Communication, Culture and Change in Asia 6

Kiran Prasad *Editor*

Communication, Culture and Ecology

Rethinking Sustainable Development in Asia

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Preface

Climate change and its challenge for a sustainable planet has engaged wider public debate on the culture, values, lifestyles and actions of contemporary societies across nations. Choices about how to formulate, design and implement development strategies have become more complex. *Communication, Culture and Ecology: Rethinking Sustainable Development in Asia* approaches the field of sustainable development from cultural and ecological perspectives. It explores the construct of sustainable development with participative and grassroots communication approaches. The book brings together communication perspectives and approaches towards achieving a sustainable future that can be found in diverse cultures on ecological and environmental issues and green communication in diverse cultural settings. It aims to contribute to knowledge, applications, cultural values and sensitivities of communication for sustainable development especially in the South Asian and South East Asian region but is not restricted to it.

This book offers comprehensive insights into the cultural and ecological values that influence sustainable development across Asia. It addresses the cultural, religious and philosophical moorings of development through participatory and grassroots communication approaches. The three main goals of the book are to provide an essential for understanding and applying the dynamics of culture and ecology in development, add new insights in communication for sustainable development through a grassroots perspective and provide ways to identify the challenges of development strategies in the light of enlightened community participation.

The book presents a range of contributions and case studies from leading experts in Asia to highlight the debates on environmental communication and sustainable development that are of great relevance today. The thrust is on providing an overview of the positive traditions of ecological sensitivity and cultural communication that may find common ground between communities. It is a well-researched guide on the dynamic and complex terrain of communication for sustainable development. The uniquely practical perspectives on communication, environment and sustainable development will be of immense value for policy

makers, media scholars, development practitioners, researchers and students of communication and media.

Some of the chapters in this volume are extended works of papers presented at Communication/Culture and The Sustainable Development Goals (CCSDG): Challenges for a New Generation, an international conference held in Chiang Mai University in December 2015. I express my deep sense of gratitude to Prof. Jan Servaes, Series Editor, Communication, Culture and Change in Asia, who has mentored me and provided me with valuable guidance to bring this volume to fruition. I wish to specially thank Jayanthie Krishnan, Publishing Editor, Social and Behavioural Sciences, Springer; Ameena Jaafar, Editorial Assistant and her entire team at Springer, Singapore; Rajalakshmi Narayanan, Springer, Chennai and her team for their whole hearted editorial support and assistance.

Tirupati, India Kiran Prasad

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Part I
Introduction

Chapter 1
Culture, Communication and Capacity for Sustainable Development

Kiran Prasad

1.1 Introduction

Development policy was not shaped by the needs of the majority of people in the developing countries which has resulted in conflicts between the basic needs and market-oriented perspectives on development. Thus, the benefits of development have been marked by persistent poverty and rising income inequalities. The key targets for the Millennium Development Goals (MDGs) were halving poverty, ensuring universal primary school enrolment, attaining gender parity, reducing maternal mortality and mortality rates by three-fourths, cutting child mortality by two-thirds, reducing incidence of HIV/AIDS and ensuring environmental sustainability.

While India has managed to halve poverty rates (20.7% in 2015) from the 1990 levels (47.8%), ensure gender parity in primary school enrolment, reverse the incidence of HIV/AIDS and reduce deaths due to malaria and TB, it continues to lag behind in checking maternal and child mortality levels and addressing the problem of hunger and malnutrition. India is on track on the two targets of environmental sustainability and partnerships for development with other countries. But India has yet to achieve the primary MDGs.

Unsustainable development activities and climate change have a great impact on the rural population largely dependent on agriculture for their livelihood. Ensuring food security has an important bearing on checking hunger and malnutrition mainly among women and children. This is a prerequisite for checking maternal and child mortality levels in the country. Thus, environmental sustainability is regarded as the key to the achievement of all other developmental goals. Social movements have begun to revision the meaning of sustainability and build capacities for balancing growth with environmental conservation. It is interesting that in India, check dams,

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rain water collection tanks and mini-water projects, with the active involvement of the local people in several states, have evinced greater support and participation rather than large dams involving massive funds with heavy costs of submergence, environmental impact, rehabilitation and resettlement of the affected people (Prasad, 2013).

Reports on environmental issues and the results of environmental audit in the media have drawn the attention of policy makers and the wider community to impending environmental hazards. The race for economic development in developing countries like India has led to a shift in cultural values and growing aspiration to match affluent societies. This has led to reversal of the gains of development, unsustainable action and even a collapse of the ecosystem. Climate change debates have thrown up a whole range of terms such as green economy, eco-bank, environmental/carbon footprint, carbon credit, food miles and eco-warriors. These complex ideas comprehended by scientists, ecologists, activists and policy makers (see Urry, 2011) have been translated into behaviour change initiatives by individuals such as recycling, kitchen gardens, neighbourhood farms, organic farming, rainwater harvesting, minimizing the use of plastics and the use of a variety of renewable energy sources.

Local communities who were at the fringes of development have begun assuming custodianship of their environment and natural resources which previously were the sole responsibility of the government (Prasad, 2007, 2009a). The creation of eco-sensitive zones, eco-villages, a whole range of livelihoods and products focused on environmental conservation and renewable energy sources have anchored a sustainable dimension to development at the grassroots. For a developing nation, India's goals for tackling environmental degradation and climate change can be seen as far more ambitious when compared to that of other developed countries. This chapter will explore the reinvigoration of cultural values on environmental protection which are finding increasing acceptance among people in India who support a renewed capacity for action founded on strong but neglected traditions that are combined with modern technology to achieve sustainable development.

1.2 Culture as Capacity for Ecological Protection

Many of the developing countries of Asia, Africa, and Latin America, in which religion is the dominant ethos, are caught in a dilemma of whether to go the way of unbridled development or continue with more safe traditional ways of living. The ancient Indian concerns for environmental conservation, many of which were sanctified by religious rituals, are relevant today as societies begin to search for a sustainable lifestyle Prasad, (2001). Ancient Indians developed many ideas, attitudes and practices with regard to their essential relationship with nature. These were expressions of their primordial awareness of the significance and need for ecological conservation. Such practices naturally became part of the discipline of

religious rituals. Over the years, this eco-religious philosophy has lost its significance and has been reduced to rituals, which are engaged in, with little knowledge of their rational and source. The earth was reverentially called *Mother Earth* and *Goddess*. A close observation of world religions reveals that the earth is described as beautiful, divine and sacred in every religious scripture. The earth is considered a gift of God to humankind, which must be carefully passed on to posterity. The earth is the visible and tangible manifestation of the Supreme according to various religious scriptures (*Atharva Veda*, XII. 1.34; *Svetasvetara Upanishad*, VI. 19; *Bhagavadgita* VII. 9; *Genesis* 1.1 ff; *Psalm* 104, 108; *Numbers* 35: 33–34; *Quran* 22, 24, 45, 54). All elements of the earth are sacramental symbols and convey the sacramental character of mother earth.

In ancient India, sages and seers realized the vital significance of maintaining the ecological balance for the general welfare of all living beings in the universe. In their philosophy, religious dialogues, discourses, verses and hymns they emphasized the integral unity of humankind with other living beings and nature. The mystic views of Indian seers about nature are reflected in the Vedic hymns. The basic concept of the earth as the 'Mother Goddess', first expressed in the Vedic hymns, was more elaborately developed in the *Puranas*, which stressed protection of the earth from exploitation. The entire universe is conceptualized as a living entity, a vast ecosystem, in which one's life is related to that of this totality (Venkatakrishna, 1993). There are similar myths among the tribes or *adivasis*. The Jains and Buddhists, too, have adopted these concepts. The doctrine of Advaita philosophy, which has non-duality at its core, of essential unity of all existence in and through God has profound significance for environmental conservation and fostering sensitivity to nature. It forms the basis for an environmental ethic. Hinduism, in Advaita, acquires a cosmic character, as it considers all living beings to be separate only apparently because all lesser forms of existence to the higher order are creations of God. The universe, though it appears to be merely material, is actually universal consciousness itself. This doctrine provides the philosophic basis for Indian veneration of the natural world. This leads us to conclude that the Indian tradition has an ecological conscience (Crawford, 1982: 149–150).

Ancient Indians advocated an integrated approach to progress without undue exploitation of natural resources. They laid down traditions, customs and rituals, to ensure that the complex, abstract principles they had developed could be put into practice. These practices, over time, developed the technology of agriculture, methods of environmental protection, knowledge of medicinal properties of trees and even techniques of curing their sickness (Banwari, 1992). This vast store of ancient environmental wisdom, as a way of life, is worth close study, to make our modern urbanized community aware of the sensitivity to environmental protection inherent in our cultural practices. This could make us realize the benefits of living in harmony with nature as part of our process of development.

The entire spectrum of ancient Indian literature has discussed the concept of *vana* or forest in great detail. Broadly, *vana* has been classified into three types: *Mahavana, Tapovana* and *Srivana*. The *Mahavana* is a dense impenetrable forest with a natural growth covering a vast area with no human habitation. This is where

the propagation of plant and animal forms continues without any external hindrance. The *Mahavana* is thus responsible for preserving natural biodiversity and ecological balance on earth. The *Tapovana* is penetrable, although it also abounds in various flora and fauna. Monks, saints and sages inhabited such forests as they were easily accessible, and their serene environment was conductive to mediation and spiritual pursuits. These forests were easily accessible also to people in nearby cities and towns who were philosophically and spiritually inclined. In fact, the *Upanishadic* tradition grew out of such a forest culture. Such a tradition prevailed in ancient China, too, where religious teachers such as Tao interacted with monks as well as laymen in communion with nature.

