An Enabling ICT Policy Environment for Women Entrepreneurs in Nepal

UNITED NATIONS ESCAP
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Objectives of the Module

The objective of the module is to inform policymakers and contribute to developing their actual gender-related policymaking skills or knowledge for women entrepreneurs. It is specifically designed for Nepal.

Learning Outcomes:

After completing this module, readers should be able to

1. Make appropriate decisions to integrate a gender perspective in entrepreneurship programmes

2. Design programmes and projects which address specific constraints to the inclusion of women and girls in entrepreneurial development

3. Make appropriate choices of ICTs for promoting digital financial inclusion and other support services for promoting entrepreneurship among women.

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ACRONYMS

ADB	Asian Development Bank
BDS	Business Development Services
BMIS	Business Management Information System
CEDAW	Convention on the Elimination of all Forms of Discrimination against Women
DAW	United Nations Division for Advancement of Women
DSL	Digital Subscriber Line
ESCAP	Economic and Social Commission for Asia and the Pacific
GAD	Gender and Development
GBV	Gender Based Violence
GEM	Gender Evaluation Methodology
GRB	Gender Responsive Budgeting
ICT	Information and Communication Technologies
IT	Information Technology
ITES	Information Technology Enabled Services
ITU	International Telecommunications Union
IVRS	Interactive Voice Response Service
LMBIS	Line Ministry Budget Information System
MDG	Millennium Development Goals
MoWA	Ministry of Women's Affairs
MSME	Micro, Small and Medium Enterprises
NGO	Non Government Organization
OECD	Organization for Economic Cooperation and Development
ROSCA	Rotating Savings and Credit Association
SDG	Sustainable Development Goals
SIM	Subscriber Identification Module
SME	Small and Medium Enterprises

SMS	Short Message Service
UNAPCICT	United Nations Asia Pacific Training Centre for ICTs in Development
UNDP	United Nations Development Programme
WBL	Women, Business, and the Law
WAD	Women and Development

SECTION I

I. Introduction

Nepal is a landlocked country at the foot of the Himalayas, located between two Asian giants, India and China. Surrounded by India on the West, South, and East, and by China in the North, governments in Nepal walk a tightrope between the two powerhouses. Nepal also straddles three topographical and agro-climatic regions: the fertile Indo-Gangetic plains in the South, the middle of the country with hills and mountains and the Himalayan ranges to the North.

Religious and cultural practices in Nepal emerge from its history as one of the last original Hindu kingdoms. Caste, ethnicity, regional identity and geographical location are also strong determinants of poverty and unequal development outcomes. Coupled with entrenched patriarchies, and despite government commitments, this resulted in the status of women and girls being very low.

What is also known from existing data is that a large percentage of women are economically active, engaged largely in informal and unorganized sectors, mostly as field labour in agricultural and forestry work. Statistics show that more than three out of four women and girls in Nepal work. When employed in the formal sector, women suffer from low-paying and low productivity jobs.

Social, political and economic exclusion is entrenched in this history. After a decade-long civil strife and internal conflict, Nepal continues to struggle toward inclusive growth and gender equality. The new Constitution of 2015 described Nepal as a multi-ethnic, multi-lingual, and democratic state and declared all citizens equal. There is a huge enforcement and implementation gap between these ideals and the reality of women's lives in the country.

Women's empowerment and equality is a cross-cutting concern that is reflected specifically in almost all global development goals that speak of inclusivity, resilience, and sustainability.

There is also a clearly felt need to move from policy to implementation and to understand the ***'how'*** to mainstream gender into targeted programmes.[1]

The Organization for Economic Cooperation and Development (OECD) has categorized issues of women's empowerment into three "Es": ***'Education', 'Employment'*** *and* ***'Entrepreneurship***.'[2] The major focus in this module is on the third "E", Entrepreneurship, and more specifically on the role of ICTs in fostering entrepreneurship among women.

The approach in this module is based on the assumption that economic security is the trigger that will enable the expression of agency[3] among women and girls. The focus is on how policy and decision makers and project implementation personnel can

[1] Finding from a Training Needs Assessment conducted in June, 2019. Internal document of UNAPCICT.
[2] OECD (2014) "Gender Equality in the Three "Es" in the Asia Pacific Region." *Society at a Glance: Asia Pacific, 2014)* Chapter 2. (http://www.oecd-ilibrary.org/docserver/download/8114171ec005.pdf?expires=1464400445&id=id&accname=guest&checksum=AA2CD88D76694B1591FAF95AA8C10D24) (retrieved May 25, 2016)
[3] **Agency** is the capacity of individuals to act independently and to make their own free choices.

proactively make gender-sensitive policy and implement the same with special reference to women's entrepreneurship.

The second theme of concern in this module relates to the importance of using information and communication technologies (ICTs) to enable and accelerate this process. Within the last twenty years, the convergence of text, audio and video, the ability to use computers, mobile phones and the Internet effectively have become key drivers in the rapid development of several Asian countries and these tools are visible in government offices, universities, development agencies and businesses around the world.

This explosion of the use of technology, and especially the spread of mobile telephony across the Asia Pacific provide new opportunities, with smartphones leading the way in providing more flexible delivery of services. Such use of ICT tools, through what is called e-government (ICT tools for improved delivery of government services), has increasingly become an essential component of sound public administration resulting in good governance. Effective use of e-government principles and practices includes addressing the needs of vulnerable populations, especially women and girls. Therefore, a gender-responsive e-government is a critical component of good governance.

This module is derived from the Policy Module *'An Enabling Environment for Women Entrepreneurs* of APCICT/ESCAP's "Women and ICT Frontier Initiative" and is customized to the Nepal context. The Policy module describes the process of extensively gender sensitizing government. Despite the few overlaps between this customized document and the original module, this module should be seen alongside the earlier module available at http://www.unapcict.org/sites/default/files/inline-files/Module_P_0.pdf

The approach of this module is both a pragmatic and practical one—it addresses ground reality issues and suggests ways through which gender and ICTs can be mainstreamed for women's entrepreneurship.

II. SDGs, women's empowerment, and women's entrepreneurship

2.1 Understanding the Gender Divide in Nepal

Gender, as it is globally understood, refers to the '*social roles associated with being male and female and the relationships between women, men, girls and boys, as well as the relations between women and those between men*.' These attributes and relationships are socially constructed and are learned through socialization. They are context- and time-specific and changeable.[4] The concept of gender also includes the social expectations and characteristics that men and women have about each other. These may vary according to culture, ethnicity, race, etc. and they can also change over time.

Women represent half of the population in Nepal, yet their ability to participate as equal partners in social, economic, and political life is limited. In Nepal, the roles of men and women are derived from the ancient Hindu treatise "Manu Smrithi," which stressed the patriarchal society and described the role of women and girls as limited to being an obedient daughter, sister, wife, and mother, always dependent on and under the care and protection of a male member of the household. Despite massive advances in the status of women and girls, these norms and other caste and class-based inequalities persist, leading to low status for women and girls.

The multiplicity of disadvantages that women and girls face create invariably inequalities, whether in education, income generation, or throughout political life. Therefore, given their limited time and economic resources, those women who do become entrepreneurs are often only engaged in micro businesses, operating with one or two individuals.

A commonplace assumption when issues of gender are discussed is that gender issues deal exclusively with women and women's issues. This assumption is technically incorrect, and is a reflection of the historical condition (evidenced by data) of subordination and inequality that women and girls have experienced in many a society. The correction of this inequality and the full enjoyment of all human rights on par with men and boys is part of the movement for gender equality.[5] Essentially, **equality** is the provision and enjoyment of equal rights, responsibilities and opportunities for all, irrespective of whether they are born male or female.

Gender equity is the process of being fair to women and men. To achieve this, it is often necessary to put special measures in place to compensate for the historical and social disadvantages that prevent women and men from operating on an even playing field. "**Equity is a means—equality is the result."**[6]

Working toward gender equality through gender equity is what the global community has been committed to for the last five decades.

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[4] UNDP (2008) *Gender Responsive E Governance: Exploring the Transformative Potential.* http://www.undp.org/content/dam/aplaws/publication/en/publications/womens-empowerment/primers-in-gender-and-democratic-governance-4/f_GenderGovPr_eG_Web.pdf (retrieved May 16, 2016)

[5] Ibid

[6] See http://www.unesco.org/new/fileadmin/MULTIMEDIA/HQ/BSP/GENDER/PDF/1.%20Baseline%20Definitions%20of%20key%20gender-related%20concepts.pdf (retrieved May 16, 2016)

2.2 Sustainable Development Goals and Women's Empowerment

Sustainable development is the globally accepted agenda for the future of humankind, as reflected in the Sustainable Development Goals and Agenda 2030 (SDGs);[7] an agenda that cannot be achieved without the full participation of all people. If for whatever cause, any region, or in fact, any group of people are left out of this process, the goals of sustainable development cannot be achieved.

Integral to the understanding of sustainable development are a few key concepts. The first of these is **resilience**, which can be best described as *"the ability of groups or communities to cope with external stresses and disturbances as a result of social, political and environmental change."* [8] The resilience of a society or group is its ability to cope with weather, and adapt to changing climatic conditions or episodes related to excessive rain or drought and its ability to bounce back from disaster. The better a community is equipped to cope, the more resilience it has.

A second closely linked and integral concept in the global development agenda is **"inclusiveness."** All vulnerable communities, i.e. indigenous and native, marginalized, conflict affected, displaced, ethnic, disabled, etc. must perforce be included in the process of human development. Among and across all these mentioned communities are women and girls, constituting half of the world's population, irrespective of nationality, class, religion, ethnicity, or any other classification that one may choose to apply. Across all countries women and men differ in their ability to make effective life choices in a range of spheres, with women typically at a disadvantage.

A third connected concept is **"sustainability."** Sustainable development has been defined as development that meets the needs of the present without compromising the ability of future generations to meet their own needs.[9] For sustainable development to be achieved: three core elements, i.e. economic growth, social inclusion, and environmental protection must be addressed in a coherent and interlinked manner. Gender equality is part of social inclusion.

The implication here is that no real and sustainable development can take place, if large sections of the population are excluded from the benefits of development.

To put it simply, no one can be left behind. To achieve this, coordinated and cohesive actions are necessary among and at multiple levels and sectors of development.

All reports highlight the inferior status of women and girls in society, despite their contribution to households, communities, and societies. Women frequently have less ownership and control over assets, reduced decision-making capacity and fewer educational and economic opportunities than men while having the double burden of unpaid home responsibilities and external work.[10] Enough is also known about the

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[7] For the full document and details, see https://sustainabledevelopment.un.org/post2015/transformingourworld (accessed October 16, 2015)

[8] W Neil Adger (2000) "Social and ecological resilience: are they related?" *Progress in Human Geography* September 2000 24: 347-364, available at https://groups.nceas.ucsb.edu/sustainability-science/2010%20weekly-sessions/session-102013-11.01.2010-emergent-properties-of-coupled-human-environment-systems/supplemental-readings-from-cambridge-students/Adger_2000_Social_ecological_resilience.pdf (accessed October 30, 2015)

[9] http://www.un.org/sustainabledevelopment/development-agenda/ (retrieved June 7, 2016)

[10] USAID, "Gender Equality and Women's Empowerment: Integrating Gender." (2012). http://transition.usaid.gov/our_work/cross-cutting_programs/wid/gender/index.html (retrieved May 16, 2016)

vulnerability of women and girls to Gender Based Violence (GBV), pornography, human trafficking, and other forms of denial of basic human rights.

Due to such inequalities and vulnerabilities, women and men have different experiences, knowledge, talents and needs. Consequently, development initiatives can affect male and female beneficiaries in vastly different ways because of these gender differences and inequalities. Without a deliberate consideration of gender dynamics, women often encounter obstacles to participating in, and benefiting from, development projects. For instance, if women had equal access to, and control over, productive resources, agricultural production yields would increase by 20-30 percent, which could, in turn, increase the total agricultural output in developing countries by 2.5 - 4 percent and reduce the number of hungry individuals in the world by 12 - 17.2 percent.[11]

Similar findings emerge in sectors such as education, health, and environment. Differential levels of development are widespread (with women and girls often being the disadvantaged), while global data consistently shows that equal opportunity would create the possibility of an exponentially greater, balanced, and more equitable growth..

Summative reports[12] on The Millennium Development Goals (MDGs) have shown that there have been many significant successes in lifting people out of poverty. Nepal made commendable progress in poverty reduction, with extreme poverty falling from 33.5 per cent in 1990 to 16.4 per cent in 2013.[13] Gender parity measured by the Gender Parity Index[14] (equality in numbers) has been achieved in school education; there is lower child mortality and improved maternal health and nutrition all around. However, gender inequalities persist, with increasingly more women than men living in poverty, leading to what has come to be known as the *'feminization of poverty'*[15]. Women and girls still have lesser access to education, economic resources, work, and are still underrepresented in both private and public decision making positions. Women continue to be underrepresented in the workplace and are paid less for their work, irrespective of their educational level. Such big gaps persist especially in the Asia Pacific region.

The result of such inequality is not just poverty, but capacity deprivation, one that leaves women and girls unable to work or earn an income through entrepreneurship.

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[11] Food and Agriculture Organization (FAO), "State of Food and Agriculture 2010-2011, Women in Agriculture: Closing the gender gap for development," Rome, Italy: FAO (2011).http://www.zaragoza.es/contenidos/medioambiente/onu/095-eng-ed2010-2011.pdf

[12]United Nations (2015) Millennium Development Goals Report 2015. New York: United Nations, http://www.un.org/millenniumgoals/2015_MDG_Report/pdf/MDG%202015%20rev%20(July%201).pdf, (accessed October 13, 2015)

[13] Government of Nepal. National Planning Commission, 2016. *Nepal and the Millennium Development Goals. Final Report 2000-2015.* https://www.npc.gov.np/images/category/MDG-Status-Report-2016 .pdf (accessed June 27, 2019)

[14]The **Gender Parity** Index (GPI) is a socioeconomic index usually designed to measure the relative access to education of males and females. In its simplest form, it is calculated as the quotient of the number of females by the number of males enrolled in a given stage of education (primary, secondary, etc.) https://en.wikipedia.org/wiki/Gender_Parity_Index (retrieved May 13, 2016)

[15]**Feminization of poverty** is the concept that describes the idea that women represent disproportionate percentages of the world's poor. UNIFEM describes it as "the burden of **poverty** borne by women, especially in developing countries". https://www.google.co.in/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=feminization%20of%20poverty (retrieved May 17, 2016)

Such deprivation has been recognized by the global community which, in turn, has made gender equality as one of the 17 Global Goals that make up the 2030 Agenda for Sustainable Development. Goal No. 5 specifically states 'Achieve gender equality and empower all women and girls.

Box 1: Goal 5 of the Sustainable Development Goals

- *End all forms of discrimination against all women and girls everywhere. Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation*
- *Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation*
- *Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate*
- *Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision making in political, economic and public life*
- *Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Program of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences*
- *Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws*
- *Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women*
- *Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels*

In addition to Goal no. 5, which explicitly addresses the special needs of women and girls, all the other 16 goals address the imperative of being "inclusive" and universal, i.e. for all. This means, implicitly, that while the needs of women and girls are to being given

special attention under Goal 5, efforts to achieve the other SDGs must also include women and girls in addition to other vulnerable populations.

Without the active engagement and involvement of government, equitable development and "**empowerment"** of women and girls cannot take place. This brings us to the concept of "**empowerment,"** which must be addressed before a discussion on the role of government can take place.

