Fukui Prefecture and visited the Bhutan Museum at Fukui. Furthermore, OUJ also helped the Bhutanese members to visit Sukhothai Thammathirat Open University（STOU）in Thailand, where there were given a detail idea about the facilities and managing Open Distance Learning.

・August, 2014-five Japanese students as a part of cultural exchange. They presented cultural song and dances of Japan to the students and staff at Sherubtse College. A presentation was also done on the traditional attire of Japan. The students of Sherubtse College also presented on the three genres of Bhutanese songs and dances.

・Sherubtse College has assisted Prof. Kawai in carrying out his research on Community Information Centers

and Rural Development in Bhutan whereby the members involved with. Prof. Kawai were able to get an opportunity in doing research.

2. Lessons and Ideas from the collaboration

・The visits to OUJ and its study centers have given us a clear idea about the facilities used by OUJ for distance education. It also gave the Bhutanese members the insight to the ideas and academic structure needed in catering distance education. Distance education is the best alternative in imparting higher education with minimum infrastructural facilities to a growing population. The Bhutanese members who have visited OUJ agree that the ideas and lessons that they have got from the visit can make Sherubtse College realize its core value of Life Long Learning if it introduces distance education system. Through this Sherubtse College can provide higher education to people who do not have the time and money to pursue higher education as regular students.

・OUJ with its thirty five years of experience in using broadcasting system for higher education has provided Sherubtse with the idea and determination to search for the best possibility to offer distance education. Sherubtse College can benefit from OUJ's help in developing and enhancing the Media courses related to radio and TV at Sherubtse College. A recording studio can also be established at Sherubtse College with the consultative assistance from OUJ that could cater to the need of the college, RUB and the country as a whole. Radio and TV could be used in forming an idea on broadcasting RUB educational programmes through BBS and radios for the students during holidays and vacations.

・OUJ's expertise in broadcasting through radio and TV could be used in forming an idea on broadcasting RUB educational programmes through BBS and radios for the students during holidays and vacations. This collaboration has also made Sherubtse and the RUB as a whole known to other universities in Japan like Tokyo University and Fukui University. These universities are interested in collaborating for research and academic ventures. The Governor of Fukui Prefecture was also interested in looking at common themes to work with Sherubtse College.

3. Future Prospects and Proposals

・Prof. Kawai met the Director, DAA, DRIL and the members involved in the activities between Sherubtse College and CODE, OUJ on 26 August 2016 at Sherubtse College to discuss the activities to be carried out jointly by the two institutes for another three years. These activities would be carried out funded by Foundation for the promotion of the open University of Japan.

・It was agreed that the first activity would be to focus on online courses to be catered through Massive Open Online Course（MOOCS）. The key area was identified as Rural Development in Bhutan and Sherubtse College will identify two staffs to work on the development of the module to be offered as an online course for both Bhutanese and Japanese students. The guide lines for delivering it through MOOCS will be

prepared and delivered by Prof. Yamada of OUJ. The first draft of the module will be submitted before the end of the Semester.

・It was also proposed that introduction to ICT skills as a certificate level course to be offered as an online course to interested students at Sherubtse after the present ICT course stops being offered as a credit course.

・The presentations made on GNH and Higher Education, GNH and I.T in Higher Education and the Role of Community Information Centers in GNH in February, 2016 at a seminar organized by OUJ in Japan will be reworked on and will be submitted for publication to OUJ Journal before the end of November.

・It was also proposed that OUJ would render assistance to Sherubtse College in the fields of T.V, Radio and Broadcasting after the completion of Media Lab at Sherubtse College（**Photo 11**）.

・OUJ would invite four staffs from Sherubtse to OUJ, to participate in delivering lectures through TV and Radio broadcasting. This would provide firsthand experience of preparing, delivering and broadcasting lectures in distance learning.

・The possibilities of Sherubtse College becoming a member of Asian Association of Open Universities （AAOU） is discussed. This would provide Sherubtse College with the opportunities to enhance its teaching, learning, research and publication scope, develop distance education and facilitate cooperation with international institutes engaged in distance education.