The *Srivanas* are gardens, orchards or groves which surrounded a village. They had a special significance in rural life, as village festivals and feasts were celebrated in the midst of such forests, in communion with nature. People also gathered here for village or town meetings. They were central to most of the rural activities as these *vanas* were cool and soothing in summer and warm in winter, conducive to good physical and mental health. The tradition of *Srivanas* continues even today in industrial townships and some urban centres or complexes, where some space is provided for gardens as the last link with nature. People go to these gardens to say their morning or evening prayers, mediate to relieve their stressed bodies and minds, exercise or simply to seek a change from the dust and monotony of a concrete jungle. *Aranya* is a synonym for *vana* or forest, in most Indian languages. *Aranya* means *a* (no) and *ranya* (war). Thus, according to Indian tradition, an *aranya* is a place where violence is forbidden. *Aranya*, or a place of non-conflict, was regarded as ideal for natural environment to flourish undisturbed. Cities and *aranyas* were given equal importance in ancient India. While cities were economic centres for the creation of wealth, forests symbolized the culture of asceticism, sacrifice and self-restraint. While pursuing economic goals in the cities, the people were encouraged to pursue spiritual values and peace by retiring periodically to forests.

In ancient India, the *ashramas* or stages of life of an individual consisted of several activities linked to ecological conservation. The first was *brahmacharya ashrama*. This was the time for receiving education and the acquisition of knowledge. This took place usually under the tutelage of a teacher, who had his *ashrama* (school) in the midst of a forest. This helped the pupils to pursue learning without distraction from the activities of city life and also learn to adapt to the natural environment. Thus, the foundations of the importance of preserving the environment were laid during early childhood when the mind was young and receptive. The next stage of *ashrama* was the *grihasta ashrama*. After completing their education, individuals were considered worthy of entering the life of householders. There were several duties and rites prescribed for householders. These included agricultural operations, tending to trees, orchards and gardens as well as care of livestock, poultry and other animals and birds, each activity linked to environmental concerns. Planting trees in one's surroundings, protecting forests and providing shelter and food to birds and animals were considered extremely virtuous and a part of the religious duties of a householder. Even the most powerful wealthy

individual was judged, not for his riches or valour, but for his kindness towards animals and birds and care of trees. This observation is supported by the existence of several inscriptions, rock edits and tablets which praise kings for constructing a number of inns (to provide shelter), ponds (to quench thirst) and planting many trees, orchards and gardens.

The last stage of the life of an individual after he/she had fulfilled all duties to the family and society was the *vanaprastha ashrama*. The person concerned then retired to the forest to spend the rest of life in old age in its peaceful environment and seek spiritual enlightenment either independently or under the guidance of sages and spiritual teachers who had made the forest their home. Thus, during both the first and last stages, *brahmacharya* and *vanaprastha ashramas*, a major part of an individual's life was spent in the midst of the forest. This enabled ancient Indians to appreciate nature and cultivate a love for it. The rigidity with which life in ancient India was regulated by cultural and environmental traditions has been diluted with the passage of time. But several eco-religious practices can still be found in India. These are associated with reserved forest areas, nature worship, religious rites and festivals connected with nature.

1.3 Ecological Consciousness and Indigenous People

Indian philosophy conceived nature as *Prakriti*. The people of India, from time immemorial, have known that all life forms depend upon nature (*Prakriti*) and its produce, and life is regulated by the seasons. They built their dwelling taking into account the direction of the sun and the wind. Their belief that God is omniscient and pervades the entire universe helped Indians to live in harmony with nature. Their concept of nature in all its infinite forms and creation is a manifestation of God who, as the Supreme artist, has created the beauty of nature. This has led the average Indian to be inclined to nature worship. Ancient Indians saw the presence of the divine in the *Panchabhuthas* (the five elements), namely air, water, fire, earth and space. They imposed divinity on the beautiful trees, creepers, flowers, rivers, lakes, mountains, birds and animals.

Many rural and tribal communities worship the earth as Mother Goddess, and paying homage to her is regarded a duty. Their legends, folklore and songs glorify Mother Earth. They invoke the blessings of Mother Earth through several rituals, during various festivals, change of seasons and before beginning cultivation. No work of importance is undertaken without paying obeisance to the earth. Before laying the foundation for building a house or any construction, *bhoomi puja* (worship of the earth) is performed to invoke the blessings of Mother Earth. This traditional practice continues even in the cities. The concept of green architecture which is popular now was a way of life in ancient India where dwellings were built with natural and local material designed according to the principles of *Vaastu* (ancient art of architecture) to enable the maximum amount of natural light and

cross-ventilation as possible. The present-day urban green buildings use the same principles in addition to promoting water harvesting and recycling of waste.

The indigenous people regard themselves as custodians of the land, which is sacred and the gift of God. This attitude helps them to maintain a symbolic relationship with all nature in the ecosystem. Land is the pivotal element in their lives, history, culture, identity, economy, spirituality and their very existence. They depend upon the surrounding forests as a source of sustenance in their daily lives. Their diet consists of various roots, tubers, barks, leaves, flowers and herbs. The streams meandering through the forests are sources of fresh water for quenching their thirst. They collect wood, bamboo, grass, straw and leaves for constructing their dwellings and also for making such articles as baskets, mats and other handicrafts. Indigenous medicine has its origin in such cultures and provides health care through natural remedies. The indigenous people revere the forests and impose on them religio-magical attributes because of the many benefits they provide. They worship many of the flora and fauna, which play an important part in their religious rites. Forest ecology can be said to be an integral part of their society, with which their traditional occupations, sources of food, modes of thinking, their music and dance, their way of life is linked.

The UN had declared 1993 as the *International Year of the Indigenous People*. This drew the attention of the highly developed industrial societies to the worldview of the indigenous people about Mother Earth being an inalienable inheritance of humankind and their practice of environmental conservation for sustainable living. It is now accepted that contemporary legislations, which strictly curtail access of forest dwellers to their habitat and reserve forest lands in the name of modern techniques of scientific conservation, have actually thrown out the original conservators of the forests, thus paving the way for their commercial exploitation. The International Charter of the Indigenous People has declared that all policies towards forests must be based on a respect for cultural diversity and for promotion of indigenous models of living. 'These must also be imbued with an understanding that our peoples have developed ways of life closely attuned to our environment' (*Charter of the Indigenous Tribal People of the Tropical Forests*, 1992). Current policies on environment and forests must take this important direction into account.

1.4 Worship of Trees

The concept of *panchavati*, which finds mention in the literature throughout the length and breadth of India, refers to five (*pancha*) groves (*vati*). *Pancavati*, therefore, means a grove with five trees. According to the *Samkhya* system of Hindu philosophy, the universe consists of five elements, which are symbolic of the plurality and totality of all living beings on earth. In *pancavati*, the word five also means many; when there are many trees in a grove, it is referred to as *pancavati*. Valmiki's magnum opus, Ramayana, gives a detailed description of the *pancavati* which has immortalized this concept. In Sanskrit literature, the banyan (*vata*) is the

most important of the five trees in *pancavati*. It enjoys this special status because it is self-generating and a symbol of the power of creation. Hindus, therefore, worship it, and this has also led to its conservation and protection. All over India, deities are consecrated at the centre of the main banyan tree foot and devotees tie sacred threads around it as a mark of ritualistic significance. Women worship the banyan tree and seek its blessings for giving birth to children. The peepul tree (*ficus religiosa*) is next in importance to the banyan tree in the *pancavati*. It is considered sacred because of its symbolic connection with the cosmos. The shade of the peepul is cool and soothing and supports the growth of several floras under it.

The *asoka* tree (*polyathia longifolia*) which is shade-giving and soothing is the third main tree of the pancavati. In Ramayana, Sita, grieving her existence, is described as sitting in an *asoka* grove in Lanka. Thus, the *asoka* tree has been immortalized for its calming influence on the distressed mind. The *bela* tree (*aegle marmelos*) is the fourth main tree of pancavati. Its fruits and leaves are offered to Lord Siva during worship. Thus, it has religious significance. The last of the important trees of the pancavati is the *harada* (*myrobalen terminalia chebula*) which, according to folklore, has miraculous medical value. Each of these five trees of the *pancavati* had been carefully selected for its specific significance for human existence while the banyan had been selected for its imperishable quality. The peepul's importance lay in its life-supporting shade. The *asoka* tree had been included for its soothing effect on the mind, and the *bela* and *harada* trees for their medicinal and curative values.

The traditional concept of *pancavati* was not exclusive, but included other trees, depending on the environment and climate in specific regions. Thus, it encompassed all trees which were considered useful in the ecosystem. The tree to be planted was carefully selected, keeping in mind the soil, water and other conditions essential for its growth and survival. It was believed in ancient India, and even today many communities in the villages believe that planting a tree in unsuitable environmental conditions puts undue pressure on the soil and fertility of the area. This led to the stunted growth of these trees. Thus, some trees are suitable for certain soils. Coconut, jackfruit trees and banana plantations are common in the coastal regions of India. Every component of the coconut tree is useful to the coastal people. Many scientifically planned social forestry schemes have had disastrous effects on the natural environment due to the failure of policy makers to carefully select trees suited to a specific region. The eucalyptus plantations under such schemes have led to a loss of biodiversity and decline in water tables in many regions of India.