In development discourses, "**empowerment**"[16] is a highly debated term but essentially means

> *"that people – both women and men – can take control over their lives: set their own agendas, gain skills (or have their own skills and knowledge recognized), increase self-confidence, solve problems, and develop self- reliance."*[17]

If one were to expand this concept and look at empowerment/agency as a process, it would be possible to measure the extent to which women/girls have

- *"Control over resources—measured by women's ability to earn and control income and to own, use, and dispose of material assets.*
- *Ability to move freely—measured by women's freedom to decide their movements and their ability to move outside their homes.*
- *Decision making over family formation— measured by women and girls' ability to decide when and whom to marry, when and how many children to have, and when to leave a marriage.*
- *Freedom from the risk of violence—measured by the prevalence of domestic violence and other forms of sexual, physical, or emotional violence.*
- *Ability to have a voice in society and influence policy—measured by participation and representation in formal politics and engagement in collective action and associations."*[18]

It is argued in this module that the key to exercising agency lies in economic empowerment, because economic empowerment can improve the material conditions necessary for exercising other rights. Entrepreneurship, as one form of economic empowerment, is an important driver of economic development and growth in many economies with a tremendous potential to empower women, create employment, transform society and alleviate poverty.[19]

Higher incomes enable better access to social and other services, and reduce economic dependency. This enables better participation and bargaining power, first within the household, and second in the community. If, women can earn their own incomes, their ability to exercise agency increases.

Economic growth and empowerment will not alone eliminate gender inequalities, but it is an important trigger. This is not to say that other conditions, social, legal, and political

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[16] A list of terms and their definitions is provided in the glossary.
[17] UN WOMEN, Women's Empowerment Principles, 2011. http://www.unwomen.org/en/digital-library/publications/2011/10/women-s-empowerment-principles-equality-means-business (retrieved May 17, 2016)
[18] http://siteresources.worldbank.org/INTWDR2012/Resources/7778105-1299699968583/7786210-1315936222006/chapter-4.pdf
[19] OECD op. cit. p. 41

are not important; but rather that governments can play a positive and pivotal role in creating the legal frameworks reducing such inequalities, ensuing economic empowerment.

In light of the abovementioned discussion, the focus of this module is on women's economic empowerment through entrepreneurship.

2.3 To Sum Up

- Gender is a social construct and refers to social relations between male and female.
- Gender relations are highly contextual and society specific and are not fixed or permanent. Gender relations can change.
- The Global Agenda 2030 for sustainable development has several key features. The underlying principles are inclusiveness, sustainability, and resilience that ensure that the benefits of sustainable development accrue to all people equally with no one left behind.
- Women and girls have been at a historical and chronic disadvantage when it comes to global development. The causes are many.
- Empowerment means that individuals, both men and women can take control of their lives, set their own agendas, gain skills and participate fully in society without being inhibited by social, cultural, economic and political forces.
- Goal 5 of the SDGs specifically charges the world community with the responsibility to ensure women's empowerment. With other goals implying inclusivity as their core principle, women's needs must be addressed across the board.
- While empowerment of women has many dimensions, a key trigger to improve the lives of women and girls is economic empowerment.
- Economic empowerment alone is not enough, but it is an essential and necessary condition for empowerment.

Something to Do:

Go to the site: http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/NPL.pdf

Examine the data related to Nepal's HDI rank and take a look at the ranking of Nepal on the Gender Inequality Index.

Do you agree with the ranking? Discuss why or why not.

SECTION II

III. Trends in ICTs

Two decades ago, each ICT (information and communication technology) was a discrete entity, with its own infrastructure, content and delivery modes. At that time the ICT sector could be divided into different industries for the hardware and software. The focus was on actual ICT products, such as the manufacture of computers and related equipment, and the development of systems and software applications. Today, the earlier discrete media have converged onto single digital platforms and the focus has shifted to how the ICTs are being used in different sectors.

This is no longer as simple as running an information management system for commerce, education or health care. It involves the creation of an inherent knowledge base and its subsequent use in decision-making—made possible through interconnected devices, sensors and other components. For example, the Aga Khan Trust, with its medical services based in Karachi, Pakistan, is using smartphones with sensors to monitor in real time, the health of expectant mothers from the mountainous Gorno-Badakhshan region of Tajikistan.

ICTs are permeating other sectors, and are no longer just used as tools for specific functions. Instead, through techniques such as process reengineering, service-oriented architecture and other methods, they have become platforms for operations and service delivery.

A traditional understanding of ICTs included input, output, and storage and processing devices. These distinctions have become blurred with convergence. Some of the devices that the individual is familiar with through everyday use are described in the box below:

3.1 Devices

Modern individual devices have come to be increasingly accessible, and to vary a lot in size and capacities, from the large desktop to the small and simple mobile phone, . Devices can be Wi-Fi and wearable, portable and system devices.

The box below provides a graphic description of some of the devices currently available.

Box 2: Types of Devices

Wi-Fi and Wearable Devices

Systems Devices

Portable Devices

Of these, the mobile phone is the most convenient, and most familiar device to most of the world. It has input, processing, and output capabilities, while also allowing for interactivity between the provider of services and the potential beneficiary.

3.2 Trending Technologies for Storage and Processing

With the rapid growth of both users and data, storage and processing have assumed importance. Trending technologies for these functions include cloud computing, the Internet of Things (IoT), 3D printing, technology stacks and blockchain.

3.2.1 Cloud Computing

One can either store data on a home or office computer, or store data on a remote server. Cloud computing is the practice of using a network of remote servers hosted on the Internet to store, manage and process data. In other words, cloud computing means storing and accessing data and programs over the Internet instead of your computer's hard drive. Simply stated, the user does not need a powerful system or software; the user needs a system that is connected to a cloud

Cloud technology enables convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications and services). These can be rapidly provisioned and released with minimal management effort or service provider interaction, and at lower cost. For an individual user or small business, using a cloud service could mean that one no longer needs to hire and retain people for installation and updates, in addition to very little capital expenditure, only operational costs.[20]

[20]Yoko Aoyama and Balaji Parthasarathy, *The Rise of the Hybrid Domain: Collaborative Governance for Social Innovation* (Edward Elgar Publishing, 2016), p. 99.

3.2.2 Internet of Things (IoT)

The Internet of Things has been used to refer to all kinds of Internet-based applications, sensors, servers and electronic services. Essentially, it is machine-to-machine communication where interconnected computing devices, and even mechanical devices, provided with a unique identifier can transfer information without human-to-human or human-to-computer interaction. For example, a weather monitoring sensor feeding real-time data to an application on a computer can be developed to automatically and continuously analyze the weather data and deliver relevant messages to mobile phone subscribers. Such an application can be of immense value to agriculture and disaster preparedness.

3.2.3 3D Printing

3D printing may seem irrelevant, but it has proven to be quite important. For example, computer-based models of prosthetics can be produced with 3D printing, significantly reducing the production cost of prosthetics—making them more affordable and widely available. Similarly, 3D printing can reduce the cost of various engineering and medical innovations. Another example is using metal 3D printing to develop prototypes of various components of machineries or cars, which has led to quicker time to reach a given market and lower costs.

3.2.4 Artificial Intelligence

Artificial intelligence refers to the "development of computer systems able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision-making and translation between languages".[21]

Artificial intelligence in transportation systems, for example, manages and predicts traffic flows and volumes. Driverless cars are expected to reduce human errors, enhance safety and cut commuting time. Artificial intelligence in health is improving the diagnosis of diseases.[22] Artificial intelligence also plays a major role in the development of smart systems, including smart buildings, smart grids and smart cities that are enhancing the efficiency of energy use and contributing to climate change mitigation.

There are many component technologies that are driving the development of artificial intelligence. For example, the Internet of Things enables collection and exchange of data through network-connected sensors and devices that operate mostly without human intervention. Mobile and broadband technologies enable voice and data transmissions to data storage locations, mostly using cloud computing technologies. The collected data, known as big data, is then analyzed. Each of the above components is important on its own, but when aggregated and consolidated, the components can produce synergistic

[21] English Oxford Living Dictionaries, "artificial intelligence". Available from https://en.oxforddictionaries.com/definition/artificial_intelligence

[22] See for example, James Gallagher, "Artificial intelligence 'as good as cancer doctors'", *BBC*, 26 January 2017. Available from http://www.bbc.com/news/health-38717928

and transformative impacts, culminating into artificial intelligence applications that bring new value.[23]

3.2.5 Technology Stacks

In the current scenario, different agencies independently collect vast amounts of data from individual citizens and/or customers. Among current technology developments dealing with big data are "stacks". A technology stack is a combination of software products and programming languages used to create a web or mobile application that connects different databases. Each layer of the stack builds on the features of the one below it. Software applications written for stacks are called "middleware".[24]

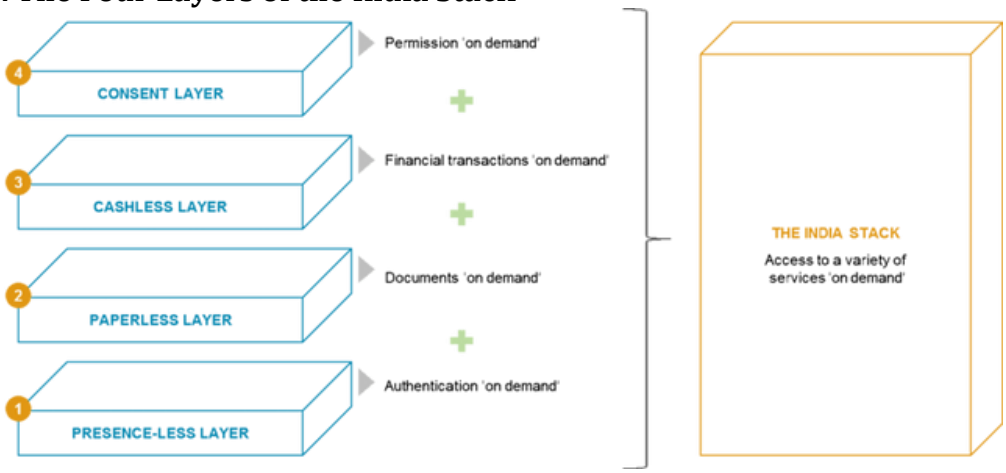
Case Study 1 India Stack

The India Stack is a set of application programming interfaces that allow governments and private companies to deploy cashless and paperless technology products. Conceived by the Government of India in 2012, this open technology platform is being developed by the Indian Software Product Industry Round Table that provides various functionalities upon which applications can be developed for various devices and systems, including desktops, phones and wearables.

India Stack is based on Aadhaar, India's national identification project using biometrics that gives every resident a unique identification number. The Aadhaar becomes the foundational database for all other applications and services that are built in stacks upon it.

The other stacks include a digital locker system in which documents (e.g., land ownership records, university transcripts, medical records) tied to the Aadhaar number are stored, an authentication system using e-signatures, and a unified payments interface of the National Payment Corporation of India. A consent architecture is being developed to protect privacy. It gives individuals with the Aadhaar number control over who gets access to personal data, and what kind of data is allowed to be accessed.

Figure . The Four Layers of the India Stack



[23] ESCAP, *Artificial Intelligence and Broadband Divide: State of ICT Connectivity in Asia and the Pacific 2017* (Bangkok, 2017). Available from http://www.unescap.org/sites/default/files/State%20of%20ICT2017_Final.pdf

[24] A middleware is software that acts as a bridge between an operating system or database and applications, especially on a network.

The India Stack allows companies to quickly give customers insurance coverage, and individuals can easily open bank accounts or apply for loans. It also enables cashless transactions. Reliance Jio, a mobile network operator, leveraged India Stack to issue mobile SIM cards more quickly, thus improving customer experience. The entire SIM activation process that previously took 3-5 days now takes only a few minutes.

Sources :IndiaStack, "India Stack - The Bedrock of a Digital India", 17 November 2016. Available from http://indiastack.org/india-stack-the-bedrock-of-a-digital-india/; Tech2, "India Stack is the key technology platform that could transform India into a cashless economy", 12 December 2016. Available from http://www.firstpost.com/tech/news-analysis/india-stack-is-the-key-technology-platform-that-could-transform-india-into-a-cashless-economy-3694019.html; and Pavithra Babu, "What is IndiaStack and How is it Set to Change India?" *Razorpay*, no date. Available from https://razorpay.com/blog/what-is-indiastack-and-how-is-it-set-to-change-india/.

3.2.6 Blockchain Technology

Blockchain technology is an example of a stack, emerging out of cryptocurrencies, such as Bitcoin.[25] Blockchain is defined as a "digital ledger that provides a secure way of making and recording transactions, agreements and contracts—anything that needs to be recorded and verified as having taken place. However, rather than being kept in one place like the more traditional ledger book, the database is shared across a network of computers. This network can encompass just a handful of users, or hundreds and thousands of people. The ledger becomes a long list of transactions that have taken place since the beginning of the network, getting bigger over time".[26]

Blockchains can be used to provide a transparent, instantaneous and indisputable record of transactions, thus serving as an effective corruption fighter. It could be especially useful in keeping records of property and financial transactions.

Since it is based on a distributed network of computers, it is difficult to hack. At the same time, individual users can give or withhold their consent to access the data, thus providing some privacy and security. At this point in time, it is still a nascent technology, with many issues related to cultural acceptance, infrastructure and regulations that need to be addressed before it is fully accepted.

3.2.7 Bots

A bot is "a software application that runs automated tasks (scripts) over the Internet. Typically, bots perform tasks that are both simple and structurally repetitive, at a much higher rate than would be possible for a human alone."[27] Bots can be used for productive tasks, and they can also be used for malicious reasons. One of the best examples of a good bot is a search engine spider. Such bots troll the web and index new pages for a

[25]Bitcoin is a consensus network that enables a new payment system and a completely digital money. It is the first decentralized peer-to-peer payment network that is powered by its users with no central authority or middlemen. From a user perspective, Bitcoin is like cash for the Internet. See https://bitcoin.org

[26]Katherine Purvis, "Blockchain: What is it and what does it mean for development?" *The Guardian*, 17 January 2017. Available from https://www.theguardian.com/global-development-professionals-network/2017/jan/17/blockchain-digital-technology-development-money

[27]Wikipedia, "Internet bot". Available fromhttps://en.wikipedia.org/wiki/Internet_bot.

search engine. The value of bots lies in their ability to search and collate big data, whether for more effective marketing or for better provision of services.

3.3 Trending Applications

A plethora of applications, ranging from sophisticated social media to a simple application enabling the home delivery of services are flooding the market every day. Among the most prominent are social media.

3.3.1 Social Media

Social media is a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, allowing the creation and exchange of user-generated content.

Facebook, Instagram, Snapchat, LinkedIn, and Twitter are some well-known global social media applications used for social networking, crowdsourcing and co-creation of content. Asian examples of social media include: WeChat and Weibo from China; LINE from Japan; and Kakao Talk and Cyworld from the Republic of Korea.

The current popularity of social media is based on its distinct features, as follows:[28]

- **Participation** – Social media encourages contributions and feedback from everyone who is interested. It blurs the line between media and audience.

- **Openness** – Most social media services are open to feedback and participation. They encourage voting, comments and the sharing of information. There are rarely any barriers to accessing and making use of content, and password-protected content is frowned on.

- **Conversation** – Whereas traditional media is about "broadcast" (content transmitted or distributed to an audience), social media is seen as a two-way conversation.

- **Community** – Social media allows communities to form quickly and communicate effectively. Communities share common interests, such as a love of photography, a political issue or a favourite television show.

- **Connectedness** – Most kinds of social media thrive on their connectedness, making use of links to other sites, resources and people.