・Prof. Kawai also proposed of carrying out a joint research on the comparative study of development based changes in Kanglung Gewog and Uzorong Gewog. The research would be carried out for three years. In the first year, it would focus on Kanglung Gewog and the second year will focus on Uzorong Gewog. The study will mainly focus on the changes within the administrative unit, social unit and economic unit.

Acknowledgement

Table 1　The titles of e-textbook "ICT-enhanced GNH Society in Bhutan" Series（2016）

Vol	Title	Author
1	Gross National Happiness in Higher Education	Tshering Wangdi, Sherubtse College
2	ICT in Higher Education and GNH	Chimi Dorji, Sherubtse College
3	The Role of Gewog IC Centre for GNH	Peljor Galay, Sherubtse College
4	Possibility of MOOCs for GNH Development	Tsuneo Yamada, OUJ
5	Open Distance Learning toward GNH Society	Akinobu Kawai, OUJ

Table 2　Comparison of learning society between RUB and OUJ

	RUB	OUJ
Headquarter	RUB, Thimphu	OUJ, Makuhari
Study Center	SC and other colleges	50（each47prefecture, Tokyo 4）
Satellite Spaces	70 at public libraries	7 in bigger prefectures
Audio-visual Rooms	205 Community Centres	70

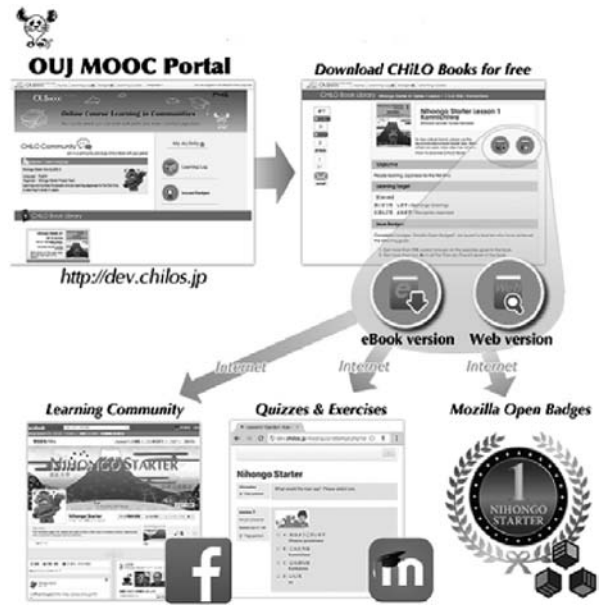**Figure 1**（図 1）　ICT で実現するブータンの GNH 社会

Figure 2　Pillars of GNH

Figure 3　OUJ MOOC platform powered by CCC-TIES "CHiLO Book" System：The concept

Photo 1　His Majesty King Jigme Singye Wangchuck The Fourth King of Bhutan

Photo 3　School Children

Photo 2　Sado Island

Photo 4　School Children visiting the Community Information Centers

Photo 5　Student learning computer hardware

Photo 9　Sherubtse College, Kanglung

Photo 6　Getting a lesson on IT

Photo 10　Monks trying out a laptop

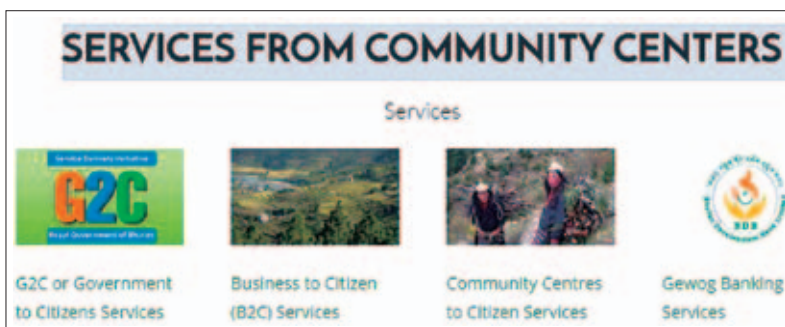Photo 7　Students in a Community Center

Photo 11　Radio Broadcasting by Sherubtse Students

Photo 8　Services from Community Centers