Small forests, which house green creepers, trees, shrubs, flowering plants, birds, small animals such as squirrels, rabbits, mice, serpents and insects are found in several parts of India. These are referred to as *kavu* in Kerala and *devarakadu* (God's grove) in Karnataka. Such *devarakadu* reserved for Gods exist in the Malanadu forests, Coorg, Shimoga and South Kanara district of Karnataka. The *Nagabanas* of Dakshina Kannada (Karnataka) and *Nagakavus* of Kerala are similar protected areas in which no trees can be felled. Many trees as *Devaramara* (literally meaning trees of God or the abode of Gods) which cannot be felled except for

making the temple chariot (ratha) or palanquin or to erect the flagpost (*dhwajas-tambha*) in a temple. This tradition of attributing holiness to certain trees or forests has ensured the preservation of several rare species of trees and animals which are on the brink of extinction elsewhere.

Particular trees have gained importance in the Indian tradition, due to their association with rites of worship. The banyan, peepul, mango and neem trees are consecrated and worshipped for their blessings to increase the earth's fertility and fields in the village. These trees are found within the precincts of temples or other religious sites. The *bilwa* tree (*aegle marmelos*) is considered dear to Shiva; banyan (*ficus bengalensis*), peepul (*ficus religiosa*) and tulsi (*occimum sanctum*) to Vishnu; neem (*azadirachta indica*) to goddess Shakti; and grass to Ganesha. Thus, several trees were given a sacred status by dedicating them to Gods and Goddesses. This has helped to protect them from undue exploitation. It is significant that the *devarakadus* or *devanas* had been situated at places where the growth of forests was indispensable for maintaining the ecological balance in the region.

1.5 Eco-religion and Biodiversity as a Way of Life

One of the outstanding cases of the importance of eco-religion in environmental conservation is that of the Bishnois of Rajasthan. This is an unusual community, for whom the protection of trees and animals is a religious obligation (Sharma, 1999). They follow a set of 29 rules, which include instructions on how they should live and what should be done after their death. The faith that God adequately compensates the cultivators for all the losses caused by animals underlines the basic philosophy of the Bishnoi religion that all living things (including animals) have a right to survive and share all resources. It is surprising that more than 450 years ago, a simple villager from a remote desert area without even basic formal education, clearly understood the importance of preserving biodiversity. He not only understood it himself but had the wisdom to influence generations of people to preserve it by weaving it with their religion.

Guru Jambeshwar or Jamboji as he is affectionately referred to by his followers founded the Bishnoi religion in 1542 AD. He was a great saint and a philosopher of medieval India. Those who follow his 29 tenets are called Bishnois (literally meaning 'twenty-nine' in Hindi). The tenets were designed to conserve the biodiversity of the region and ensured a healthy eco-friendly social life for the community. Of the 29 tenets, ten concerns personal hygiene and the maintenance of good health, seven are about healthy social behaviour and five concerns the worship of God. Eight tenets have been prescribed to preserve biodiversity and encourage good animal husbandry. These include a ban on killing of all animals and felling of green trees and providing protection to all life forms. The community has even been directed to make sure that firewood is free of small insects before it is used as fuel. Wearing blue cloths is prohibited because the dye for colouring them is obtained from particular shrubs which have to be cut for extracting the dye. The Bishnois are

presently spread over the western region of Rajasthan and parts of Haryana and Punjab. They are more prosperous than other communities living in the Thar deserts, probably because of their eco-friendly life. Their villages are easily distinguishable because of plenty of trees and other vegetation and herds of antelopes roaming freely near their homes. The fields are ploughed with simple ploughs using bullocks or camels. This causes minimal damage to the fragile desert ecosystem. Only one crop of *bajra* is grown during the monsoon season. The bushes which grow in the fields protect the loose sand from wind erosion and provide the much-needed fodder for animals during a famine.

The Bishnois keep only cows and buffaloes, as rearing sheep and goats which devour desert vegetation are taboo. Though they are Hindus, they do not burn their dead but bury them to save precious wood and trees. They store water during the year in underground tanks by collecting rain water as it is precious in this dry desert area. The Bishnois follow an old tradition of protecting trees and animals. In 1737, when officials of the Maharaja of Jodhpur started felling a few khejri trees in Khejerli village all the inhabitants including women and children hugged the trees that were being axed. In all, 363 Bishnois from Khejerli and adjoining villages sacrificed their lives. Later when he came to know of it, the Maharaja apologized for his action and issued a royal decree engraved on a copper plate, prohibiting the cutting of trees and hunting of animals in all Bishnoi villages. Violence of this order by anyone, including members of the ruling family, was to entail prosecution and a severe penalty. A temple and a monument stand as a remembrance of the supreme sacrifice of 363 martyrs. Every year the Bishnois assemble here to recall the extreme sacrifice made by their people to preserve their faith and religion. They aggressively protect the khejri trees and the antelopes, particularly the blackbuck and chinkara, even today. They consider protecting a tree from the axe, even if it be at the cost of one's head, a good deed. They not only protect antelopes but also share their food and water with them. In a number of villages, the Bishnois feed animals with their own hands (Sharma, 1999). They keep strict vigil against poachers. If they leave behind a dead antelope when escaping, the owner of the field, on which it is found, mourns its death like that of a near one and does not eat or even drink water until the last rites are performed. On many occasions, poachers have wounded or killed Bishnois, but they fearlessly continue to maintain strict vigilance to protect the blackbuck and chinkara, which roam fearlessly in their villages. It is in their environmental awareness and commitment to environmental conservation and protection that Bishnois stand apart from other sects and communities in India (Sharma, 1999).

1.6 Eco-cultural Traditions in Buddhism and Jainism

The Buddha preached compassion for all beings and non-injury to all creatures. This is the basis of Buddhist eco-religious philosophy. It is inculcation of values of compassion and simplicity among people that can ensure the cautious and judicious

use of environmental resources. If these very values of simplicity and compassion could be revived and implanted in our present generation much of the garbage produced by current consumption trends of the people could be minimized. The Bodhi or banyan tree, under whose shade the Buddha attained enlightenment, symbolize the value of this tree for human beings. All Buddhist discourses and sermons have been described as taking place under the canopy of a huge tree in the forest. The banyan tree has been thus immortalized in Buddhist literature. Written communication came to stay by the third century BC. The royal edicts Ashoka inscribed on rocks and pillars were instrumental in spreading Buddhism. In fact, the spread of Buddhism can be called one of the greatest communication events in Indian history. The Buddhist *Jataka Tales* carried the message of peace and brotherhood and gave humankind lessons on the values to be upheld in life.

The eco-religious philosophy of Jainism has *Ahimsa* or absolute non-violence at its core. It advocates both physical and verbal non-injury towards all living beings. No animal or plant may be harmed even if it lacks economic or aesthetic value. Both Buddhism and Jainism esteem Ahimsa as an integral part of their moral philosophy. The core of this great ideal is respect for all life forms. Since all living beings are interrelated, violence to another is in some sense, violence to oneself. Thus, Buddhist and Jain religious practices provide for appreciation of all life forms and encourage active participation in protecting the environment and fostering ecological balance. This is also the need of the hour, when 'violence' in terms of over exploitation and neglect towards nature had endangered the planet itself.

1.7 From Grey to Green: Revisiting Environmental Policies

The moist tropical forests of Africa, Asia and Latin America viewed in terms of biological diversity, have an importance far beyond the land they occupy. The tropical rain forests suffused with exceptional amounts of light, warmth and moisture, house a remarkable variety of ecosystems and species. Many tropical forests lie in countries that though biologically affluent are economically poor. This is very much the case in India. The realization that the biological impoverishment of the earth will certainly mean the economic as well as aesthetic impoverishment of humans has made many developing countries reluctant participants in economic globalization. In spite of the existence of deep underlying ecological traditions, governments in the poorer countries were now less inclined to value abstract long-term ecological goals above immediate economic gains.

The agricultural crisis in India is a making of flawed development policies which put unbridled industrialisation above sustainable choices. Once regarded the cradle of the Green Revolution, the prosperity of Punjab was the success story across urban and rural India for decades. Punjab now has 7000 farmers who have committed suicide with eleven villages put up for sale and a phenomenal debt of farmers

estimated to a tune of over 1500 million (Dey, 2014). While it is well documented that over a quarter million farmers have committed suicides from 1995 to 2010 in India, more and more farmers across India are being pushed to the brink of debt and suicide. Policy makers continue to focus on economic growth unmindful of its impact on human well-being. Economic growth must be measured not only quantitatively but qualitatively in terms of its integration with social and environmental development for promoting sustained, equitable and inclusive development. The journey from the grey to the green path of sustainable development is being spearheaded by several people's collectives against environmental degradation in pursuit of economic growth. They are advocates for development that does not destroy their natural resources and carefully consider the environmental, social and cultural costs of economic growth.

While the international development debate continues to grapple with the challenges of climate-smart agriculture for improving water and food security in the developing world, there are some successful initiatives in India that can offer solutions in this area. About ten per cent of the tribes in India continue to practice shifting cultivation. A total area of about 50 lakh hectares over 15 states are covered by shifting cultivation in India. The land is not ploughed in this type of farming and neither is there any need for domesticating animals. The cultivators have total confidence in the generative power of the earth and see no need to resort to eco-destructive methods. At the end of summer, the hill-sides are prepared for cultivation by trimming the undergrowth of bushes and shrubs. These are then burnt and the ashes provide the manure. Before the monsoon set in, the shrubs and bushes are set on fire again. As soon as the rains come, the seeds are broadcast and the earth is activated to produce a rich harvest. Cultivation is carried on for three years at a stretch in the same area. The harvest is enough to meet the needs of the community.