3.3.2 Big Data and Analytics

In 2015, it was estimated that 2.5 quintillion bytes of data were generated daily.[29]This would fill 10 million Blu-ray disks (high capacity DVDs), which when stacked on top of

[28] Emmanuel C. Lallana, *Module 11: Social Media for Development*, The Academy of ICT Essentials for Government Leaders Module Series (Incheon, APCICT/ESCAP, 2014), p. 18. Available from http://www.unapcict.org/academy.
[29]VCloud News, "Every day big data statistics - 2.5 Quintillion bytes of data created daily", 5 April 2015. Available from http://www.vcloudnews.com/every-day-big-data-statistics-2-5-quintillion-bytes-of-data-created-daily/

each other, would be equivalent to the height of four Eiffel Towers. Such huge accumulation of data has become known as big data—a broad term for data sets so large and complex that traditional data processing applications are inadequate.[30]

Big data is normally stored in public or private data centres, or in public or private clouds. Such data can be classified as private data or government data. When big data is made accessible to the public at no cost and free from proprietary issues, it becomes open data.

Big data is mostly generated from social media sites, sensors, devices, video/audio files, networks, log files and the web, and much of it is generated in real time and on a very large scale. Three defining properties of big data are **volume** (amount of data), **variety** (number and types of data) and **velocity** (speed of data processing).

Governments need and do collect data from various sources both from internal government departments and from vast amounts of data generated in the public spaces.

The handling of such vast amounts of data efficiently and meaningfully requires **analytics.** Big data analytics is the process of examining large data sets to uncover hidden patterns, unknown correlations, market trends, customer preferences and other useful information. Findings can lead to more effective planning and marketing, new revenue opportunities, better customer service, improved operational efficiency and competitive advantages over rival organizations.

For example, the continuous accumulation of traffic data in the city can be analysed to improve traffic flows and suggest routes to reduce road congestion. This is particularly relevant in Asia and the Pacific as many cities in the region face increasing traffic volume that is resulting in traffic congestion, more road accidents and urban pollution.

The significance of big data and analytics for achieving the SDGs cannot be overstated. Big data and analytics have been used to optimize energy use, and track diseases like dengue fever, malaria and Ebola. The United Nations Statistical Commission created a Global Working Group on Big Data for Official Statistics to investigate the benefits and challenges of big data, including the potential for monitoring and reporting on the SDGs.[31]

3.4 Trends in Usage

Initially, the technologies described earlier may appear discrete and separate, but collectively they are powerful tools and can be described under the rubric of "Social, Mobile, Analytics and Cloud" (SMAC).

In addition to each component holding its own in its particular domain, SMAC provides collaboration, mobility, accessibility and communication. Together, these are effective tools.

- **Social**–Using social media has become a must for all enterprises—private and public—whether these are banks, retailers or governments. With over one billion

[30]Wikipedia, "Big data". Available from https://en.wikipedia.org/wiki/Big_data.
[31] United Nations, "Using Big Data for the Sustainable Development Goals". Available from http://unstats.un.org/bigdata/taskteams/sdgs/

individuals logged on to various social media networks, and people using social media networks to view and make purchase decisions, many organizations have started using social media to optimize their services. Data generated by customers then form the vast databases that are "mined" and analysed.

- **Mobile**–The exponential growth of mobile devices has changed the way people access content. While smartphones and tablets provide rich digital content at the users' fingertips, simple feature phones[32] can also be used in combination with interactive voice response (IVR) systems to access banking and public utility services. Consequently, many governments are exploring and using mobile devices to deliver messages and services to citizens in a more effective manner.

- **Analytics**–Data gathered through social media and mobile telephony, in turn serves as the foundational base for effective decision-making. Analytics, or the process of evaluating such data, can predict consumer behaviour, help banks and financial institutions identify corruption and fraudulent practices, and provide timely, personalized and location specific information to citizens, among other benefits.
- **Cloud**–Cloud computing enables the hardware-free collection, storage and handling of vast amounts of data, available and accessible anywhere and anytime. Placing databases on remote servers on "cloud farms", whether private or public, frees the users' need to invest in heavy computing hardware, and makes distribution easy. Netflix and Amazon Prime are two examples of global companies exploiting cloud computing very effectively.

The real promise of SMAC technologies, however, is not in their individual contribution towards cost savings and process efficiencies in the information technology (IT) sector. Rather, it is their potential to support the continued digitized and automation of processes in the development sector to become effective enablers of sustainable development.

To conclude, current ICT trends are offering new visions for using ICTs to achieve the SDGs, which would not have been imaginable even five years ago. How the ICT scenarios play out in different sectors of sustainable development is the focus of the next section, which, through case studies, illustrates the diverse use of old and new ICTs in varied contexts and conditions. Before that though, let's first consider some sociopolitical and legal concerns related to the current ICT trends.

3.5 Sociopolitical and Legal Concerns

Although ICTs can help achieve the SDGs, there is a set of challenges in the use of ICTs that needs to be addressed.

ICTs have a disruptive effect on society at large, transforming the ways in which individuals and communities interact with each other. There is concern that online communities triggered by social media will in some way "crowd out" real human

[32] A feature phone is a mobile phone that incorporates features such as the ability to access the Internet and store and play music, but lacks the advanced functionality of a smartphone. See Wikipedia, "Feature phone". Available from https://en.wikipedia.org/wiki/Feature_phone.

communities, leading to a decline of human interactions, trust and sociality—thereby disrupting the fabric of societies. There is also concern about Internet addiction disorder—a psychological condition in which the excessive use of the Internet disrupts normal behaviour.

ICTs, especially Internet of Things and machine-to-machine communication, may displace workers and cause mass unemployment. There may be some merit to this argument in countries with large under-skilled and unemployed populations. However, with appropriate skills enhancement and vocational education policies, technologies may enhance individual well-being and create a more knowledge-based workforce.

An ICT-dependent economy is more vulnerable to network failures than a pre-ICT economy. Massive performance failures of the Internet or the power grid, or cable disruptions, could bring the economy to a grinding halt.

An ICT-based society could become a surveillance society, with pervasive spying and loss of privacy. This spying may be by government, giant ICT firms or other anti-social elements.

With big data and analytics, personal data has become a saleable commodity. As a result data privacy has become a serious concern. The unscrupulous sale of mobile subscribers' data has already led to persistent intrusions to individuals' privacy. Additionally, there is evidence that large social media networks such as Facebook and Google analyse user behaviour, and then enable direct and intrusive marketing.

Another area of serious concern is data security. Disruptions of the networked economy and society could be deliberate acts of cyberwarfare. Such acts have been used by extremist groups to indoctrinate and recruit youth, as well as hack government portals to cause major disruptions.

A particular concern for governments is managing the rapid build-up of public opinions and news, especially fake news, online.

Finally, there is concern for the inequitable growth of ICTs, leading to a widening digital divide—where the gap between the information rich and the information poor will grow, despite apparent growth in absolute numbers.

In short, while the SDGs represent a complex problem-solving exercise, the use of ICTs also has a set of challenges that needs to be addressed. How the tools are used for sustainable development will determine the success or failure of the interventions.

3.6 To Sum Up

There have been dramatic changes in technology within the last five years.

- Devices have become cheaper and faster, more versatile, robust and reliable.

- Mobile phones have overtaken all others as the technology of choice in both developed and developing countries. ICT growth in the Asia-Pacific region is driven by a few countries—namely, China, Japan, Republic of Korea and Singapore—leading to a skewing of tele-density in the region.

- Not explicitly visible to the users, cloud computing, the Internet of Things, 3D printing, artificial intelligence, technology stacks, blockchain technology, big data and bots are changing the way information is stored, processed and delivered.

- SMAC or Social, Mobile, Analytics and Cloud, are the new ways through which both the market and government are trying to reach out to the end users. At the same time, big data is being analysed in order to customize and personalize relevant and timely information.

- For governments, these new trends are a boon. For example, governments can use big data and analytics as part of effective governance.

- These new technology trends also raise serious sociopolitical and legal concerns in the areas of personal data privacy and security, cyberwarfare, rising unemployment as technology displaces human intervention, and a widening digital divide between the "haves" and the "have-nots".

Something to Do:

Identify at least two cases where social media have been used by the Nepalese government to reach out to citizens on any topic of public interest. Describe the cases, identifying whether the effort succeeded in its objective or otherwise.

IV. Women and ICTs—The Gender Digital Divide

"ICT refers to technologies that provide access to information through telecommunications. It is similar to Information Technology (IT), but focuses primarily on communication technologies. This includes the Internet, wireless networks, cell phones, and other communication mediums".[33] However, the definition of ICTs for the purposes of this module includes conventional communication media such as radio and television.

The mainstream belief in global literature is that today's ICTs are 'gender neutral' and are 'empowering tools.' That with the proliferation of mobile phones, there are exciting possibilities for empowering men and women equally in their economic, social and political roles. . But unless precautions are taken, ICTs have the potential to create "have not" situations, where, those at the bottom of the pyramid[34] and the *"silent majority"*[35] are not consciously considered part of ICT future policy and practice. ICTs seen as 'enablers', can also become 'disablers' to women's empowerment, exacerbating the digital and knowledge divide.[36]

Like any other innovation, ICTs are embedded within the framework of societies. Therefore, as Nancy Hafkin (2002) argues, ICTs are not gender neutral: *"This assumption that a so-called gender-neutral information technology project will benefit an entire population regardless of gender is not grounded in reality, because of the impact of gender relations on technology and the societal constraints that women face in accessing and using information technology"*[37]

4.1 The Digital Divide

That there is gender inequality globally, and in the Asia-Pacific region has been established but is there a digital divide and if so, is there a 'gender digital divide'?

The Asia-Pacific region also has the fastest growing telecommunications market for both fixed and mobile broadband. Internet rides on broadband. Broadband connections are essential to connect to the Internet and to the services provided by governments and other agencies through online platforms. There are two ways of connecting to the Internet—through a fixed line or wireless connected in the office, home, or common service facility (cybercafé, telecentre, etc.), a hotspot, or through a mobile broadband connection that can be carried anywhere. Both are what are known as 'last mile', reaching the ultimate customer or user.

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[33] https://techterms.com/definition/ict (accessed April 10, 2019)
[34] See C.K. Prahlad. (2005) *Fortune at the Bottom of the Pyramid.* Wharton and Pearson. Op.cit
[35]The silent majority is an unspecified large group of people in a country or group who do not express their opinions publicly. https://en.wikipedia.org/wiki/Silent_majority (retrieved June 8, 2016)
[36]Nancy Spence (2010), "Gender, ICTs and Human Development and Prosperity" USC Annenberg School of Communications. Volume 6, SE, Special Edition 2010, 69–73 www.itidjournal.org/itid/article/download/626/266 (retrieved May 17, 2016)

[37]Hafkin, N. (2002). Is ICT gender neutral? A gender analysis of six case studies of multi donor ICT projects. Santo Domingo, Dominican Republic: United Nations International Research and Training Institute for the Advancement of Women (INSTRAW)

More than half of the world's fixed broadband subscriptions are from the Asia Pacific.[38]

The same report, details, however, that East and North East Asia drives the growth by 74.9 per cent, of which a large percentage is from China. The growth in the rest of Asia Pacific is in the single digits.[39]

Let us look at Nepal findings from specific data collected from an extensive demand-side field study in 2018.[40]

72 per cent of Nepalis aged 16-65 have a mobile phone of some type.

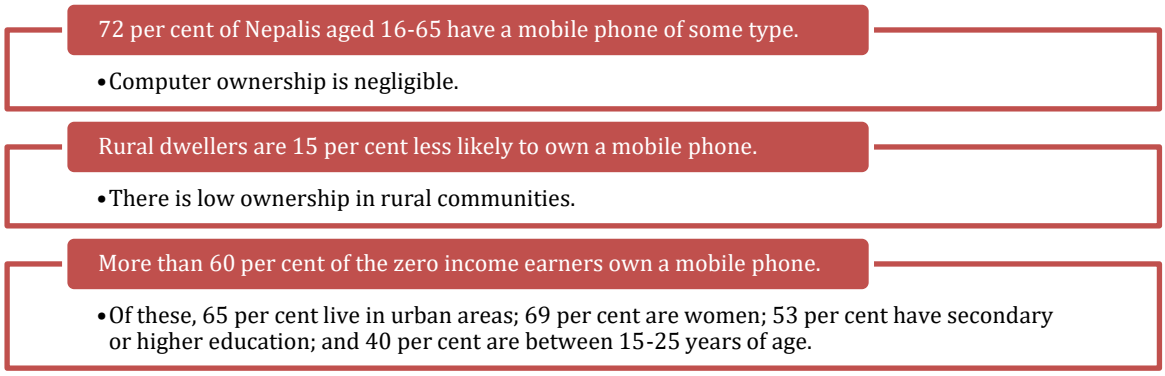
- Computer ownership is negligible.

Rural dwellers are 15 per cent less likely to own a mobile phone.

- There is low ownership in rural communities.

More than 60 per cent of the zero income earners own a mobile phone.

- Of these, 65 per cent live in urban areas; 69 per cent are women; 53 per cent have secondary or higher education; and 40 per cent are between 15-25 years of age.



72% of Nepalis aged 16-65 have a mobile phone of some type. Computer ownership is negligible.

[38] UNESCAP (2016) *State of ICT in Asia and the Pacific.* http://www.unescap.org/sites/default/files/State%20of%20ICT%20in%20Asia%20and%20the%20Pacific%202016.pdf p. 8 (accessed June 26, 2017)

[39] Ibid.

[40] Galpaya, H (2018) *After Access: ICT Access and use in Nepal and the Global South.* https://lirneasia.net/2018/10/afteraccess-ict-access-and-use-in-nepal-and-the-global-south/ (accessed June 23, 2019)

15%	less likely to own a mobile phone for rural dwellers. There is low ownership in rural communities.
< 60%	of the zero income earners own a mobile phone. Of these, 65 per cent live in urban areas; 69 per cent are women; 53 per cent have secondary or higher education; and 40 per cent are between 15-25 years of age.

- 72 per cent of Nepalis aged 16-65 have a mobile phone of some type. Computer ownership is negligible.
- There is low ownership in rural communities. Rural dwellers are 15 per cent less likely to own a mobile phone.
- More than 60 per cent of the zero income earners own a mobile phone. Of these, 65 per cent live in urban areas; 69 per cent are women; 53 per cent have secondary or higher education; and 40 per cent are between 15-25 years of age.
- **Women in Nepal 19 per cent less likely to own a mobile phone.**
- **Rural women have the lowest level of mobile phone ownership.**
- 52 per cent of mobile phone owners have a smartphone (highest in the South Asian region)
- 40 per cent have simple feature phones (not Internet enabled).
- Young people more likely to own smartphone.
- Relatively more smartphones with urban males; relatively more basic phones with rural females.
- Reasons for not owning a smartphone include lack of need, affordability and lack of knowing how to use a smartphone
- Smart phone penetration is 60 per cent in urban, 40 per cent in rural areas.
- 27 per cent got connected to mobile phones in the last three years, 51 per cent in the last five years.
- 28 per cent of Nepalis have more than one SIM card.
- 46 per cent of Nepalis have heard of the 'Internet'.
- Awareness low among rural, female, less educated, lower income, basic phone users and among older people.
- Rural dwellers 32 per cent less likely to be online compared to urban.
- Smart phone owners are the highest users of the Internet
- High gap in Internet use between the educated and the less educated.
- **Gender divide in Internet use is 33 per cent in Nepal**

Nearly 85 per cent of those using smartphones and connected to the Internet use social media. While the killer apps, i.e. social networking and messaging apps are most popular, business applications (calculation, currency conversion, and translation are used by half of those connected online). There is a high gap of 30 per cent between urban and rural users in the use of social media; there is a 33 per cent gap between men and women.

4.2 The Gender Digital Divide

Clearly, there is a gender digital divide, one that needs to be addressed with a multi-pronged and multi-faceted approach. Issues that impact upon the gender digital divide include access, ownership, content, technology and participation.

4.2.1 Access:

There are two ways of understanding access, from a technology perspective and from a social perspective. An understanding of each is integral to understanding the importance of addressing 'access' to begin the process of reaching women and girls.

- ***Within a technology context***. When an ICT product or service can be used by all of its intended users, taking into account users' differing capabilities and conditions, it is said to be an accessible ICT.[41] Conventional ways of addressing access means the percentage of households who reported that they, in a given period, had at least once accessed the Internet, whether through dial-up, DSL, or fixed broadband or mobile.[42] From such a technology perspective, universal access relates to providing communities with affordable access to ICTs. Within the context of developing societies, this often means providing access in a community setting rather than as providing universal service to individuals. Universal access and service for individual women is critical because having or not having such access defines the digital divide between the 'haves' and the 'have-nots.'

Within a technology context, 'Access' to ICTs has three further components:"[43]

- Availability—is it there? In other words, is there sufficient penetration of ICT services (Telephone and Internet) across the entire country?

- Accessibility—can everybody use it? Essentially, this means that all users are treated alike, without any discrimination based on any considerations, and that special treatment is given for those who are disadvantaged to access ICTs.

- Affordability—can everybody afford to use it? What is the real cost of access and are all the factors considered when reducing the cost of access.

While technology access is very important, it is, within the context of women's empowerment, insufficient, because of the social dimensions of access.

- ***Within a social context.*** In a public administration context, social access often refers to the delivery of public services to intended user groups. Here, however, a different understanding is offered.

Entrenched patriarchy, social hierarchies and structural inequalities provide a social context within which access to ICTs are to be seen especially in gender contexts.

What does this mean at the individual or micro level? Given the complex dynamics of the social context, it is not enough to merely extend telecommunications penetration to the last mile because telecommunications reach is not the same as access.

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[41] See Accessible ICT Procurement Toolkit. http://mandate376.standards.eu/accessible-procurement/what-ict-accessibility (Accessed on 13 September 2017)
[42] OECD (2017), Internet access (indicator). https://data.oecd.org/ict/internet-access.htmdoi:10.1787/69c2b997-en (Accessed on 13 September 2017)
[43] See http://www.wgig.org/docs/WP-Access.pdf (accessed September 14, 2017)

A 100 per cent of reach of a mobile or radio signal radio or a 90 per cent reach of television does not mean that users, listeners or viewers necessarily have access to or attend the same. The fact that there is a public telephone kiosk or a telecentre does not mean that there is access, if a woman has to walk four kilometers to use it or if her safety concerns are not addressed.

4.2.2 Ownership and Control

Ownership and control of the means of communication can define the difference between dependence and independence, between a sense of helplessness and self-confidence. If the male head of household owns the only mobile phone in the home, the woman finds herself in a position where she has to ask for permission to use it—a permission that can be granted or denied. She feels dependent and hesitant, because she feels that she has to justify and explain her use of it. In essence, ownership also controls access to ICTs.

Ownership of a technology tool such as the mobile phone gives a woman or girl direct access to knowledge and services, giving her choices in content and services she is exposed to. In case after case, ownership of the mobile phone has made the difference between low and high self-esteem; increased awareness, has helped women articulate their needs; has helped women use the mobile phone for income generating activities, to seek out knowledge and services as desired. A consequence, whether intended or otherwise, has been to alter women and girls' status in the home or community.

4.2.3 Content and Language

There is a widespread belief and practice within the development community of practitioners, that one has to only anticipate needs, develop the content, and make it available, for a desired effect to take place. This is a well-meaning but mistaken belief because content is at the heart of the issue. There are two aspects of content development that merit attention.

First, much has been said and written about relevant, timely, local content. Yes, content is available, but there simply is not enough useful and relevant content available; especially content that addresses the realities and needs of women and girls. Content takes time and costs money to produce—and content suitable to the grammar of each difference ICT tool takes longer and costs more to create.

Second, who determines what is relevant, timely and local? Unless it is the beneficiary, i.e. the women and girls themselves, there is less chance of actual use.

Relevant, appropriate, time and problem-solving content is critical. This has to be developed in a partnership with the beneficiary; otherwise, it is not likely to be used, because it is not rooted in ground realities.

4.2.4 Technology

Technology is important and issues such as infrastructure are prioritized. A common assessment of projects is that the "technology worked, but the effort did not yield results". This is because the conventional approach to project management using ICTs assumes that infrastructure is needed first and therefore, investment in hardware—the

buildings, the equipment and hiring of staff generally precede any project work. The bulk of investment in any project generally goes toward such overhead costs and few resources are left for project activities. The social aspects of any effort are given less priority, and in the final analysis of an effort, the technology worked but there was little change in the lives of people.

People issues must be addressed first. Choice and use of ICTs depends upon the investment in people first, rather than on the deployment of sophisticated ICT-based "solutions" without adequate attention to the people issues.

4.2.5 Participation

Due to inequalities and vulnerabilities, women and men have different experiences, knowledge, talents and needs. Given socio-cultural, political, and economic realities, evidence shows that participation of women and girls in development is much lower than that of men and boys, even in situations when the participation of the latter is legally enabled and encouraged.

The term 'participation' can be defined in many ways across a spectrum of meanings. For donors and governments, it can mean *'for'* the individual or community as an end user. It can also mean *'with'* the involvement of an individual or community, by seeking inputs into the development of the programme or project, or as part of an evaluation process to assess effectiveness. Participation can also mean ***'by'*** the community—where the beneficiaries design, develop, deliver, and benefit from the project. In all the definitions, unless explicitly and exclusively stated, women and girls are lost in definitions of participation.

One can argue that the introduction of ICTs, especially the mobile phone, reconfigures the dynamics of existing social, cultural and economic contexts and redefines participation by enabling communication, engagement and participation regardless of geographical and social distance by minimizing the hurdles caused by socio-cultural and economic contexts. This reasoning forms the basis for examining ICTs as enabling tools for greater participation of women and girls in development benefits, and consequently, empowerment.

Involvement, engagement, and participation of women and girls in the development and deployment of projects, products, and services would be ideal to optimize the benefits of ICTs, but often, this is not possible. In such contexts, it is possible to ensure participation by having a person on the ground, ideally trusted and coming from among the women and girls and the same community. This person would be an "infolady" of 'Kalyani"[44] serving as link between the beneficiaries and the service providers. Support on the ground includes community mobilization and participation, timely availability of other support materials, e.g. banking facilities for financial inclusion.

While women need ICTs for the same reasons as men, i.e. to access information that is important and relevant to their productive, reproductive and community roles and for economic empowerment, gender based barriers place them at a particular disadvantage and distance them from the technologies that they critically need.

[44] See http://infolady.com.bd/infolady-model/ (accessed April 03, 2019)

4.3 The ICT Opportunity for Women and Girls

There are two aspects to the interaction between women (including girls) and ICTs—representation and participation. The first is the representation in the content of ICTs—in the news, on television, on YouTube videos, etc. Most of such representation is negative, making women and girls both victims of misogyny and objectification. Such representation, especially on social media, can lead to cybercrime, bullying, human trafficking, and sexual abuse.

While the negative representation of women and girls in ICTs is an area that cannot be stressed enough, this module is focused on the second aspect—the participation of women and girls in the use of ICTs and the impact of their participation, including the role of ICTs in empowering women and girls.

ICTs can benefit women directly when women use ICTs to improve their own status, and indirectly when ICTs are used to improve delivery of information and services to women. ICTs offer possibilities for women to directly engage in e-commerce, and access education and e-government services, bypassing the sociocultural barriers that would have hindered access. Among women's groups, the use of ICTs has enabled women to organize advocacy campaigns for women's rights and participation by providing a new communication forum for the expression of their views and for raising awareness of women's issues.

There are Asia-Pacific examples of ICTs benefiting women when the ICTs have been meaningfully and appropriately embedded and integrated into programmes and activities that focus on women's empowerment. Some examples are summarized below:

- Indian non-governmental organizations (NGOs)—IT for Change and the Centre for Community Informatics and Development—collaborated on a project with the Department of Education in Karnataka to empower rural women. In the project women were trained to produce radio programmes and videos for other women in their communities, and run a village-based telecentre.[45]

- Dnet, a social enterprise in Bangladesh, has built the capacity of over 100 Infoladies (also called Kalyani) to provide information and services to rural communities. Trained and equipped with modern ICT devices (laptop, tablet or smartphone with Internet connection), Infoladies travel around villages on their bicycle offering, for a small fee, information and services related to healthcare, agriculture and e-government. For example, Infoladies can provide pregnancy care service by showing videos related to pregnancy, child birth and child care on her laptop, conducting basic check-up with her medical kit, and selling prenatal products like folic acid.[46]

- Likhaan or the Centre for Women's Health, is an NGO in the Philippines that has been providing health care services to women in marginalized communities, and advocating for their rights. Through its advocacy work for a Reproductive Health Law, Likhaan created an online magazine to collate stories of women and youth from marginalized communities most in need of sexual and reproductive health

[45] Anita Gurumurthy and others, "Mahiti Manthana: Reimagining a women's empowerment programme through digital technologies", *IT for Change*, 2010. Available from http://www.itforchange.net/sites/default/files/ITfC/Mahiti%20Mantana-%20website.pdf

[46] Dnet, "iSocial". Available from http://dnet.org.bd/page/infolady

services and rights. The online magazine helped to influence lawmakers both directly and through generating public support.[47]

- The ITU Girls in ICT initiative is a global effort to raise awareness on empowering and encouraging girls and young women to consider studies and careers in ICT. The Girls in ICT Portal is a tool for girls and young women to find out about the ICT sector, as well as coordinate the organization of and active participation in the annual Girls in ICT Day.[48]

These examples illustrate that when women have access to and control over ICTs, they can benefit in many ways. At the same time, ICTs have created new economic opportunities for women, especially in countries like India and the Philippines where women have been employed in various IT-enabled services related to data entry, ICT-based business, software customization and mobile money. Furthermore, tele-work and e-commerce have made it possible for some women to work from home. It has been found that these ICT-enabled economic opportunities are much more successful when designed, operated and managed by women, as in the case of eHomemakers in Malaysia

Case Study 2: eHomemakers

eHomemakers, Malaysia

Founded in 1998 by a single mother, eHomemakers started as "Mothers for Mothers"—a voluntary group of mothers from multi-ethnic communities. Against the backdrop of the Asian economic crisis, the group consisted of housewives who managed their home-based businesses using ICTs. Soon, the network of housewives expanded and they were using ICTs not only for running and promoting their businesses, but also for connecting with each other for mutual support and gaining self-esteem.

Initially, eHomemakers built a website for posting relevant information, but over time, the website could not support the growing needs of members that included middle- and low-income housewives, as well as various socially and financially disadvantaged groups, who wanted a more dynamic platform with interactive features.

Challenging the traditional view that only the young and educated can use ICTs, eHomemakers has made their portal a democratic space through which members have been introduced to concepts like choice, costs of working, technology use and taking better control of their lives.

Besides economic empowerment, eHomemakers provides information and support on key issues affecting women like social prejudice and self-defeating mindsets. eHomemakers has turned around the lives of members who were on the brink of despair and even suicide.

Source: eHomemakers. Available from http://www.ehomemakers.net.

[47]Wikipedia, "Likhaan". Available from https://en.wikipedia.org/wiki/Likhaan
[48]ITU, "Girls in ICT Portal". Available from http://girlsinict.org.

These examples show that the new ICT scenario has created new employment opportunities for women, and when given the opportunity, women have been able to use ICTs to empower themselves economically and socially. Using ICTs to jumpstart their career or grow their entrepreneurial activities, women have been able to gain recognition and status. At the same time, women have used the ICT tools and skills gained to create their own social spaces for articulation and aggregation of their collective interests, especially through social media platforms such as Facebook. Women have also used these platforms for support, peer learning and mentoring, resulting in the collective empowerment of women.

However, for women to fully benefit from the opportunities that ICTs can offer, there needs to be pro-women policies and practices that prepare women for future workforce needs, including the need for training and career support at three levels:[49]

4.4 To Sum Up

- There is a digital divide and a gender digital divide with women and girls at a greater disadvantage.
- These divides are a result of lack of access (both technological and social), irrelevant and inappropriate content, a technological determinism, and lack of participation in the process.
- Lack of sex disaggregated data on which to base policy options and decisions limits effective policy and decision-making.
- The barriers that women face when accessing education and ICTs are similar—poverty, illiteracy, lack of time, lack of relevant content, patriarchies and other social restrictions.
- However, when technology is placed in their hands, women are able to improve their economic, social and political status in the community.
- Women use technology not just to learn and to generate an income, but also to create women-friendly spaces on the Internet for building up networks to voice and share their concerns, and to lobby for gender equality
- There are emerging opportunities for women's employment in the ICT sector provided policies and plans are in place for training, career promotion and mentoring.

The digital gender divide will not go away by itself, certainly not in the near future. To understand what needs to be done, it is necessary to examine the underlying causes of the divide more deeply. The causes are not technical, they pertain to a way in which gender as an issue (and women and girls in particular) is either included or excluded in

[49]ITU, *A Bright Future in ICT Opportunities for a New Generation of Women* (Geneva, 2012). Available from https://www.itu.int/en/ITU-D/Digital-Inclusion/Women-and-Girls/Documents/ReportsModules/ITUBrightFutureforWomeninICT-English.pdf

policy-making and programme implementation. To address this these issues, gender sensitive policy making is discussed in the next section.

Something to Do:

A number of conditions that define the status of women and girls in different societies have been listed above. Reflect on what barriers women and girls face in your country setting. They may be different from those listed in the section above. If so, what are they?

In your view, how can the ICT opportunity be exploited to improve the lives of women and girls in your country? Do you know of any case where ICTs have been used by women and girls to empower themselves?

SECTION III

V. Framing a Gender Sensitive Policy and Implementation Plan for Women's Entrepreneurship

Changes in gender relations can come through the slow process of social change or through carefully planned policies and programmes. An enlightened and developed society based on principles of human rights and dignity, would perforce provide gender sensitive governance through carefully planned gender responsive policies and programmes.

"Gender-sensitive governance" is an alternative term for engendered governance. Gender-sensitive governance recognizes "the different needs, interests, priorities and responsibilities of men and women and challenge entrenched gender inequalities."[50] Its "institutions and processes (are) designed to identify and integrate gender differences into all aspects of decision-making so that policies, plans and programs equally benefit all women and men across societies".[51]

A "Gender-sensitive government' is an outcome, achieved through the strategy and process of "gender mainstreaming". Gender mainstreaming is a comprehensive strategy aimed at achieving gender equality. The official definition adopted by the United Nations in 1997 is

> *"... the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels. It is a strategy for making women's as well as men's concerns and experiences an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres so that women and men benefit equally and inequality is not perpetuated."*[52]

Gender mainstreaming can also be defined as the "The process of ensuring that women and men have equal access to and control over resources, development benefits and decision-making, at all stages of development process, projects, programs or policy."[53]

Quite unintentionally, there is a tendency to be gender blind while making policy and to assume that gender is not an influencing factor in projects, programmes or policies and an essential determinant of social outcomes. Such a failure to recognize that gender is an essential determinant of social outcomes impacting on projects and policies is a "***gender-blind approach***".[54]

At other times, policies and programmes are framed on the assumption of "***gender neutrality,"***[55] i.e. that they are suitable for, or applicable equally to, or common to the needs of both men and women ("Women are also included"). Such gender neutrality

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[50]Gender Hub e-Learning "Gender-sensitive Governance" http://elearning.genderhub.org/glossary/gender- sensitive-governance/

[51] Ibid

[52] United Nations. (1997) *The Report of the Economic and Social Council for 1997.*

[53]http://info.worldbank.org/etools/docs/library/192862/introductorymaterials/glossary.html (retrieved May 16, 20160

[54] Ibid

[55]https://www.google.co.in/webhp?sourceid=chrome-instant&ion=1&espv=2&ie=UTF-8#q=gender%20neutral%20meaning (retrieved May 16, 2016)

runs directly in contradiction to existing evidence that policies and programmes affect men and women differently.