Shifting cultivation is based on the eco-religious faith in Mother Earth's power of creation without artificial inputs. After cultivating the same area for three years, when the fertility of the land declines, it is left fallow to regain its vitality. Cultivation during this period is shifted to another area. The religious belief that ploughing is painful to Mother Earth and, therefore, an inferior form of cultivation, has led the tribes to practice shifting cultivation which, for, them, has divine sanction. This method of farming is known as *Koman* in Orissa, *Podu* in Andhra Pradesh, *Bewar* in Madhya Pradesh, *Kureo* in Bihar, *Jhum* in Assam, *Tekonglu* in Nagaland, *Adiabik* in Arunachal Pradesh and *Hooknismany* in Tripura (Vadakumchery, 1993).

The indigenous and tribal communities believe in strictly adhering to the principles of nature. Consumption, for them, is need-based to meet immediate requirements. All resources not required for the day are left untouched in the forest for other users in need. There is consideration for the needs of others, and the produce of Mother Earth is accepted with reverence and respect. The poor fishing communities have long been practicing self-imposed periods of abstaining from fishing during the breeding season. This culture of life is based on the ethics of environmental conservation, in stark contrast to the greedy and large-scale exploitation of natural resources in the name of development.

The strategy is to focus on climate adaptation rather than climate mitigation. All Ministries related to climate change are set to visibly demonstrate—through the media—technologies adopted by them to mitigate the effects of climate change. The projected trend of warming, temperature extremes and variable rainfall will impact food and livelihood security of majority of the rural population dependent on agriculture. India's strategy according to the Indian Council of Agricultural Research would be based on climate-smart practices to make agriculture resilient to climate change (Parsai, 2015: 14). The new credo of agriculture is 'More Crop Per Drop' that looks at reducing water use and efficient water management techniques such as drip irrigation for agriculture. The upcoming approach of rice cultivation called aerobic rice cultivation which reduces water use in rice production and increases water use efficiency is expected to change the conventional method of rice cultivation that utilises 5000 litres of water for producing one kilogram of rice than its actual requirement of 3000 litres as about 2000 litres is lost due to flooding and seepage (Anandan, Pradhan & Singh, 2015: 16). This approach will include irrigated lowlands in the states of Karnataka, Tamil Nadu, Bihar, Chhattisgarh, Odisha, Jharkhand and eastern Uttar Pradesh where rainfall is insufficient to sustain rice production.

In 25 villages across Rayagada district of Odisha of India, tribal village women have reclaimed the denuded commons and achieved a remarkable turnaround in food security and livelihoods through eco-friendly alternatives to shifting cultivation (Mohanty, 2014). The Ama Sangathan (Women's Federation)—a sister organization of Agragamee (the State Resource Centre for Adult and Continuing Education in the district) having a membership of 25 women's organisations known as Mahila Mandals (MM) and 1200 tribal women members proposed a project entitled, 'Reclaiming the commons with women's power: Eco-village development in tribal Odisha' to the Indigenous Peoples Assistance Facility (IPAF) which was sanctioned in 2012. This initiative enabled village communities to develop a model for reversal of ecological degradation of their lands and commons by combining traditional knowledge systems with agro-ecological models. The initiative was able to establish a women-centred model for the governance of the commons that would provide for the livelihood as well as income needs of a tribal community in a sustainable manner. They were successful in growing seasonal agrocrops, millets, pulses and other herb-culture varieties in the villages through mixed cropping. This initiative made it evident that sustainable agriculture, food security and environment conservation could be achieved with women farmers at the forefront and enabled them to be self-reliant in the matter of food security and livelihood generation in a vast barren landscape with hardly any scope for water harvesting. It has offered hope to many rural women grappling with the suicide of male farmers and left to fend for themselves alone and manage the food security of their families.

Agricultural productivity has suffered due to lack of innovative approaches such as sustained access to institutional credit facilities, remunerative support prices for crops, cooperative farming, efficient irrigation and energy sources, value-addition and an integrated marketing system. Farmers groups in Kerala in different villages have formed into marketing groups called the Swasraya Karshaka Samiti

(SKS) under the Vegetable and Fruit Promotion Council (VFPCK) of the Kerala Government. The SKS consisting of 20–25 farmers as members is responsible for sourcing and marketing farm produce. They run their own markets and have been successful in eliminating middlemen to get a better price for their produce (Prabhu, 2014). Traders are informed by the Market Information Centre (MIC) on the daily prices and also inspect the produce. Presently, 600 farmers are members of the SKS and about 150 non-member farmers also make use of these facilities.

India's MSMEs sector recorded more than 10% growth in recent years and has contributed nearly eight per cent to the national gross domestic product (GDP). MSMEs have employed over eighty million people in nearly forty million manufacturing and service enterprises. It has also accounted for 45% of the manufactured output and 40% of exports from India. The policy of the government to step up their potential to create employment and provide economic growth should envisage the inclusion of rural artisans who have traditional skills in the areas of textile, food, arts and crafts manufacture and design. The collaboration in the textile industry between women's rural cooperatives in traditional fabric weaving and designing with urban markets is expected to enable rural participation in innovation and expand sustainable livelihoods.

From slogans 'Cut the Crap' that focuses on waste minimization to 'From Waste to Wealth' that encourages recycling and innovative use of resources regarded as waste, climate change communication has created individuals and communities who practice green initiatives for sustainable development. An innovative 70-year-old farmer, Chinna Krishnamurthy has woven saris from rice straw (traditional attire of women in India), and he has plans to weave other accessories such as shawls and handbags from his traditional childhood knowledge of converting paddy stalks to yarn for making fabric (Krishnamoorthy, 2015: 5). It is quite common for younger children in Indian families even where they can afford new clothes to use and reuse clothes worn by older children, practices that are born out of value systems that encourage reuse and recycling (The Hindu, 2015). Energy has also been generated using biomass and waste generated in the farms by rural communities; the conversion of waste to energy is considered as an important goal of waste management.

The urban population has also practiced behaviour that promotes reuse, repair and recycle that have been lauded by many advanced societies. Japan has lauded the Indian society's capacity to repair and reuse electronic gadgets and appliances that are usually discarded in most other societies. There is a renewed attempt to reduce industrial pollution by using the combined power of local communities, regulatory measures, and the news media to police air and water discharges from the industry. Several big cities in India have adopted innovative strategies to promote a cleaner and sustainable urban environment. The 'No Car Day' is being promoted through all communication channels, the mass media and outdoor media to reach the maximum number of people in the cities. French environmental author Herve Kemp's lines 'Consume less, Share more' prods communities to go beyond car-pooling to public transport, cycling and walking focused on how engaged, informed and organized citizens can contribute to a healthy urban environment. In the cities, citizen's collectives and shopkeepers' associations play a key role in waste management.

India is the fifth largest generator of e-waste in the world. The concern for safe disposal of e-waste generated by electronic items in the cities has resulted in start-ups that collect, process and repair discarded items for use among communities who may be in need of such items. Akshat Ghiya and Aamir Jariwala, friends from college, founded Karma Recycling in 2012 as simple traders—to collect e-waste from households and corporates, and after segregation, sell that waste to plants that were using clean technology to recycle it (Goklany, 2015). They realized they were focusing on 'recycling' than the 'reuse' of the gadgets. So instead of sending the devices to the recycling plants, they called an electronic engineer to get the products repaired and refurbished. Then, they put the redone gadgets up for sale online and even sold over 100 phones in two days. Realizing that many of the electronics lying at people's homes could still be used after minor repairs, they shifted focus to extending the life of gadgets as much as was possible and only break-down and recycle them when they couldn't increase their life any further. They realized that there was a lot of reuse potential as there were a lot of people waiting for upgraded technology to reach them at lower prices. They hired more engineers, created a Website offering much higher values than scrap-dealers, bought and refurbished more devices, added people to their customer care and marketed their site. According to them, only about 5% parts are non-recoverable spares that need to be recycled into metals and plastic and not a single per cent goes to waste. In three years since Karma Recycling came into being, the number of gadgets it receives has seen a 6-fold increase from an average of 300 gadgets per month in 2013, it tripled in one year to touch 900 gadgets per month in 2014. Today Karma Recycling is handling an impressive 1800 gadgets per month (Goklany, 2015).

The print media, newspapers and magazines, have features, news stories, photo features, city pages and columns on environmental issues. Radio and television carry public education advertisements on maintaining a clean environment and seek the cooperation of the citizens in improving life in the cities, towns and villages. Radio and television have become important mass media for public interaction and debate on issues on the environment. These media use a wide variety of programme formats such as talks, commentaries, discussions, slogans, plays, quiz, songs, interviews and question and answer sessions with officials of various services including housing, transport, water supply and sanitation, telecommunication and energy (Prasad, 2009b).

1.8 Mapping Communication, Culture and Sustainable Development

Developing countries like India have demonstrated an ecological consciousness and continue to strive to find solutions to the complex global problems of climate change. According to the BBC, India is a front runner in green technology and has

invested almost ten billion dollars which are largest among any of the other major world economies. A relative newcomer in the wind power industry compared to Denmark or the USA, India has the fifth largest wind power capacity in the world. There is a growing demand to stop trading in carbon credits which rewards polluters to move to climate justice to ensure greater cooperation between the developing and developed countries in a bid to stem the challenges of climate change in a global context.