The objective of gender mainstreaming is not to render existing policies and programmes obsolete or to replace them. It is intended to strengthen them by drawing attention to the differential needs of different beneficiary groups and by including the gender perspective in all sectors, so that existing policies can be better implemented with greater efficiency, effectiveness, responsiveness, transparency, and accountability.

Through its "Constitution of Nepal", 2015, Nepal has embedded gender equality as a guiding principle of society. However, the effort at gender mainstreaming began earlier when the Gender Responsive Budgeting (GRB) system was introduced in 2007. GRB was introduced as a tool for women's empowerment, gender equality and inclusion.[56]

Gender responsive budget guidelines, localization strategies, indicators and sub indicators for gender analysis of programmes and budgets have been created. The Ministry of Finance has integrated GRB principles in the Budget Management Information System (BMIS) and Line Ministry Budget Information System (LMBIS).

A gender inclusion policy which stipulates a minimum 33 per cent representation in the state mechanism including legislatures has been in place. An allocation of 35 per cent of the budget of local bodies in the Target Group Development Programme (10 per cent for women, 10 per cent for children, 15 per cent for socio-economically backward groups has been provided. The Local Election Act 2017 has made a mandatory provision for political parties to nominate at least 50 per cent women candidates among key positions of local government (i.e. one woman among the mayor and deputy, chair, and vice chair, etc.).

Gender mainstreaming can be applied across all of government and/or individual sectors. Here, the focus is on applying the methods of gender sensitizing to the promotion of women's entrepreneurship.

Parallelly, there are institutional mechanisms (i.e. Ministry of Finance Gender Responsive Committee), implementation committees and focal points in all the sectoral and line ministries.

The followings are some of the achievements these measures brought about: gender focal points, increased land ownership among women, decreases in school drop-out rates, improved maternal and child health, among others.

There are also challenges, mostly in implementation, that resulted from these measures. Some of these include a lack of internalization of GRB by line ministries, deviation between budget allocation and expenditure, lack of gender sensitization during plan formulation and implementation, lack of training and capacity building, and a weak implementation and monitoring system.[57]

There are many ways in which gender mainstreaming can be integrated into the policy

[56] Government of Nepal, Ministry of Women, Children, and Social Welfare, *Experiences of Implementing Gender Responsive Budgeting (GRB) in Nepal.* https://www.unescap.org/sites/default/files/11.%20Nepal.pdf (accessed June 25, 2019)
[57] Ibid.

making process. There are an equal number of resources and toolkits produced by multilateral and donor agencies available in the public domain that can be modified to suit a given context. What is attempted here, however, is to suggest ways in which Nepal can conduct its own gender and ICT needs assessment as a precursor to making a policy for promoting women's entrepreneurship using ICTs.

There are three distinct elements to framing an effective gender policy[58] in a given sector of development, including women's entrepreneurship; a situational analysis, policy itself, and an implementation strategy.

5.1 A Situational analysis

A situational analysis has two parts, the first examines the gender issues concerning beneficiary groups and the second examines the organization itself.

Desk research, i.e. a search of existing literature on the subject, would reveal that there are a large number of internationally published documents on gender issues in women's entrepreneurship in Nepal. Issues identified include

- Socio-cultural and religious norms that affect women's ability to develop and succeed in business
- The nature of women's responsibilities in a society seen as primarily home-based, reproductive, and community based—leaving little time to engage in business or income generating activities
- Lower levels of literacy and education—these become barriers
- Lack of awareness and information about opportunities, markets, and laws
- Lack of awareness of business development training and services.
- Lack of awareness about existing business networks
- Less access to finance—due to lower education, lack of confidence, lack of collateral and documented credit histories, unclear legal rights and the invisible prejudices of financial institutions.
- Limited financial and business skills, and limited digital literacy
- Limited ability to deal with government agencies and representatives

Simply knowing these issues is not enough, a Gender Mapping Exercise is also necessary. Gender Mapping is the process of collecting and identifying what information is already available and what needs to be collected. Some questions that need to be asked when assessing collected data include:

- What information is available and how this issue affects men and women differently?
- What information is NOT available?
- What projects or policy interventions related to this issue have already happened?
- What projects or policies are currently in place that relate to this issue?

[58] UNDP (2006) *Resource Guide: Mainstreaming Gender in Water Management.* http://www.undp.org/content/dam/aplaws/publication/en/publications/environment-energy/www-ee-library/water-governance/resource-guide-mainstreaming-gender-in-water-management/IWRMGenderResourceGuide-English-200610.pdf *(retrieved August 20, 2016) p. 139*

- What other interventions related to this issue are planned?[59]

A Gender Mapping Exercise also includes an examination of staff knowledge, skills, commitment and practices in relation to gender issues and an examination of gender issues affecting both staff commitment and practices in relation to gender issues, and staff (such as gender differences in promotion opportunities or harassment at work). In the absence of gender sensitivity in the organization itself, it would not be possible to address gender concerns effectively. Having answers to these questions helps in defining where the information gaps are and then commissioning a gender audit to fill the information gaps.

A Gender analysis that collects sex-disaggregated data is also essential. Gender analysis is the process of collecting, processing and analyzing information about gender to serve as an input for policy making. Gender analysis provides sex disaggregated data and an understanding of gender roles and how labour is divided and valued. There are a number of global gender indices available that can form the basis to start a gender analysis.[60] These macro level data give a comparison of gender equality across a large number of countries. Some of the indices also provide in-country and intra-household data about women's agency.

Gender analysis is an important process in order to ensure that development benefits and resources are effectively and equitably targeted to both women and men, and to successfully anticipate any obstacles or hurdles, or negative impacts that may occur. It also helps to ensure that development projects are not gender blind or neutral. A variety of frameworks and tools are used to conduct a gender analysis

A structure for undertaking such a situational analysis on enabling environments for women in India was undertaken by Hina Shah[61] who details the process of a gender analysis.

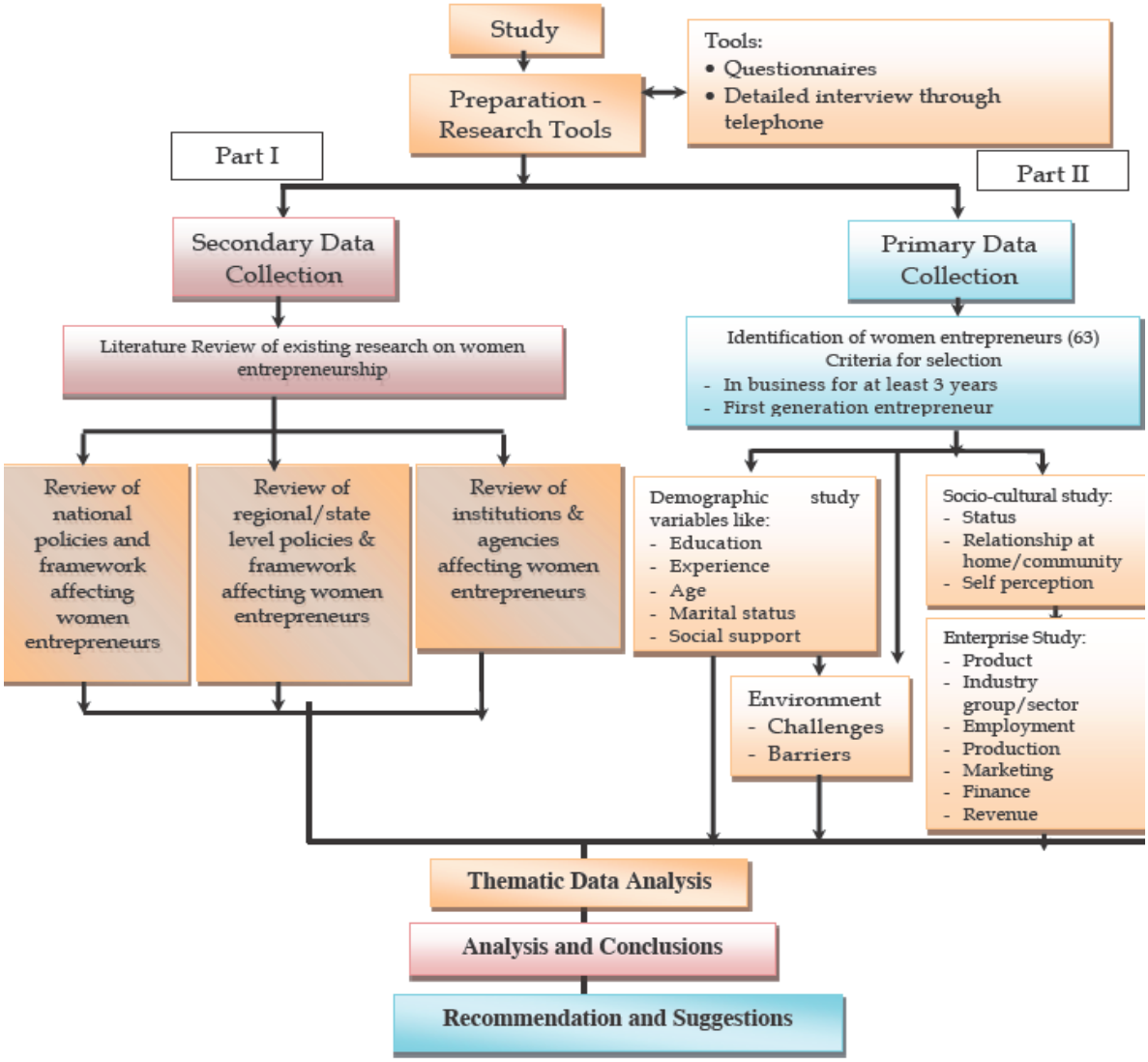
[59] Ibid

[60] The Female Entrepreneurship Index (FEI), https://thegedi.org/research/womens-entrepreneurship-index/; Social Institutions and Gender Index (SIGI), http://www.genderindex.org/; Women's Economic Opportunity Index http://www.eiu.com/public/thankyou_download.aspx?activity=download&campaignid=weoindex2012; Gender Data Portal (http://www.eiu.com/public/thankyou_download.aspx?activity=download&campaignid=weoindex2012; Women, Business, and Law http://databank.worldbank.org/data/reports.aspx?source=gender-statistics

[61] Hina Shah (2013) *Creating an Enabling Environment for Women's Entrepreneurship in India.* http://www.unescap.org/sites/default/files/ESCAP-SSWA-Development-Paper_1304_1.pdf (retrieved May 17, 2016)

Box 3 Shah's Methodology for Gender Analysis

Figure 1: Schematic Representation of the Study



Extensive and multidimensional in scope, the gender analysis is a thorough examination with a gender lens that, in turn, leads to concrete policy recommendations for implementation. Shah's recommendations fell under several headings:

- Government efforts for women's entrepreneurship development
- Civil society's efforts for women's entrepreneurship development
- Existing policies for enterprise development—regulatory, promotional, credit, and representational.
- Government schemes and programmes to support entrepreneurial opportunities for women
- Business Development Services (BDS) Providers: Supporting institutions

Shah's methodology could serve as a starting point for a situational analysis of women's entrepreneurship in Nepal.

Something to Do

Does Nepal collect sex-disaggregated data on entrepreneurship? If so, where is it to be found in the country's data used for national policymaking? Search and find the information on the Internet.

5.2 The Policy

Having laws promoting gender equality makes little or no difference if there is high gender inequality resulting from poor design, enforcement, implementation, or poor capacity. Thus for women, just having laws on paper does not necessarily reflect legal realities or make any significant difference to their lives.

Government's policy regarding women's entrepreneurship should emerge from the situational analysis and should contain the vision of gender sensitive practice and the various ways in which this vision would be implemented. The Policy itself is often a public document.

It can be well argued that all governments have constitutional provisions, and sets of laws and rules that govern economic activity, including those that would be under the rubric of "entrepreneurship'. However, many of these broad laws and norms have been framed as being gender neutral—i.e. for all people, and not taking into account the specific contexts and conditions of any individual group.

A UN ESCAP study examining policy for entrepreneurship through a gender lens revealed that;

- "Gender-responsive policies and programs are isolated and ad hoc.
- Coordination gaps among government entities hinder full integration of gender needs assessments in small and medium enterprise policy development.
- Policies are inconsistently applied, particularly at the sub-national level.
- Inconsistent, cumbersome and inaccessible registration and licensing processes discourage formalization of women-owned enterprises.
- Knowledge gaps and limited access to formal guidance on government regulations disproportionately impact women entrepreneurs."[62]

A quick assessment among stakeholders in Nepal in June 2019 confirmed the above findings.[63] In other words, existing laws and practices were gender blind and did not address women's specific needs.

Findings from another study undertaken by the Asian Development Bank (ADB) in the

[62]UN ESCAP "Enabling Entrepreneurship for Women's Economic Empowerment in Asia and the Pacific" http://www.unescap.org/sites/default/files/SDD%20Enabling%20Women%20report%20v7-2-E.pdf (retrieved May 17, 2016)

[63] Findings from a Training Needs Assessment conducted in June, 2019. Internal document of UNAPCICT.op.cit.

Central Asian Republics of Azerbaijan Kazakhstan, the Kyrgyz Republic and Uzbekistan also confirmed these findings.[64]

Case Study 3: GREAT Women Project, Philippines

"The Gender Responsive Economic Actions for the Transformation of Women (GREAT Women) Project aims to strengthen the capacity of women to establish and develop their small businesses. Under this project, the National Commission on the Role of Filipino Women (NCRFW) partners with national government agencies (NGAs) and local government units (LGUs) to create and implement policies, programs, services and initiatives that will encourage and assist women start and grow their microenterprises."

"Under the GREAT Women Project, NCRFW closely works with" different ministries and agencies of the government at various levels, from the central to the local to create an enabling environment for women's entrepreneurship.

"The GREAT Women Project does not directly provide loans, construct facilities nor conduct trainings. But by partnering with NGAs and LGUs in empowering women to engage in entrepreneurship, it develops women's economic contribution to their families, communities and the nation. As the project promotes the growth of women's enterprises, the GREAT Women Project helps mitigate the effects of poverty on women."

Source: Philippines Council for Women
https://pcw.gov.ph/sites/default/files/documents/resources/gwp_primer_en.pdf

The Asian Development Bank's (2012) *Gender Tool Kit: Micro, Small, and Medium-Sized Enterprise Finance and Development,* in a summary checklist has also detailed several areas of concern where there are gender issues and suggested possible measures for redressing these issues. The areas of concern include: enabling laws and frameworks; finance; business capacity building; business development support services; value chain development and institution capacity development among service providers (government, private service providers, and civil society organizations).

A country's laws and policies are not necessarily created afresh. Creating laws is a slow and cumbersome process. New legislations are also often on the fringes of existing laws, amending or modifying them to enable governments to address a new development; or to delete some archaic clause or feature. Therefore, it is not necessary to create news laws to address women's entrepreneurship issues, although this may be an ideal situation. It is critical, however, to mainstream gender into the existing policy making process.