Communication plays an important role in creating awareness, shaping public opinion on development and build capacities to shape people as responsible citizens. Community support to bring about a fundamental shift in societal mores, individual attitudes, values and lifestyle can be the lifeblood of sustainable development movements to stem the spiralling trends of consumerism and wastage promoted by the global economy. The multi-dimensionality of sustainable development can be addressed through two approaches (Servaes, 2013). The first approach to SD is concerned with a balance or reconciliation of traditional economic growth with ecological and environmental conditionings, and the second approach is based on a philosophy or ideology that conceptualizes civilization in a holistic manner (Servaes, 2013: 10–11). This book offers to advance an understanding of both the approaches to SD through communication strategies of mobilizing human capacity for mitigation, adaptation and recovery through a judicious combination of traditional values and modern technologies. The book also examines some of the challenges faced by communication for SD and how communities are engaged with prevention, mitigation and regeneration of the environment through information, knowledge and action, for charting out a sustainable course of human development.

The second chapter by Patchanee Malikhao discusses the sufficient economy scheme introduced by late King Bhumibol of Thailand and the efforts for sustainable development through ecological conservation, cooperatives, organic plantation and sufficient agriculture. Malikhao describes that discourses on sustainable development in Thailand emphasize not only the material aspects or only quantifiable indicators but also ecological balance, the wellness of the environment and the well-being of the people. Participation, social justice, self-reliance and management of natural resources are the key factors of sustainable development from a Thai perspective.

Chandrika De Alwis observes that human wants and desires that direct the flow of development trends today are also directly entangled in creating an unsustainable development trajectory. This chapter illustrates how ancient Sri Lanka sustained development by creating awareness of dependent co-origination and adhering to a middle path consisting of right view, right action right effort for right livelihood. It is a socio-economic system that was founded on tolerance, peace and one that also upheld that was of mutual benefit to society and the environment. This ecosystem of exchanges provided applicable methods to arrest the eroding culture of thought-based exchanges that are now overridden by a standpoint of extreme wants.

In India, since the 1970s there was a series of environmental movements, but recent environmental struggles are indeed of a more complex nature. The state of

Odisha, that has been called a 'climate orphan', experiences rapid environment change, exacerbated by the opening up of its forests and natural resources to exploitation by foreign and Indian industrial houses. Maitreyee Mishra draws on the case of the Dongria Kondh in Odisha, the tribe that rose to protect the environment from the excesses of the neoliberal state that sees rapid industrialisation and encroachment as the only route to development. Mishra examines traditional environmental knowledge systems in Odisha and their relevance to ideas of sustainability in which communication can be seen as central to bridging the divide between conventional, modern thought and traditional environmental belief systems.

Arul Aram and Carolin Arul trace the importance of the Nilgiri Biosphere Reserve (NBR) as a unique and biodiversity-rich reserve in the Western Ghats at the intersection of Tamil Nadu, Kerala and Karnataka states in south India. The Nilgiri Hills (also called 'blue mountains' as translated into English) from which the reserve gets its name lies in the Western Ghats which is one of the 34 biodiversity hotspots in the world. The reserve is home to different primitive tribal communities with distinctive cultures. It was designated as a Biosphere Reserve in 1986 under the UNESCO Man and Biosphere Programme to conserve biodiversity, to restore degraded ecosystems, and to serve as an alternative model of sustainable development. The UNESCO declared it a World Heritage Site in 2012. This chapter examines how communication for development is an integral part of the interventions for improving the lives and livelihoods of tribal communities besides conserving the ecosystem in the Nilgiri Biosphere Reserve. The case studies in this chapter deal with the capacity of communities to conserve the sensitive Silent Valley ecosystem, sustainable development of water resources, issues of honey hunters and human–animal conflicts.

Remeen Firoz and Jonas Dahlstrom present the unique predicament of over three million non-Bengali citizens in Bangladesh who are scattered in the patches of natural forests—hills and plain lands such as the Chittagong Hill Tracts (CHTs), coastal areas and the Barind Tract (dry-lands). They argue that Bangladesh is often discussed in terms of natural disasters and accidents in garment factories; however, the indigenous communities in the CHTs face a unique set of environmental and social problems. The CHTs, administered differently from the rest of the country, have experienced a 'low intensity-armed conflict', for about two decades. They also experience deforestation, decline in soil fertility, loss of plant and animal species and militarization and land grabbing. Against this backdrop, this chapter presents the environmental perils faced by the indigenous communities of Thanchi *upazila* of the Bandarban Hill District (a sub-district that houses several communities) and discusses the adaptive capacity and potentials for sustainable development by recommending strategies addressing environmental health, livelihood security, biodiversity conservation and education.

Mustafa K Anuar and Shakila Abdul Manan highlight how since the stunning victory of the opposition grouping Pakatan Rakyat at the 12th general election on 8 March 2008, Malaysian voters have had high expectations in terms of good governance and what is considered as sustainable development particularly in the three

opposition states of the Federation of Malaysia. In one of these states, Penang, the stakes and expectations have grown especially after it attained the coveted status of UNESCO World Heritage Site in 2008. In Penang, concerned Malaysians and social activists with competing notions of socio-economic development at times come into conflict with the state and other actors in their campaign for sustainable development. This chapter examines the various, and at times creative, ways in which civil society groups convey their messages and political stand on sustainable development in the public domain.

Boonlert Supadhiloke explains that in the wake of the global financial crisis in 1997, the late King Bhumibol Adulyadej's sufficiency economy philosophy (SE) was widely publicized and integrated into the National Economic and Social Development Plans, leading to the shift of the national development paradigm from economic development (1961–1996) to people-centred development (1997–present). In view of the wide use of mass media and the Internet to disseminate best practices of the SE application to inspire the Thai people, this chapter examines whether mass media and culture facilitate or hinder the development of social capital among young people in rural areas. Among the mass media, television use appeared to enhance both interpersonal trust and group networks among rural youth while radio listening contributed to group networks, and newspaper reading enhanced interpersonal trust. The Internet was a useful medium to cultivate both trust and group networks among young people. The chapter emphasizes further research on SE as a valid conceptual paradigm through an integrated multi-media campaign to achieve sustainable development goals.

Jude William Genilo points out that the Philippines is visited by an average of 20 typhoons a year, and crisis communication should be more or less a standard procedure. However, in 2013, the typhoon Haiyan caught the country by surprise and around 13 million people across the Visayas region were affected. This chapter aims to rethink crisis communication at a time of climate change. It is expected that greater numbers of super typhoons will hit the country and that the usual information dissemination flow process is no longer enough to lessen their impacts. The chapter argues that crisis communication needs to be re-thought in the context of climate change and should focus more on: creating messages attuned towards the social construction of disasters; promoting dialogues rather than simply disseminating information; incorporating new media as part of the media mix; and utilizing a community-based information flow parallel to the traditional top-to-bottom approach.

China became the second biggest economy of the world by early 2010. This fast-growing economy in Yifan Zhang's assessment has witnessed mass exploitation of natural resources and consequent environmental pollution. In 2013, 'Fog and haze' became part of daily vocabulary in China and people became very concerned about the index of PM 2.5. Chai Jing, a CCTV journalist, who made a documentary film called 'Under the Dome' in 2015, attracted 200 millions viewer in a short period. But it was banned by the Publicity Department of the Chinese Communist Party. Zhang argues that individuals and organizations have had to fight to raise awareness through different informal channels, and the use the social media

such as Weibo and Wechat have gained popularity to enable people, especially the younger generation, to express their opinions and share information quickly despite the restriction on the state media in reporting environmental problems.

Parahita Gilang observes that Indonesia bore the brunt of unsustainable agricultural practices during the early 20 years of the New Order along with socio-political and economic factors that contributed to unsustainable development. This chapter argues that the failures of the sustainability of development are not only linked to those factors alone but also to the approaches of communication applied for sustainable development during the New Order and Reformasi. This chapter seeks to map the shifts of communication approaches in two political eras of Indonesia using the concept of mechanistic and organic approaches, wherein communication for sustainable development of *Reformasi* Indonesia has yet to pay full attention to the performing 'organic' aspect of communication especially the potential for empowerment through dialogues and participation of the people that are already facilitated through several programs.

In India, the national innovation ecosystem has attempted to draw on the experiences of the rural poor and female population, but there is a persistent urban-rural divide and gender gap in innovation. Kiran Prasad argues that the bottom-up communication approach to indigenous innovation will be an important complement to India's inclusive national innovation system. The Grassroots to Global (G2G) model is a potential model for other developing nations interested in an inclusive framework to communicate innovative solutions to sustainable development. This chapter gives evidence that inclusive innovation systems can modernize and upgrade skill sets; integrate communities through creation of e-Networks; create awareness of ICT tools and usage; generate locally relevant content; and generate direct employment opportunities for sustainable development.

The concluding chapter calls for a renewed approach to communication for sustainable development within a framework that recognizes the potential of culture as social capital, traditional or indigenous knowledge systems and capacities of communities to protect, adapt and revive the environment for sustainable development. The communication of the regenerative skills among communities must form an important dimension of sustainability debates and efforts as we continue to face new challenges in ensuring access to communication resources, the empowerment of women, the recognition of culture as social capital, preservation of indigenous knowledge systems, intercultural understanding and international dialogue for sustainable development.

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Part II
Cultural and Ecological Foundations for Sustainable Development

Chapter 2
Ecology and Sufficiency for Sustainable Development: Perspectives from Thailand

Patchanee Malikhao

2.1 Introduction

Development from the bottom up or *sarvodaya* was recommended by Thai Buddhist scholars to ward off consumerism and social breakup resulting from globalization and capitalism. Thailand also embarked on globalization adopting the modernization paradigm with large scale of socioeconomic and infrastructure development. The policy and implementation of development in the nation have been mainly top-down from the government to the grassroots. Thailand has gone through 11 national development plans (YouTube, 2016). The first plan (1961–1966) emphasized industrialization, the building of railroads, roads, dams, and saw the establishment of two universities. The second plan (1967–1971) further improved infrastructure facilities with more irrigation, mass communications, the building of two international airports in Bangkok and in Chiangmai, and agricultural development. It also included more foreign investment, development of rural areas and natural resources, and population control. The third plan (1972–1976) mentioned social development for the first time, signifying in Thailand a shift from an economic dimension of development to a socioeconomic dimension.

The fourth plan (1977–1981) aimed to revive the economy and improve on social justice by addressing income distribution and uplifting the quality of life of the poor. This plan also aimed to reduce the population rate to 2 percent per year and to conserve the natural resources. The fifth plan (1982–1986) aimed to develop the Eastern Seaboard among other land development plans, industrial and economic expansion. The essence of this plan was to engage the public sector with the civic sector for the first time. The sixth plan (1987–1991) emphasized skilled labor development for uplifting the quality of life and modernizing the rural areas. The importance of this plan was to increase the local participation in the conservation of

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natural resources and the environment and to increase the development of science and technology. The seventh plan (1992–1996) was aimed at developing the rule of law, human resources, and the environment. The eighth plan (1997–2001) offered a shift from material development to human-centered development. It was the first time that a holistic scheme of development was introduced in the ninth national development plan (2002–2006). The highlight of this plan was human-centered development along with King Bhumibol's sufficient economy scheme. Sustainable development was mentioned for the first time in this plan. The ninth plan saw an integration of several sectors revitalizing the economy, self-reliance, good governance, strong communities, and poverty reduction. The tenth plan (2007–2011) is a continuation of the ninth plan. It followed the philosophy of sufficient economy and inter-sectoral cooperation emphasizing human-centered development. Thailand is now using the 11th national development plan (2012–2016) which emphasizes sufficient economy, social security, environment, security of energy and food, and social justice. The upcoming 12th plan also emphasizes the philosophy of a sufficient economy, ecology, and green economy.

All these plans represent a top-down approach to development. Browsing through many documents on rural and community-based development, the policies and implementations are still centered from the government sectors in Bangkok, such as the OTOP (one village, one product) project. So far 160 non-governmental organizations are reported operating at the grassroots level in diverse areas: animals (5 organizations), assorted (4), children and families (50), cultural (13), development (14), disaster (12), drugs (1), education (14), environment (6), health (6), human resources (9), legal (2), medical (4), poverty (10), and women (10) (Peer to peer foundation, 2016). Only a few on this list are Thai-based organizations. A Thai Web site shows 76 Thai NGOs that are not listed in the afore-mentioned list of 160 organizations (Sanook, 2016).

2.2 A Buddhist Model for Sustainability

By introducing the Buddhist model, Sulak Sivaraksa, a renowned Thai social critic, advises Thais to cultivate loving kindness, compassion as their inner strength with community capacity-building through Buddhist education (Sivaraksa, 2009: 37–38). This model affirms that Buddhist pedagogy together with Buddhist economics will make development in the East tread a different path than in the West. As understood from Sulak Sivaraksa's (2009: 43–45) writing, Buddhist education challenges the Western assumption that objectivity is equated with neutrality, as it integrates constructivism with what Buddha taught: the *tisikkha*: wisdom (*panna*), ethics (*sila*), and concentration (*samadhi*). Sulak Sivaraksa (2009: 45–46, 57–58, 94) further elaborates that true wisdom is seeing the reality through bias or prejudice. Ethics or *sila* is related to social justice and moral governance. Concentration or *samadhi* is about critical awareness of the self to create peace, justice, and ecological balance.

The Buddhist economic scheme is a precursor of the philosophy of E. F. Schumacher, the so-called father of "Small is beautiful". The Buddhist way of thinking gives more importance to human development than monetary profits. By emphasizing right livelihood and appropriate technology, this approach to development advocates living in harmony with nature. A holistic approach toward sustainable development requires a balance in economic growth, ecology, and human resource development. The development from within is the way advocated by Phra Brahmagunabhorn or Payutto (1993: 8–12), a renown Hinnayana Buddhist scholar and monk, is on similar lines as Sulak. He emphasizes a new way of thinking that everything is related to one another (holistic) that all beings desire happiness and shun suffering. Therefore, universal love, harmony, mutual help, and unity are encouraged, and freedom should be cherished. Payutto (1993: 8–9) explains further that external freedom is related to the natural environment and the four necessities of life and freedom from social harassment. The more important freedom Payutto advocates is inner freedom from possessiveness or avarice of the following: locality and country; group or family, including ethnic and religious groups; material wealth; class or caste, including social standing and skin color; knowledge and learning, including intellectual achievements and attainments.

2.3 King Bhumibol's Sufficient Economy Scheme

King Bhumibol Adulyadej or King Rama IX, the former King of Thailand introduced the paradigm of sufficient economy to the Thai people on December 4th, 1997 (Mongsawad, 2010: 127). He emphasized the middle way of thinking, living, consuming, and eating as a way to counter the negative effects of globalization. This is in congruence with Buddhist teachings. The Agri-nature Foundation (2016) describes this philosophy as a guideline to build immunity against social, cultural, and environmental change due to globalization, by cultivating necessary social values such as honesty, virtue, prudence, perseverance, industry, consciousness, and wisdom, together with knowledge to create a moderate livelihood for people at all levels: family, community, and state.

It is about the middle path application of knowledge using knowledge, wisdom, and prudence; application of moral principles such as honesty, hard work, sharing, tolerance, harmony, security, and sustainability in people's lives, economic and social conditions, and the environment. The middle path is to be followed in the context of globalization (Mongsawad, 2010: 129). Realizing that globalization has its impact on the material, social, and environmental planes, the sufficient economy scheme emphasizes self-reliance; appropriate technology; conservation of the natural environment; compassionate communities, i.e., helping one another in agricultural production in the traditional Thai way; production for own consumption first and then selling or bartering the surplus; cooperative building; capacity building and networking of the grassroots; and a new way of agriculture (Agri-nature Foundation, 2016).

To implement the sufficient economy paradigm, the King encouraged Thai agriculturists to "grow what we eat and eat what we grow"; reduce expenses as much as possible; and try to be self-reliant as much as one can. As summarized from the website, Agri-nature Foundation (2016), three steps of implementation are to be followed:

(1) Produce agricultural products in a sufficient amount;
(2) Join a group to produce, to market, to build up a strong community, and to engage in development;
(3) Network with the public, the private sector, and the civic development sector.

The new theory introduced was very suitable for the climate of Thailand as it has sunshine all year round. The land is fertile, and Thailand is in fact the bed of fresh foods for the world. It is about a new way of thinking and managing land by networking and cultivating human resources.

Networking within the sufficient economy scheme consists of five major networks: Agri-nature foundation, organic farming network of Thailand or Asoke network, BioThai foundation, the association of local wisdom from the locals of the North-East, and the association of balanced agriculture-Taksom Farm (Agri-nature Foundation, 2016). All of these networks have about 120 training centers around Thailand. The Agri-nature Foundation (2016) explains a training that consists of nine steps:

(1) *Por Kin* (having enough to eat—without using money). Thai agriculturists are encouraged to cultivate rice that is consumed by the entire family annually and grow fruit trees and vegetables so that they do not have to rely on the market. This implies healthy eating. Organic farming is advised to grow these produce.
(2) *Por Chai* (having enough to consume).
(3) *Por Yoo* (having enough to live).
(4) *Por Rom Yen* (having enough to feel cool).
The steps 2–4 can be achieved together by growing forests. Growing forests will yield a variety of food, clothing, and herbal medicine for people in a tropical country like Thailand. Besides, the forests yield wood for building homes and give shade to the community. Thick forestation will also solve the problem of top soil erosion and drought that resulted from scanty rains as a large number of trees were cut down for growing monocrops.
(5) *Bun* is merit one gains by not possessing assets but by donating to temples and letting the temples be centers of sharing.
(6) *Dana* means learning to get rid of avarice and greed by starting to give and share within the community. Friendship and helping hands will be gained instead of monetary profit. In times of crisis, one needs this kind of relationship.
(7) *Keep* means farmers keep their rice for consumption the whole year round. Select and keep "quality seeds" for the next year. They are also advised to keep preserved foods for the future.

(8) *Sell* means selling the surplus. Selling in this case is done with the feeling of "giving" good quality products to the buyers rather than selling.
(9) Networking with like-minded people would help to solve the environmental crisis, epidemic crisis, economic crisis, and political/social crisis.