One way of policymaking would be to mandate a gender fund for gender related programmes and activities. This is an approach based on the principles of gender budgeting.

[64]Asian Development Bank (2014). *Information And Communication Technologies For Women Entrepreneurs Prospects And Potential In Azerbaijan, Kazakhstan, The Kyrgyz Republic, And Uzbekistan.*
http://www.adb.org/sites/default/files/publication/42869/ict-women-entrepreneurs.pdf

Gender Budgeting is a process of incorporating a gender perspective at all stages: policy/ programme formulation, allocation of resources, implementation, review and impact assessment, and reprioritization and reallocation of resources. A gender budget is not a separate budget for women. Instead, a separate gender budget can be integrated into a programme in order to prioritize women in an activity. It can be done by categorizing the budget as:

1. Pro-women allocations, where 100 per cent of the allocation is meant for women.
2. A pro-women allocation where a specific percentage, between 5 and 99 per cent is targeted for women's specific activities.

Many governments prefer the first option, because they are easier to identify and monitor than gender responsiveness of non-targeted allocations. However, focusing on the first option means only a small percentage of the budget is set aside, and the focus is not on the gender responsiveness of the main budget.

What makes a Gender Budgeting approach important is the premise that policy must go beyond paper. No policy will work without a money allocation. Gender Budget analysis checks what part of the budget is allocated to implement the policy, whether the money is spent as allocated; who the money reaches, and whether the money has changed gender patterns in society.

It is important to note that while Finance Ministries have a high-level of say and control over budgets, their ability to actively direct public spending is limited. Therefore, while there may be a policy mandating a gender focus, operational responsibility for using public funds rests with line ministries and the large number of public sector institutions. Gender budgeting, then, assumes greater importance at the sectoral/ministerial level.

While there are many entry points to doing a gender budgeting exercise, sex-disaggregated databases are vital at all stages.

The stages of a gender budget exercise are:

- At the time of budget preparation—where one can ensure that financial appropriations made in budgets match the needs.
- At the post-budget stage where one can analyze sector wise or ministry/department wise shares of allocations and expenditure. Allocations indicate government priorities.
- At the implementation stage, one can analyze if the budget is being spent in the way it was intended and to the full extent? What were the delivery costs; what were the subsidies? And for who was it intended?
- At the post implementation stage, one can examine the outcomes and impact of the budget; analyze expected outcomes from appropriations vs. actual outcomes including unintended ones; whether the money is being used in a manner that effectively achieves planned outcomes and what is the impact? And finally, one can undertake an impact assessment of programmes and projects in terms of whether they have met their objectives and purposes.

Case Study 4: Gender Fund in Philippines

"An early initiative in the Philippines has been broadly discussed in relation to the mainstreaming objectives. Since 1996, every government-related agency in the Philippines has been required to allocate at least five percent of their budget for gender equality work and to prepare a Gender and Development Plan. A positive aspect of the Philippine experience was the specific support provided to line ministries by the national machinery for gender equality, which led to increased awareness, commitment and capacity within the line ministries. The risks involved in specifying such a small portion of the budget to gender equality have, however, often been raised as this approach could reinforce the marginalization of women in relation to access to resources. The need to influence the entire budget from a gender perspective has been highlighted. Today the Department of Budget and Management in the Philippines also advocates for integration of gender perspectives into the performance-oriented budgeting system across all expenditures."

Source: Carolyn Hannan (2008) "Mainstreaming gender perspectives in national budgets: an overview"http://www.un.org/womenwatch/daw/news/speech2008/2008%20Korea%20Gender-responsive%20budgets%20April%2019.pdf (retrieved May 17, 2016)

Having an overall gender budget within each ministry enables the agency to examine the extent to which such a budget is used for the purposes for which it was intended.

5.3 The Implementation Strategy or Action Plan

The Action Plan, or project document is an internal document based on the situational analysis and the policy. The action plan would detail how the policy would be carried out over a specific period of time, would contain activities, time bound targets, budgets, responsibilities and indicators for monitoring and evaluation.

While government departments are adept at preparing project documents and in implementing projects, some special considerations must be included if a gender sensitive project is to be planned and implemented.

Some of these considerations include:

- Have the stakeholders been identified? For women's entrepreneurship, the stakeholders include:
    - Government officials from different ministries—industry, rural development, women and children, education, health, finance; Information (if broadcasting is to be used) and IT if websites and applications are to be used.
    - Banking and other financial (including microfinance) institutions
    - Academia and Gender Experts
    - Education and capacity building institutions
    - NGOs and civil society organizations working at grassroots

    - Women entrepreneurs, existing and potential

- Is there a gender balance among all the stakeholders and in policy-making bodies? If there is a gender imbalance, it is essential that this be rectified, and at least 30 per cent of the policy making body must be from the under represented group.

- What specific knowledge and skills can the stakeholder group contribute? In addition to a spread across sectors, it is necessary to ensure that there is varied expertise within the stakeholder group. For example, elected officials and parliamentarians can bring political expertise, NGOs can bring the ground experience, while researchers can provide valuable data for decision-making. Is there gender expertise among the group?

Other considerations include:

- Efficiency—balancing outcomes with limited resources

- Effectiveness—how effective will a policy intervention be in a given situation

- Gender equality—to what extent will the social, historic, and economic disparities between men and women be addressed

- How can other crosscutting goals such as social justice be integrated into policy. Can other groups such as those living in extreme poverty also benefit from a given policy intervention.

For instance, is it possible to integrate education and capacity building in the use of ICTs for entrepreneurship into a financial policy designed to facilitate access to capital and finance for women who want to start a micro-enterprise? Or is it possible to include both individual and women's collectives in the financial incentives given to a micro-enterprise among women who want to start a small water pump maintenance shop.

It is also important to recognize that there is resistance to gender mainstreaming among both policy makers and beneficiaries. The reasons are numerous but among them are the misinformation or lack of information about gender issues, restricted resources, and cultural or traditional perceptions about gender roles. Therefore, communication and change management strategies are an important part of gender mainstreaming.

5.4 Awareness Creation among Beneficiaries

Evidence from multiple studies and countries, including Nepal, consistently point to 'lack of information and awareness among women even about existing opportunities'. Whatever may be the cause of such a lack of awareness, until and unless women know about opportunities, they are unlikely to use or benefit from them.

Consequently, communication strategies themselves need to be mainstreamed and integrated at all phases of the policy making, programme or project process. Communication is not simply a neutral transfer of information; it includes goals such as

awareness raising, social mobilization, behavior change, advocacy and sharing good practices as critical part to success. Good communication strategies consider the different needs and situations of men and women (as providers, audiences, subjects, and beneficiaries).

Case Study 5: Community Radio in Nepal

Lack of information has been cited as among the main reasons why women do not have access to development programmes and benefits.

Radio is often cited as a 'poor man's medium' because of its cheap technology implementation at both the broadcaster and the receiver. Community radio is a well-placed and acknowledged tool that supports participation and representation for underserved communities.

Nepal has a vibrant community radio system comprising of more than 200 community radio stations spread throughout the country. Many broadcast for more than eight hours a day and content is mostly informational, local, and of community interest.

A recent survey showed that 70 per cent of people listen to radio on mobile phones in Nepal. Listeners use phone-in and SMS to connect to their local community radio station. There are some reports, although unverified, about the use of social media to connect to the local station.

Given the reach of community radio in Nepal, this medium, when combined with mobile phones could play a pivotal role in outreach—to provide women and other disadvantaged remote communities with information, advice, and business development services.

For women, it is first important to know the media and ICTs exposure and preference patterns. Suggested questions to understand media use include:

- Where do men and women get their information?
- Do men and women read different publications?
- Do men and women watch or listen to different electronic media?
- What content are they exposed to—do men and women differ in the content they prefer?
- Are media consumption patterns (frequency, time) different for men and women?
- Who do women turn to for information and help? Is it the various media and ICTs or is it interpersonal sources—relatives, friends, other women, opinion leaders, local NGOs or local government officials?
- Do men and women have different credibility criteria (regarding "authorities," arguments used, etc.)? In other words, which source of information do women "trust" as reliable?
- Do men and women have different values that cause them to respond to certain messages in different ways?

Answering these questions will help to frame a communication strategy to ensure that women's awareness of policies, institutions, processes and facilities that are available to them will increase.

5.5 To Sum Up

- There are three components of policy-making—situational analysis, the policy and action plans.
- At each stage, special effort has to be made to incorporate a gender lens or a gender perspective.
- Gender budgeting is an important component of gender sensitive policy making.
- An action plan must include the participation of a sufficient number of women in order to create a gender balance and to ensure gender sensitivity.
- Communication strategies are an important part of Gender Mainstreaming.
- Targeted communication is necessary to address women as a group. For this, women specific data need to be collected.
- Different communication strategies need to be devised for each group
- The importance of mainstream media for beneficiaries and electronic communication for government is to be acknowledged.

Something to Do:

Make one list of the information about women entrepreneurs in your country that you already have.

Make another list of the information about women's entrepreneurs in your country that you DO NOT have.

You now need to undertake a situation analysis. How will you go about collecting the data you need for informed policy making? To this, you will need to draft a proposal for a Gender Mapping and Auditing Exercise. Draft the proposal, including a Terms of Reference for a Request for Proposal for a Gender Audit of your department/ ministry's programme.

VI. ICTs—Exploiting ICTs for Gender Sensitive Implementation in Women's Entrepreneurship

Good mechanisms for implementation are critical and this is where the role of ICTs becomes significant. ICTs are tools, enablers and their capabilities rest in their unique features—speed, reach, versatility of design and use for both the provider and the user. ICTs are not a 'one size fit all' solution as different ICT tools have different advantages and limitations, creating a need to match the ICT tool with the appropriate need.

For government, the use of ICTs in public administration creates an opportunity to move from being just an e-government to a 'smart' government—one that "*understands"* the said/unsaid/felt needs of its citizens; to "*design*" solutions to address those needs; and to *"deliver"* the solution effectively.[65] Using ICTs effectively also presents an opportunity to government to create a gender sensitive government.

There are many ways in which ICT capability can be suitably used for women's empowerment and entrepreneurship. Based on an analysis of 12 cases from the Asia and the Pacific, ESCAP's publication *E-Government for Women;' Empowerment in the Asia and the Pacific*[66] found, that

> *"gender-responsive e-government interventions lead to many positive outcomes for gender equality. They enhance women's self-esteem, enable women to challenge traditional norms and build peer connections, boost their confidence to participate in the job market, bring them vital information on entitlements, and give them access to mechanisms of redress. They also transform public institutions, making them technically and politically more capable of delivering gender inclusive services."*[67]

The findings of the study also indicate that:

- *"Gender-responsive practices in e-government depend on strong norms and rules, but institutionalizing gender in e-government also entails wider changes in public institutional cultures and human resource capacities.*
- *Where there are gender mainstreaming laws and policies and gender budgeting rules,*
  the institutionalization of gender in e-government design and implementation is stronger.
- *Well-designed e-government strategies not only tackle women's exclusion from development services, but also give them the space to participate in shaping development agenda"*[68]

What, then, are possible ways in which ICTs can be used as tools in creating enabling policy environments for promoting women's entrepreneurship?

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[65] www.slideshare.net/.../smart-government-means-going-beyond-mobile (retrieved May 17, 2016)
[66] ESCAP (2016) *E Government for Women's Empowerment in Asia and the Pacific.* http://egov4women.unescapsdd.org/files/documents/E-Government-for-Women-in-Asia-Pacific.pdf (retrieved June 7, 2016)
[67] Ibid
[68] Ibid

- Governments can use existing indices and databases to collect and collate macro and micro level data.
- Sex disaggregated data can be quickly extrapolated from existing databases by using Government Open Data and by including "Sex" as a field for data collection and data mining[69].
- Creating a national online "Gender Community" connecting all stakeholders can enable quick networking to share ideas, case studies, best practices, etc. Such a community can also serve as a platform for coordination of activities and monitoring and evaluation of the programme or project.

6.1 ICTs for MSME Policy, laws, and regulation

A gender audit of existing MSME policies, laws, and regulations will most likely reveal that these are either "gender blind" or "gender neutral" or that there are practices which unintentionally mitigate against women's enterprises, e.g. licensing, labour laws defining work hours and/or equal wages.

Actions to address such practices would include:

- Revisiting such policies and laws, amending them to reduce the bottlenecks and inequalities;
- Simplifying and streamlining procedures for registration, licensing, operation, and tax payment so that there are both time and cost savings for women entrepreneurs and to avoid harassment.

ICT based platforms and services are well suited to meet these needs.

1. A single-window woman only approach, i.e. a portal (an Web or Mobile based App) or an end-to-end IT solution which enables women to complete all the processes for registration, licensing, tax payment and other formal enterprise requirements would go a long way to address women's issues of time poverty and avoid harassment by officials and agents. It would enable the effective operation and monitoring of their enterprise activities.

2. Such an online facility should ideally be in the local language and using simple, clear instructions and icon-based commands.

3. Enable legal literacy on various laws by incorporating FAQs and short popup windows (e.g. "Tip of the Day") on the portal or application to provide quick and relevant information to women.

4. Provide short advertisements on conventional media, i.e. radio and television, using essentially the same content as in the tip of the day and presenting it in an easy to understand way.

[69]Data mining is the practice of examining large pre-existing databases in order to generate new information.

6.2 ICTs for Financial Inclusion[70], Products and Services

One of the defining characteristics of poverty and backwardness is the lack of access to finance and credit. This is even more so for women who are also hindered by societal, educational, and legal constraints to ownership and control of property and finances.

Globally, there has been a push for finance that addresses these constraints. Inclusive finance, according to the United Nations, is defined as '*universal access, at a reasonable cost, to a wide range of financial services, provided by a variety of sound and sustainable institutions*[71]'. While the definition may vary[72], it is widely agreed that inclusive finance does not only refer to 'access' to finance. Instead, it embraces multiple layers of financial inclusion such as financial use, financial literacy, regulatory framework, assessment of enabling environment, consumer protection, monitoring framework, and so forth.

The strongest arguments for women's financial inclusion are economic: access to finance increases access to productive assets and increases productivity, and financial intermediation is linked to stronger economic growth. "The women's market" (women as a market) is very large and represents many segments of women—from low-income self-employed women in the informal sector, to women who work in agriculture and animal husbandry, to small- and medium-enterprise (SME) owners, to low-income salaried workers (factory workers, domestic workers, etc.)

Reports on the subject have shown that women have consistently indicated access to finance as a stumbling block, therefore addressing this constraint is of critical importance. Expanding financial inclusion for women requires deliberate attention from policy makers and the collection of sex disaggregated data for such decision-making. A common and frequently cited characteristic of this group is that they are often excluded from financial services because of:

- Lack of proper identification documents;
- Inability to obtain loans without their husband's consent;
- Constraints of right to work, sign contracts, open bank accounts, property ownership;
- Inability to meet collateral requirements because of property laws;
- Limited financial capability and financial literacy.