The praxis of this paradigm was implemented in 1988 in the land that King Bhumibol requested the Chaipattana Foundation to purchase for use as a demonstration field of integrated farming. The land of 32 rais (one rai is about 1600 m^2) was divided into two parts. The first part was used to research how to grow vegetables, herbs, fruit trees on the hilly areas, fragrant flower orchards, a fish pond, and a test of growing vetiver grass to prevent soil erosion. The second part was divided in the ratio of 30:30:30:10. The first 30% of the area was reserved for a pond to store 18,000 m^3 of water in the dry season. The pond can be used by the farmer to breed fresh water fish such as Nile tilapias and silver barbs. The second 30% was stemmed for a paddy field which can be converted into a field of corn, bitter melons, and mung beans after the rice has been harvested. The third 30% of land was to be used to grow fruit trees such as mangoes, guavas, jackfruits; herbs such as kafir lime, chili peppers; field crops such as sugar cane and bananas; and perennials such as acacias. The last 10% of land was for building a home, a stable for animals, driveways/walkways, and organic vegetable patches.

Anek Laothamatas (2000: 99–100), a renowned scholar, states that local networks in Thailand have been under the patronage system for very long. They do not aim to be self-reliant. Rather, they ask for support and resources from the center. The allocation of natural resources has been under Thai government, and local development is centralized with Bangkok as the administrative center. The network of sufficient economy scheme does not use resources from the center. Rather, it uses the local area as a learning space for those interested. An example of a successful application of sufficient economy is the University Mahachiwalai E-sarn (Life University of the North-East) of Mr. Sutthinan Pratchayapruet who could turn his unproductive 700 rais into a place for studying organic farming and ecology (Buddhist style in management, 2005). Sutthinan, who is a self-taught villager in the North-East, believes in research and development. He changed the way he cultivated field crops and paddy fields to grow 1000 fruit trees and 1000 consumable perennials in 1980. He collected data from growing some eucalyptus trees and found that they grow fast. He used the abundant wood to make charcoal and support animal breeding. He grew eucalyptus trees alternatively with local perennials to yield a multi-crop/biodiversity system. In 1981, he planted 150,000 eucalyptus trees. While the trees grew, he cultivated organic field crops such as sorghum, corn, cassava, and grass for animals between the rows of those trees. At the same time, he bred 80 cows, a herd of goats and sheep, including local poultry and pigs. He also had beehives. He learned by trial and error and was successful with a water dripping system that made his infertile land an arable forest. In 1987, he used the wood from his trees to make furniture for sale and used the branches or sticks of eucalyptus to make charcoal and broom sticks. He could export the

charcoal abroad. Seven years later, he was the co-founder of a pilot project in the North-East to research on agricultural products to bring new life to the poor farmers in the area. In 1998, along with a network of teachers at the primary school, he established a home school for children to learn by doing. In 2000, he and others established a network of local wisdom to research on farming and management and develop themselves to be self-reliant and inter-reliant. In the late 2000s, he developed his land as the University of Life, and he became a lecturer and instructor. He also writes and is active on social media networks.

2.4 Development from a Thai Perspective

From the concept of sufficient economy and new theory of agriculture, one can see that development does not mean industrialization or turning Thailand into factories or adopting what is advised by foreign experts or funding agencies to grow monocrops for export. Thais realize that ecological imbalances, such as the erosion of top soil from growing cassava or eucalyptus as monocrops, yield more damage to the environment than monetary profits. Cutting of trees in the forests to make roads and using the land for mono-cropping continue, but people in the network of sufficient economy and villagers with local wisdom have gained awareness and perceive what benefits the community.

Development in the case of sufficient economy in Thailand is based on the multiplicity paradigm (Servaes, 1999), which emphasizes management of natural resources, self-reliance, and use of appropriate technology. Knowing one's own environment and coming up with indigenous strategies to be sustainable is essential. Not having to rely on fertilizer exporters/multi-national corporations is a way to independence and freedom from external interests. Inner freedom from not having debts and growing enough to consume and live without thinking too much about GDP or GNP is true happiness. The Bhutanese government's GNH or Gross National Happiness indicators could be studied and adapted for sustainability. The indicators of the Bhutanese consist of four areas: (1) good governance, (2) community vitality, (3) ecological diversity and resilience, and (4) living standard (Gross National Happiness, 2016). All indicators and sub-indicators (if any) of GNH are summarized (Gross National Happiness, 2016) below:

(1) Good governance can be rated by using the following indicators: government performance, fundamental rights, services, and political participation. For the government performance, sub-indicators are the ability of the government to create jobs, reduce gap between the rich and the poor, fighting corruption, preserving culture and traditions, protecting environment, and improving health services. For fundamental rights, the sub-indicators are freedom of speech and opinion, right to vote, right to join political party of one's choice, to form a political party, to have equal access and opportunity to join public services,

right to get equal pay for work of equal value, and freedom from discrimination. For services, the sub-indicators are access to healthcare center, electricity, method of waste disposal, source of water, and quality of water. For political participation, the sub-indicators are election and civic participation.

(2) Community vitality can be rated by time and money of volunteer or donation to the local community, community relationship, family ties, and safety of life.

(3) Ecological diversity and resilience can be rated by ecological issues, responsibility toward environment, wildlife damage, and urban issues. For ecological issues, the sub-indicators are pollution of rivers and stream, air pollution, noise pollution, absence of waste disposal sites, littering, landslides, soil erosion, and floods. For wildlife damage, the sub-indicators are wildlife constraints to one's crops and damage caused by the wildlife. For urban issues, the sub-indicators are pollution of rivers and stream, air pollution, noise pollution, and absence of waste disposal sites.

(4) Living standards can be rated by the following: assets, housing and household per capita income. For assets, the sub-indicators are ownership of mobile telephone, fixed line telephone, personal computer, refrigerator, color television, washing machine, land, and livestock. For housing, the sub-indicators are type of toilet used, roof material, and room ratio.

From what has been discussed so far, the Thai and Bhutanese discourse on development is similar. Development does not mean only material aspects or only quantifiable indicators. Development includes ecological balance, wellness of the environment, and the well-being of the people. Participation, social justice, self-reliance, and management of the natural resources are the key factors of external development. Kind-heartedness, honesty, public-mindedness, sharing and caring, being helpful, non-judgmental, non-discriminatory, having compassion toward others, diligence, patience, perseverance, and resilience are related to development from within under the Buddhist worldview that all beings are friends who are subject to aging, illness, and death. In this definition, profits or tangible measurement of success is not as important as community integrity. Selling is not more important than bartering. Exchanging ideas, learning from each other, walking toward a strong community is more important than competing, taking over someone's business or not giving others a space to stand, a chance to live or freedom everyone cherishes (in other words exploitation and abuse by race, ethnicity, age, gender, skin color, economic or social status). Development can be planned and geared toward these sets of goals and objectives. It requires the collection of data, analysis of data, and collaboration of everyone in a community.

2.5 How to Plan for Community Development?

Seri Pongpit (2009), a renowned Thai scholar, in his book *Strategies to Rural Development*, clearly explains about the stages to strategically plan development:

(1) Study the basic information to understand background of a community by document research, focus group discussion, in-depth interviews of local leaders , and key informants in the community. Basic information of a community can be as follows:

- Its historical background.
- Its livelihood.
- Its capitals: monetary, natural resource, local wisdom, social, and culture. Pongpit (2012: 81–83) explains social capital in a Thai way. He states that saving money in the form of a community bank will lift the whole community from poverty. Establishing coops or social funds such as a rice bank, a buffalo bank, or a chair bank and table bank, are good examples of pooling and managing resources together. The pooled resources can be used by paying a small fee. Growing perennials that can be used 20–30 years later on a piece of land is also a capital that can be handed down to the offspring.
- Problems and needs.
- Any current strategic planning.

(2) Set the purpose of development and reveal the vision of the future to the community.
(3) Develop objectives, action plans, projects, and activities.
(4) This is the most important part: researching people and development. It is a process of participatory research. The community is advised to use the SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis to answer the following questions:

(a) Who are we? Where do we come from? Who are our ancestors? Where are our roots?
(b) What are our cultural identities?
(c) How do the interconnected relationships in the world affect us?
(d) What is our local capital? Any natural resources? Any social capital? Any local wisdom? Any educated members in our community?
(e) What is the income, expense, and debt of our community?
(f) What are the problems: social, health, environment, etc.?

To make an action plan in a village, the local leader sets up a team with one person representing 10 households. The team meets every month to analyze all the afore-mentioned information. The members should set up six community forums:

- The first forum is "Where do we come from?" The elders in the community could narrate the history and let the research team of the village record them. This includes stories of clans and families in the village.
- The second forum is "Who are we? What are our cultural identities?" It records the value system, traditions, customs, way of life, cultural heritage, wisdom in the village.

- The third forum is "What is our natural capital?" Members in the community help search, count, and record the quality of soil, forests, trees, herbs, minerals, foods, etc., in the community.
- The fourth forum is "Income, expenses, and debts".
- The fifth forum is analysis of what is learnt from other communities and how other communities solve their problems.
- The sixth forum is to draft an action plan and ask for comments from the people.

Pongpit (2012: 117–118) states that community enterprises are the way forward for people to process and produce innovation from agricultural products, manage their own resources, and to be self-reliant.

2.6 Buddhist Communication for Development

Last but not least, communication skills are very useful to mobilize the community and drive a social movement for the decent livelihood of the members in the community. Communication skills include social media skills, writing, speaking, listening, and intercultural communication skills. Media literacy is important for members in a community to voice their concerns, needs, and problems.