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[70] "**FINANCIAL INCLUSION** refers to a state in which all working age adults, including those currently excluded by the financial system, have effective access to the following financial services provided by formal institutions: credit, savings (defined broadly to include current accounts), payments and insurance." **Source:** CGAP on behalf of the Global Partnership for Financial Inclusion (GPFI). "Global Standard-Setting Bodies and Financial Inclusion for the Poor: Toward Proportionate Standards and Guidance, cited in AFI, op cit. p.6 Seehttp://www.afi-global.org/sites/default/files/publications/2016-02-womenfi.1_0.pdf

[71] UN-DESA website for Financing for Development: Inclusive Finance, http://www.un.org/esa/ffd/topics/inclusive-finance.html

[72] The World Bank and IMF adopted a more specific and measurable definition as '*the proportion of individuals and firms that use financial services*[72]', which focuses more on measuring actual use than providing the access. On the other hand, ESCAP's 2015 discussion paper[72] takes a more inclusive approach by defining inclusive finance as '*the process of ensuring access to appropriate financial products and services needed by all members of the society in general, vulnerable groups in particular, at an affordable cost in a fair and transparent manner by mainstream institutional players*'.

Financial inclusion in Nepal is guided by the government's policies for provision of finances for the deprived sector. The lending requirements for banks and financial institutions are detailed in the annual monetary policy, Microfinance Policy 2008, Bank and Finance Institutions Act 2006, Act for NGOs involved in Financial Intermediation 1999 and Co-operative Act 1992. Within these provisions, there are a number of financial institutions working toward financial inclusion. These include:

- Commercial banks (CBs);
- Development banks (DBs);
- Finance companies (FCs);
- Microfinance development banks (MDBs);
- Financial intermediary NGOs (FI-NGOs) and financial cooperatives.

There are thousands of savings and credit groups (SCGs) promoted by various community-based initiatives implemented by the government and non-government sector.

The Grameen type of model is most common in lending methodology among financial service providers (FSPs) for promoting financial inclusion in Nepal.

While information is available from commercial banks, there are, however, problems in the availability of reliable information on the outreach of financial institutions. Some data show that a majority, 60 per cent of Nepalis are unbanked. Therefore, A**ccess,** to formal banking coupled with hurdles in accessing finance need to be addressed.

Within access, **Gender** is yet another key issue. The access to financial services is not equally provided, especially between men and women in terms of account ownership, saving, credit and payment services.

Enabling policy measures need to be country and context specific. Governments need to take a range of measures to address the financial issues faced by women, specifically, issues of access, and gender differentials. Among these, governments need to create favourable policy environment with explicit objectives and quantitative targets for financial inclusion. For instance, Papua New Guinea has mandated that half of the new accounts be those of women.[73]

As policy options, governments can also:

- Reform legal and regulatory frameworks, for example according to the "Know Your Customer" or KYC norms;
- Take necessary regulatory measures to enable 'digital financial inclusion'; e.g. digital signatures;
- Build awareness through financial literacy campaigns among women. Use existing conventional media for this purpose.

There is a clear role for innovative ICT practices in at least three of the above policy measures:

[73]Alliance for Financial Inclusion (AFI) (2016) *Policy Frameworks To Support Women's Financial Inclusion.* See http://www.afi-global.org/sites/default/files/publications/2016-02-womenfi.1_0.pdf (retrieved July 27, 2016

1. Simplifying KYC norms for mobile banking. Simplified and tiered KYC norms that can make SIM registration and phone ownership easier for women as well as create simplified identification procedures for women to access financial services. For instance, Bangladesh Bank has simplified KYC for mobile bank accounts and "no frills" bank accounts. Both accounts are drivers of financial inclusion, and the Bank collects gender-disaggregated information on these accounts.[74] Another example can be found in Papua New Guinea where as a result of 80% of the population not having a formal national identification document, Nationwide Microbank is accepting letters from village leaders as a form of identification to open a MiCash mobile money account.

2. Mine and analyze the information thus gathered to build sex-disaggregated databases for policy-making.

3. Given that conventional media such as radio and television have wide reach, audiences and credibility, use these media effectively for public awareness campaigns, especially where infrastructure and connectivity issues remain.

4. As credit history is used as a basis for determining loans, credit risk and collateral issues can be addressed by using data from other transactions, such as cell phone usage and utility payments. This method replace the use of financial transactional history to assess risk and even replace collateral requirements. Both Nigeria and India have introduced "zero balance" accounts requiring minimum identification—in Nigeria's case, a KYC light process using a mobile phone process[75]; and in India's case, using the UIDAI or Aadhar Card[76] issued to every individual citizen as a basis for identification.

5. Make use of crowdfunding and other informal sources. Crowdfunding consists of financial services that bypass traditional financial intermediaries, using small amounts of money obtained from a large number of individuals or organizations to fund a project, or a business or personal need done primarily through online web based and Mobile platforms.

   Crowdfunding has the potential to increase entrepreneurship by expanding the pool of investors from whom funds can be raised beyond the traditional circle of owners, relatives and venture capitalists. Some regulatory norms are necessary to handle crowdfunding. For instance, with nearly 10,000 such crowdfunding platforms (equity financing and rewards-based financing) currently available in China, the China Banking Regulatory Commission is in the process of putting a regulatory framework for crowdfunding in place.[77]

[74] Ibid.
[75] Ibid
[76] See http://www.pmjdy.gov.in/ (retrieved July 27, 2016)
[77] Alliance for Financial Inclusion (AFI) op. cit p.12

Box 4: Traditional Savings: Rotating Savings and Credit Association (ROSCA)

A **rotating savings and credit association**, or **ROSCA**, is a group of individuals who agree to meet for a defined period in order to save and borrow together, a form of combined peer-to-peer banking and peer-to-peer lending. Each member of this informal group agrees to put in a specified amount into the pot on a specific day of the month and one member takes the whole sum once. As a result, each member is able to access a larger sum of money during the life of the ROSCA and use it for whatever purpose she or he wishes. One of the group members is the fund manager.

The chit fund, or "kitty party" as it is commonly called, is an informal savings group popular among South Asian women. It can be a raffle-like system, or an auction, in which members bid for the discount they are prepared to accept on the pot, to decide who gets the money each month.

Since every transaction is seen by every member each month and no money is retained within the group, the system is by and large simple and transparent—consequently very popular, bypassing formal institutional financial systems.

Recently, the practice of informal social fundraising, called 'Harambee' or 'Changa' in East Africa, has been digitized by M-Changa in Kenya. M-Changa's proprietary technology enables anyone to quickly and inexpensively manage a fundraiser, allowing the power of communal fundraising to be regained regardless of geographical distance between friends and family members. M-Changa's 10,000 customers have raised $180,000 through 65,000 customer interactions.

Source: Collated from various sources and http://changa.co.ke/ (retrieved August 10, 2016)

6.3 ICT Infrastructure and Technology

Women's enterprises have insufficient access to ICTs and other technology infrastructure, including 'smartphones' as opposed to 'dumb phones.' These are tools that are vital for business development in the current global scenario. Among the many barriers identified by women in terms of ICT use (and mentioned earlier in this module) are:

- Access and cost;
- Network quality and coverage;
- Security and harassment;
- Operator/agent trust; and,
- Technical literacy and confidence.

To address these limitations, it is essential that government proactively engage in:

1. Expanding ICT infrastructure and services, e.g. a single window online portal for entrepreneurs (as suggested earlier), reduce costs of smartphones, and provide access to mobile phone applications in Khmer.
2. Providing women with time saving technology tools.
3. Combining infrastructure development with digital literacy capacity building for women.

4. Using a combination of ICTs and multiple media, especially radio and television to deliver information and create awareness.
5. Establishing mechanisms for ensuring cyber security, privacy both online and at points of access, i.e. telecenters to ensure that there is no cyberbullying or harassment and the trust deficit between women and the service provider is addressed effectively.

6.4 ICTs for Capacity Building and Business Development Services (BDS)

Financial and technology literacy and awareness are among reasons cited for women's poor use of the existing opportunities and Business Development Services (BDS). Coupled with these two reasons are a/an:

- Lack of or insufficient existing BDS coverage for women;
- Inadequate quality of current available services;
- Poor service outreach to inclusivity of women entrepreneurs (current and potential).

Since the numbers to be covered are large, ICTs can be used to:

1. Provide short- and long-term online courses and training for women's enterprises. Such courses should focus more on audio and visual content so as to overcome literacy and education barriers. Such online capacity building, however, has to be backed up with effective face to face mentoring/teaching at the local level.
2. Consider an online competency-based certification system. For example, women already having tailoring experience can be tested online and provided with a certificate, which in turn, will help them secure financing from financial institutions (by establishing their competence and increasing their credibility).

Case Study 6: MEDPA, Nepal

Micro Enterprise Development for Poverty Alleviation (MEDPA) is a flagship programme of the Ministry of Industry, Commerce, and Supplies, Nepal. Based on the success of the project MEDEP, the Government of Nepal has set aside nearly USD1 million to support micro-enterprise development in all 77 districts of Nepal. A key principle of MEDPA is to target at least 50 per cent of women by providing collateral free loans of up to Nepali Rupee 500,000 (approximately USD5000/-) for starting small businesses. Nepali citizens, with special quotas for the hard-core poor, backward, Dalit, and indigenous populations living below the poverty line are the target group for this programme.

Most of the enterprises supported by MEDPA are agro- and forest-based (47 per cent). Data from the government show that more women have benefited from the programme.

Source: https://medpa.moics.gov.np/Home/About?infoId=11 (accessed June 27,, 2019)

6.5 ICTs for Service Outreach and Marketing

Women have consistently named time and mobility constraints as obstacles to access and benefit from services. They have also listed:

- Low education and financial literacy;
- Lack of access to available information.

Governments can address these constraints through effective outreach and marketing by:

1. Conducting gender-based client needs assessments (through online and mobile surveys, as well as through physical contact) to develop products accordingly. While ultimately, quality of service will depend on local ground support and training, providers can successfully use the data collected to design and implement the programme.
2. Considering appropriate and local branch locations to provide point of access training at appropriate timings for women.
3. Developing and launching information and awareness campaigns through mainstream media.
4. Conducting information campaigns and using conventional media to do so. For example, since FM radio is an inbuilt feature in many simple 'feature phones', using this medium to broadcast a weekly television or radio programme on various components of entrepreneurship at a convenient time for women.
5. Using SMS alert services to provide up to date information through short messages.
6. Using voice mail and IVRS to address literacy barriers.
7. Combining IVRS with a missed call service, where every call is monitored and responded to by support personnel at a support centre.
8. Using online and mobile services to assist in outreach and marketing
9. Using online training and capacity building programmes supported by face to face sessions in social safe local spaces at convenient times;

Case Study 7: Usaha Wanita, Indonesia and Elsewhere

The Business Women Service (Usaha Wanita in Indonesia), a partnership between the Cherie Blair Foundation, ExxonMobile, and Nokia was designed to deliver information and business training to women entrepreneurs via SMS services.

Typical subscribers were in their mid-thirties, educated, in the retail or wholesale sector, and had no paid employees. Most of the subscribers had very little or no prior business training. Many had started their businesses within the last one year of the project.

Ninety per cent of the subscribers said that the service gave them practical guidance on growing their business and offered an inexpensive way to become a better-informed businesswoman. 80 per cent said that the service showed them how to find new customers and over 67 per cent said the service gave them pointers on how to find affordable and easily accessible credit options.

Lessons learned from the project showed how important it is to localize content, be completely women focused and sensitive to the changing mobile environment.

Source: http://www.cherieblairfoundation.org/usaha-wanita-mobile-service-in-indonesia/

Suffice it to say at this point that many of the issues and concerns cited above are multi-faceted and are cutting across several sectors. Similarly, many of the ICT options suggested above are also suitable for multiple functions. The choice of an option has to be based on the individual, location, problem-specific policy or programmes, and each situation and context determine the nature and combination of ICT options that have to be applied.

The above section has looked at the policy making side of using ICTs for gender mainstreaming in promoting women's entrepreneurship. There is, however, another dimension that can often make the difference between success and failure, which is implementation.

6.6 ICT Data to be collected

In order to implement a policy, programme, or project successfully, it is necessary that detailed data on barriers and facilitators to women using ICTs are available. There is global evidence and macro level data of some of the barriers—literacy, time poverty, work and home responsibilities, lack of mobility, and social and cultural barriers-- but such information, while useful, is insufficient.

The main reason for defining and collecting gender statistics on ICTs is to identify and document differing patterns of access to and usage of ICTs in order to inform national policy and set policy goals**.** Collection of such data would also be of use in prioritizing policy and implementation strategy. Therefore, the collection of ICT gender statistics is a

prerequisite to the planning and implementation process of any gender intervention using ICTs.

As aggregate data often mask gender differences, making these differences not visible and consequently not reflected in policy. Ground level micro data, both quantitative and with qualitative insights are necessary to understand the underlying concerns of women and girls. Much of this data could be qualitative and in depth and could be collected for each project separately. For instance, the Asian Development Bank has documented several projects where gender concerns were first identified, and where the project was subsequently planned and implemented to address such identified concerns.[78]

The kind of intra household micro level data that need to be collected for gender sensitive implementation include:

- Details collected at an individual, rather than at a household level. This mean data collected from the woman or girl herself, not from another member of the family representing her.

- Details regarding ownership and control of assets within the household. Often data are collected at the household level and use the male as the 'head of household', even if the woman is the earning member. Such information is inadequate, especially when it comes to ownership and control of ICTs. Data need to be collected on who, within the household, owns and controls access to ICTs. How many mobile phones are there in the house? In whose hands are they? Does the woman and girl own her own smartphone? If not, how does she access information?

- Data on paid/non-paid work and the extent of the same in terms of time and effort. Work within the home is unpaid and often treated as informal work, even if it relates to the care of assets such as cattle. The amount of work done within the home impacts upon time-use patterns and upon mobility of women and girls.

- Time-use patterns among the women and girls in the home on household work. For instance, how much time is spent on fetching water or fuel? Or on cooking? This will give an indication of how much time flexibility is to be given in a proposed project.

- Banking statistics and ownership of household bank accounts. In whose name is the bank account? Is it in the woman's name or is it a joint account along with another member of the household? Access to and control of the account may also explain control of financial resources.

- Details also relating to the use, if any, of mobile money platforms, (even if it is only to receive remittances from family working as migrant workers in cities and abroad).

[78] For a list of case studies, see http://www.adb.org/publications/series/gender-equality-results-case-studies (retrieved July 31, 2015)

- Level of trust women attribute to online and mobile money platforms. And why.

- Amenities in the home, i.e. toilets and water, both of major concern to women and girls in terms of time, health, and safety. This will give an indication of how much time is spent in drudgery and its impact on health, as well as time available for income generating activity.

- Location specific socio-cultural and mobility barriers that women face.

- Availability of formal banking and financial institutions within a kilometer radius of a woman's home. How far does the woman have to travel to access banks or ATMs?

- Gender based violence in the home—the presence of which has serious impacts on women's physical and psychological health, inhibiting empowerment.

- Access to different media and ICTs by gender (to help in creating a communication and advocacy plan).

The Partnership for Measuring ICTs for Development in the publication *Measuring ICTs and Gender,* has listed some more ICT specific areas where gender related statistics are important. These include questions such as:

- "What are the differences in how, where, when and why men and women use ICTs?
- What barriers do women face in accessing the Internet?
- Do women have the necessary education, training and skills required to function in the information society?
- What are the gender disparities in ICT employment and entrepreneurship?
- In what specific ways, in a given situation, can ICT help women's entrepreneurship, income generation and self-employment?
- What content do girls and women want and need? is it accessible to them?
- How can ICTs improve the health situation of girls, women and their families in developing countries?
- What are the gender-specific ICT issues with regard to privacy, safety and security?
- What is the extent of women's representation and participation in ICT policy and governance"[79]

For ICT related gender disaggregated data, using the GEM (Gender Evaluation Methodology for Internet and ICTs)[80] helps in identifying women specific needs so that projects can be tailored to ensure that gender specific concerns are addressed, as for example, in:

- Improving connectivity and using ways and means to address low connectivity

[79]Ibid
[80] http://www.genderevaluation.net/gem/en/gem_tool/index.htm

locations and ICT tools, e.g. the "dumb' phone"[81] instead of the smartphones only;
- Creating and locating all women service centres in public places within a short distance from home, i.e. safe social spaces;
- Providing Childcare services and other health amenities at such centres;
- Providing flexible or "Just in time" localized training opportunities that do not require a nine-to-five schedule for several days a week;
- Tailoring training locations to meet specific needs;
- Ensuring that trainers are gender sensitive, even if not all of them are women;
- Using content in local languages and involving women in content development
- Using women's own experience serving as learning points;
- Combining and overlapping different media and ICT tools so that information and knowledge is passed on to the women in different ways, in the event that women do not have access to a selected medium;
- Using simple language, SMS alerts, IVRS, and voice mail, thereby overcoming literacy, time and distance barriers;
- Providing dedicated and safe platforms and services for women, especially in the case of gender-based violence.

6.7 Other factors impacting on programmes and projects

6.7.1 Time

It is necessary to ensure that ICT projects, especially those intended for women and girls' empowerment, are process-oriented and not duration-specific or merely target-driven. Most ICT for development projects, especially if they are donor-funded, operate with fixed targets and fixed time frames. While these are planning constraints, it also has to be recognized that using ICTs effectively as development tools requires their long-term and sustained use. This is because the use of ICTs requires both attitudinal and systemic changes in organizations and communities, and it is necessary to provide a sufficient lead time for ICTs to be embedded in the social fabric of the community.

There are also time lags associated with the decision to use, the deployment of appropriate technologies, capacity building efforts and actual usage. These processes, although ideally parallel, are often done in a sequential and linear manner, necessitating more time than originally planned.[82] For this reason, by the time the project starts to show dividends, the fixed time frame is likely already over, donor support is withdrawn and the project flounders.

6.7.2 Cost

Resource allocation is a problem for all organizations planning to use ICT tools for delivering services. There are indirect costs (salaries, supervision, maintenance and communication, and miscellaneous) and direct costs. Many institutions finding effective

[81] A basic mobile phone that lacks the advanced functionality characteristic of a smartphone. There are still six dumb phones for every smart phone in the world.

[82] Glen Farrell, *ICT and Literacy: Who benefits? Experience from Zambia and India* (Vancouver, Commonwealth of Learning, 2004), http://www.col.org/resources/publications/Pages/detail.aspx?PID=38.

decision-making are severely hampered by a lack of accurate information on various components of ICT driven project costs. While different ICT tools have different costs, there is a need to keep in mind that there are:

- Different cost drivers for different technologies, i.e. a website vs. mobile app. It can take up to one year—the more complex, the more time it takes;
- Costs for content development—different for each tool chosen, again, up to one year, the more complex, the more time it takes;
- Delivery, updating, and maintenance costs—uncertain depending on complexity, but generally high.

There is no readily available yardstick for budget and cost for ICT for development project. Fixed costs being taken as a constant, an equal distribution of funds between content and product (ICT tool) development is preferable. For instance, of $100,000 available for direct costs, spend about $50,000 on content and product development and testing; about 25,000 on field work, including data gathering, field testing and evaluation with the balance for unforeseen expenses, including training and capacity building.

6.7.3 Other factors.

Systematically, findings from research and impact studies into projects using ICTs have revealed the absence of community engagement, involvement and active participation, limiting the success of such projects. Issues that have emerged from researches include:

- Skill factors, where different partners tend to have unrealistic expectations of local skills and knowledge on a variety of topics including IT and management.
- Input-output factors – Difficulties that may arise as a result of unequal investments by partners, and/or unequal gains by partners. Partners are not always explicitly aware of their mutual interest and potential mutual gains and risks in projects.
- Socio-cultural factors – Differences in the working ethos and working styles of different partners.
- Systems factors – Integrating the different partners and activities into a common vision and mission of the project.
- Trust factors – The absence of trust between partners and promising more than can be delivered.[83]

These factors must be taken into account, especially when addressing issues of women's entrepreneurship using ICT tools.

6.7 To Sum Up

- Government has a key role to play in creating enabling legislations and policies to promote women's entrepreneurship.
- This may mean creating new laws or amending existing laws and procedures to

[83] A.J. Gilbert Silvius, Anand Sheombar and Jakobus Smit, "The Partnership Health of ICT Projects in Developing Countries", in Pacific Asia Conference Information System (PACIS): PACIS 2009 Proceedings (2009), http://mmu.academia.edu/AnandSheombar/Papers/327670/The_Partnership_Health_of_ICT_Projects_In_Developing_Countries.

mainstream gender and to make them more gender responsive.

- Financial inclusion and digital financial inclusion can help extend access to services and facilitate the inclusion of larger number of women and girls in the economic mainstream.
- Policy is one part of the government's role; implementation is another. In implementation, it is necessary that gender responsive practices be put in place to ensure maximum benefits to women.
- For implementation, intra household data is critical.
- ICTs, as enablers, provide ways and means to simplify implementation, monitoring, and evaluation of policy, while facilitating practice. E-government can then become a gender responsive 'smart' government.
- There are many other factors related to time and cost management that affect projects which incorporate the use of ICTs. It is important to keep these in mind when planning and implementing projects that use ICTs for women's entrepreneurship development.

Both women's entrepreneurship and ICTs are located within the context of overall economic, social, cultural, and political empowerment or agency, and is conditioned by a multitude of factors including the overall ecosystem; the status of women within it; and the levels of entrepreneurship (men and women's) in a given country. Therefore, to achieve optimum use, it is important to situate both ICTs and entrepreneurship within the socio, cultural, and political contexts of a given country before developing a plan for deploying technology.

Irrespective of the country chosen, **equity** in policy and action is critical to enhancing women's rights in the three "Es", education, employment, and entrepreneurship. It may not be necessary to create new ecosystems and laws; it is however essential that gender be mainstreamed into existing laws and provisions governing entrepreneurship.

Something to Do

Take the Micro Enterprise Development for Poverty Alleviation (MEDPA) Programme for a detailed study.

Study the structure and performance of the project from the perspective of gender. Identify the critical elements/clauses that may need amendment or change.

Suggest ways and means by which MEDPA can be improved.

Incorporate the use of ICTs in the implementation of the MEDPA programme.

Suggest a communication and advocacy plan so that information reaches the beneficiaries.

VII. Conclusion

The centrality of women's empowerment in the process of sustainable development cannot be understated or undervalued. If economic empowerment, as has been premised in this module, is the trigger that will lead to other forms of empowerment, then it is critical that governments explore ways and means to promote women's economic empowerment.

Earlier in the module, the three "Es"—education, employment, and entrepreneurship—were introduced. While education is fundamental, and employment is vital, the difference between employment and entrepreneurship could be summed as getting women move from being ***'job seekers to job creators.'***

The effort, in this concluding section of the module, is to pull together the different strings of thought addressed in earlier sections—of development, gender and gender mainstreaming; of government and government role; and the critical role that ICTs can play as enablers in promoting women's entrepreneurship.

The current Nepal reality is that, despite the government's political will to promote women's entrepreneurship as a way of enhancing women's empowerment, much needs to be addressed by way of leveraging ICTs for improved project implementation. To achieve this goal, it is important to keep in mind that the entry point for such empowerment goes through understanding gender mainstreaming and creating effective policies (the primary role of policy makers).

7.1 Mainstreaming Laws and Policies

A conscious effort to mainstream gender in the policy making process, by ensuring that women's voices are heard, that their gender-specific needs are met, that obstacles and hurdles to their growth as entrepreneurs are removed, is essential. Without this, women's empowerment cannot take place. This may mean:

- A second look at existing laws to amend them to be more gender sensitive;
- The collection of sex disaggregated data (at the intra-household level) to understand socio-cultural dynamics;
- Gender budgeting to ensure that special and adequate budgetary allocations are made for women specific programmes; e.g. a gender fund and gender budgeting in each line ministry;
- The creation of 'single window services from advice and counseling to business development services (BDS), capacity building and skill enhancement;
- Creating special opportunities for financial inclusion, e.g. Indonesia's Program Keluarga Harapan[84] (PKH) whereby conditional cash transfers to women are linked to savings accounts, based on household participation in locally provided health and education services.[85]
- The creation of women friendly spaces and provision of gender specific services and amenities and the building of trust so that women and girls use these services.

[84] See https://pkh.kemsos.go.id/ (accessed April 08, 2019)
[85] AFI. *Policy Frameworks to Support Women's Financial Inclusion.*Op. cit p. 11

These are just a few suggestions, and there could be many more, depending on the context, the local realities and situations.

7.2 The ICT opportunity for women entrepreneurs

The rapidly changing technology scenario suggests that, most often, government policies are reactive, rather than proactive. It is essential to understand the changing technologies, and to anticipate and prepare for a changing technology scenario.

ICTs offer women entrepreneurs increased opportunities and methods to create and manage and promote their business, handle supply chain, develop marketing channels, gain access to business support services and create networks with customers, business partners and other stakeholders. ICTs, once in their control, also help women gain self-esteem and confidence, and, if e-services are available, gain access to finance and banking, in a time flexible manner.

The rapid growth of mobile telephony in the Asia Pacific region, with mobile phones being valued by women for the economic and social benefits they bring, offers governments, on the one hand, and service providers on the other, opportunities for outreach as well as for economic growth through different services and women's own ventures.

However, access and control are the key to usage. Policymakers seeking to enhance women's access to ICT could explore ways and means to

- Integrate gender into national broadband plans and track mobile access and collect sex disaggregated data on usage by gender, along with other ICTs, in national statistics databases.

- Ensure women are protected on mobiles and online by launching awareness campaigns and developing legal and policy frameworks to address harassment on mobile phones and mobile Internet.

- Ensure efficient regulation to lower costs for women and expand coverage [e.g., reduce or remove mobile-specific taxes that exacerbate the cost barrier, allow and voluntary infrastructure-sharing and revenue-sharing among mobile operators, and to release sufficient spectrum (low frequencies in particular) to mobile operators at an affordable cost].

- Build technical literacy, confidence, and digital skills of women and girls through integrating mobile and digital skills training for women participating in government programs and in primary and secondary school curricula[86].

ICTs can play an effective role in enhancing women entrepreneurs' access to financial services especially in the context of the exponential growth of mobile money. For this, governments can leverage new technologies by digitizing the payments and direct

[86] http://webfoundation.org/2015/06/five-barriers-five-solutions-closing-the-gender-gap-in-ict-policy/ (retrieved May 28, 2016)

benefit transfers, including biometrics, as part of creating a digital financial identification system; and by providing one stop technology end-to-end solutions for registering procedures for new businesses and for conducting all business transactions online.

There are other policy options that governments can follow in order to provide access to markets; as for instance, making all procurements online with preference being given to women entrepreneurs and facilitating e-commerce.

Following a four-country study on the use of ICT by women entrepreneurs in Azerbaijan, Kazakhstan, the Kyrgyz Republic, and Uzbekistan, ADB made several cross-country recommendations. Some of the recommendations include:

- Developing campaigns to raise awareness of new ICT-enabled business opportunities for women entrepreneurs. Many of these campaigns would use mainstream media such as television, radio, and print;
- Creating ICT-enabled mentoring programmes for women entrepreneurs;
- Creating SMS and IVRS voice mail-based information alert services;
- Creating loan programmes for women entrepreneurs for new ventures in the ICT service industry and online businesses;
- Providing women entrepreneurial cells in line ministries;
- Supporting women through capacity building and BDS services linked to financing opportunities especially in rural and peri-urban areas;
- Improving ICT infrastructure through affordable broadband with 100 per cent coverage, electronic payment systems and mobile money.[87]

1.3 To Sum Up

If women's agency is to be triggered by economic empowerment through entrepreneurship, the current scenario in terms of women entrepreneurship in the Asia Pacific leaves much to be desired and is reflective of the social, cultural, and political realities of the region. If the reality is to change, there has to be concerted effort by all stakeholders—and for this, women need to be given a voice and their needs must be heard and addressed, giving that voice is part of gender mainstreaming policy and practice.

Gender mainstreaming is ideally a 'whole of government' effort, although it can be applied in specific contexts and situations as in individual programmes or projects. To mainstream gender, gender audits and gender budgets are critical and these can be done in-house or outsourced. At the same time, governments can achieve a great deal by empowering the Gender Focal Points, to publish an annual Gender Report with sex disaggregated data at a macro and intra household level. Such disaggregated data would be a vital input to gender sensitive policy making and implementation.

The module started by offering a peek into the importance of women to be a mainstream part of sustainable development efforts. This was followed by a discussion on the digital

[87]Asian Development Bank (2014) *Information and communication technologies for women entrepreneurs*. http://www.adb.org/sites/default/files/publication/42869/ict-women-entrepreneurs.pdf

divide and the digital divide within a Nepali context. Finally, this module provided an overview of policy within a gender sensitive framework and connecting the same to the immense potential that ICTs offer as enablers.

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Issues Impacting Women's Entrepreneurship	Policy/Action	ICT tools for deployment
At the woman's level		
Lack of sex-disaggregated data	Collect sex disaggregated data at the intra-household level to identify different factors for poor entrepreneurship development among women	Use data-mining and analytics to extrapolate sex disaggregated data
Socio-cultural and religious norms	Identify socio cultural factors inhibiting women's entrepreneurship; develop social awareness campaigns	Use conventional tools such as radio and television in a sustained, long-term manner for the campaigns. Also use SMS and voice mail alerts on legal literacy and rights to create awareness
Lower levels of literacy and education	Promote women and girls literacy and education	Use conventional tools for adult education and open and distance education to provide education at the doorstep
Lack of awareness and information about opportunities, markets, laws	Create and launch information campaigns	Use conventional and ICT tools; SMS and voice mail alerts for information on opportunities, markets and laws. The case study of Usaha Wanita can be a model to adopt/adapt
Lack of awareness of business development training and services.	Same as above	Same as above
Less access to finance	Simplify 'Know your Customer' norms for banking; enable 'no frills' banking	Simplify and digitize applications to enable digital opening and operation of bank accounts and obtaining loans
Lack of collateral and documented credit histories, unclear legal rights and the invisible prejudices of financial institutions	Examine existing property laws through a gender lens; amend laws as required; use innovative ways of defining collaterals and	Same as above

	establishing credit history;	
Limited financial and business skills, and limited digital literacy	Creating and locating all women service centres in public places within a short distance from home, i.e. Safe social spaces; Providing Childcare services and other health amenities at such centres	Create and broadcast entrepreneurship development programmes on radio and television; Create and deploy online (mostly mobile app based) learning programmes.
At the government level		
Gender-responsive policies and programs are isolated and ad hoc	Create an umbrella agency for women's entrepreneurship development with representation and involvement of all government ministries Create a gender fund exclusively to promote women's entrepreneurship	Create an online, planning collaboration, and monitoring platform for effective programme management
Coordination gaps among government entities hinder full integration of gender needs assessments in small and medium enterprise policy development.	Same as above	Same as above
Policies are inconsistently applied, particularly at the sub-national level	Streamline public administration procedures to ensure application and monitoring of field level implementation	Same as above
Inconsistent, cumbersome and inaccessible registration and licensing processes discourage formalization of women-owned enterprises		Create a single window online and mobile platform for all processes in women's entrepreneurship development, including documentation of licensing, access to finance, banking, accounting, tax payment, etc. This should be

		linked to the platform created by the government for effective programme management Create a call centre/help line with a facility where a person responds to each and every call seeking help from a women entrepreneur.

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