Buddhist communication makes Thais different from other nations. They are the roots of Thai success in a sufficient economy or an economy that is not driven by greed and money. The ten perfections of Nun Thipayathasana (2013: 132–149) are introduced below:

(1) The first factor is generosity or *dana* (in Pali). *Dana* means giving. Giving material things is the primary level of giving. The second level of generosity is sharing vigilance and responsibility in a community. The third level of generosity is giving knowledge without a fee. The fourth level is forgiveness. This level is harder than the first three levels as one must train the mind to forego ill-feelings and hatred. The fifth level is giving *dhamma* or the truth that Lord Buddha taught. This is the highest level of all giving.
(2) *Sila* or morality is the second factor that Buddhists should hold. Five precepts are what lay people should adhere to, i.e., not to take life, not take what is not given, not to abuse one's beloved ones, not to do harm through speech, and not to harm one's consciousness with substance abuse.
(3) *Renunciation* implies a condition of solitude and simple living. This goes against consumerism and capital accumulation.
(4) *Reflective thinking* can be achieved with mindfulness. One can contemplate on the tri-characteristics: *dukkha* (suffering), *anicca* (impermanence of being), and *anatta* (the state of nonself).
(5) *Effort* drives one in managing enterprises.

(6) *Endurance* goes together with effort. This implies mental control to counteract the external stimuli and keep one's ego in check.
(7) *Truthfulness*.
(8) *Right determination* must accompany truthfulness to ensure success.
(9) *Loving kindness* implies kindness to oneself, parents, and others in the community. This will lessen hatred, discrimination, prejudice, and bias.
(10) *Equanimity* or peace of mind is to let go of satisfactory and unsatisfactory feelings. This can be achieved with a trained mind.

2.7 In Conclusion

The Buddhist philosophy which is the foundation of the sufficient economy is akin to the concept of "small is beautiful". It can be achieved by training the mind to be content with life and to live with compassion and loving kindness to others, animals, and the earth. Ecological balance can be achieved if everyone in the community sees the common good as better than personal gain. Sustainable development is based on good education which does not mean only the Western way of education (see, for instance, Malikhao, 2012, 2013). In a nutshell, it is more about polishing one's ego to see the inter-relatedness among beings and nature. It is to see that everyone is subject to age, illness, and death. Practicing loving kindness, forgiveness, compassion, rejoicing in other's success, and equanimity are the values to be cultivated as a way of life. Human development is, therefore, more important and must precede material development. The Thai community possess local wisdom which they share knowledge and form networks. They teach others from their own experience. Development from within begins with positive thinking and works as one appreciates and learns to be content with what one has.

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Dr. Patchanee Malikhao is a Thai and a Belgian who received a Ph.D. in Sociology from the University of Queensland in Australia. She has worked and received extensive trainings in the fields of Communication for Social Change, Imaging Technology, Social Science Research Methods, and Data Analyses in Belgium, Australia, and the USA. She was a recipient of many scholarships and awards, including the Fulbright Scholarship, the Australian Postgraduate Award, and the Outstanding Teacher Award. She worked as researcher and lecturer in the School of Public Health at the University of Massachusetts, Amherst, USA and at Chulalongkorn University and Thammasat University in Bangkok, Thailand. She joined the CSSC Center at UMass Amherst as Senior Fellow in 2010. Currently, she is Director of Fecund Communication based in Thailand providing research and consultation/lecture in Health Communication and Communication for Sustainable Social Change to many institutions in the People's Republic of China, Western Europe, and North America. Patchanee has published widely in the field of Health Communication, Social Change, Globalization/Localization, HIV/AIDS Sociology, Communication and Sustainable Development, Thai Culture, and Buddhism. Her latest book is "Communication and Culture in Thailand, published by Springer Publishers, Singapore, in 2017. Moreover, she also published "Effective Health Communication for Sustainable Social Change", with Nova Publishers, New York, USA in 2016. She is also the author of "Sex in the Village. Culture, Religion and HIV/AIDS in Thailand", published by Southbound & Silkworm Publishers: Penang-Chiang Mai, 2012.

Chapter 3
Right Effort for Right Livelihood: Historical Model of Sustainable Development from Sri Lanka

Chandrika De Alwis

3.1 Introduction

This chapter illustrates how ancient Sri Lanka sustained social progress by creating awareness of the concept of dependent co-origination or *Paticcasamuppada* the eternal law. It is a blueprint that benefited a socio-economic system founded on the recognition that nature and the environment are interconnected components. It is a scheme for human action designed to attain mutual benefit between the society and the environment and vice versa, a system that can be confirmed as an ecosystem thriving on exchange. Interestingly, the World Conservation Strategy was published in 1980 by the United Nations Environment Program (UNEP) wherein "conservation" and "development" were recognized for the first time as mutually interdependent conceptions (Yamamoto & Kuwahara, 2010). Examples from ancient Sri Lanka exemplify how this island nation planned, organized and executed a sustainable socio-economic landscape based on dependent co-origination. In order to validate this observation, it is necessary to investigate the practices imposed during the colonial period that reversed the ancient heritage. The enduring effect of the policies and practices of both these eras defines how each period achieved progress in social as well as monetary terms and particularly how sustainability was eroded with colonial intrusions. It is an outcome that resulted in the negligence of dependent co-origination.

The notion of dependent co-origination weigh up that all phenomena are interdependent and arise from multiple causes and conditions. In simple terms, the concept underlines the law of cause and effect or "the arising of ever-changing conditions that is dependent on similar and evanescent conditions" which is identified as dependent co-arising (Piyadassi Thera, 1959, p. 6). At this point, it is also pertinent to refer to the nine principles and the one hundred and thirty two codes of

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conduct set out as guidelines for a New World Conservation Strategy in 1991 by UNEP (Yamamoto & Kuwahara, 2010). All the same this chapter posits that the precolonial and post-colonial landscapes of Sri Lanka demonstrate the importance of *right mindfulness* to conquer *right livelihood* in the pursuance of *right view, right action* and *right effort* for the successful adaptation of sustainable development of our planetary resources. In order to comprehend the relevance of the five codes outlined for the purpose of this chapter, we should refer to the legacy of Emperor Aśoka (BC 274–236) of Central Asia in present India. He drew inspiration wisely from the Noble Eightfold Path delivered by Shakyamuni Gautama or the Buddha. Thereby, his social and economic policies commandeered the importance of dependent co-origination and the Noble Eightfold Path to create a welfare state. Based on such historical evidence, this chapter advances the view that these five codes far outweigh the guidelines for a conservation strategy advanced by UNEP in 1991. The environmental sustainability index (2002) records significant dimensions to be considered, namely air, soil, ecosystems and water and the substantial stress on these components through human exploitation. Yet global deliberations continue without concurrence as to the next step in supporting an agenda for the future sans misuse. Exploitation has direct implications on observing or pursuing right livelihood and the adherence to right view, right action and right effort. A more simplistic way to understand this concept is to be mindful of doing harm to others as well as to oneself which in other terms spell ethical action. In an interdependent world system, "if the causes are good the result is bound to be good and would thus distinguish right livelihood" (Ajahn Chah cited in Hanson, 2006).

These ethical codes contained in the Noble Eightfold Path or the Middle Path outlined by the Buddha were sent to Sri Lanka by Emperor Aśoka through his emissary, his son Arahant Mahinda in 328 BC. From this point onwards, Sri Lankan governance and social progress drew insights from the wisdom contained in the Buddhist discourses. Such tangible strategies became the foundation for sustainable development through education for the viable development of a socio-economic order that paid due diligence to cause and the effect. In the circumstances, it is prudent to introduce the nexus of Sri Lankan society in those early days between the village, the temple and the tanks that formed a hydraulic civilization. This model not only transformed the literacy of the population but also helped the sociopolitical and socio-economic endeavours of the nation. The legacy of this model demarcates engineering, medical and educational knowledge and transferring of that knowledge for future sustenance. However, with the arrival of the colonists, the existing paradigm of sustainable development was ignored leading to alienation of local knowledge and practices. The colonists introduced a plantation-based economy with intensified labour and capital within a hierarchical organization and which also used technology and resources from the West (Samaraweera, 1981). This economic and social structure "typified a foreign enclave" which in turn faced a backlash effect from the peasant sector (Samaraweera, 1981, p. 127).

The effects of Western-driven progress caused an overly consumerist and materialistic culture-driven economic and social order. It is not only the former colonies such as Sri Lanka that were affected by "unsustainable exploitation of

human and natural resources that contradict the principles of sustainable development. These include all recipient nations of monetary loans from "powerful transnational agencies for any form of development" (Shiva, 2005; Madeley, 2008 cited in Toh, 2010, p. 63). It is this history that serves as the turning point to retrace the applicability of the historical model of sustainable development from ancient Sri Lanka which embodied the village, tank and the temple as its foundation. In order to understand the model of right effort for right livelihood for sustainable development and progress practiced in ancient Sri Lanka for over two millennia, it is necessary to capture the essence of sustainability in modern parlance.

3.2 Contemporary Origins of Sustainability

The modern concept of sustainability was introduced by Hans Carl von Carlowitz of Germany in 1700 AD to create awareness that "no more trees should be cut down" in the face of the critical endangerment of our natural resources (Grober, 1999). The World Commission on Environment and Development (1984) at its inaugural meeting invited proposals, involvement and support in order to assist it urgently to:

1. Re-examine the critical issues of environment and development in order to formulate innovative, concrete and realistic action proposals to deal with them.
2. Strengthen international cooperation on environment and development, to assess and propose new forms of cooperation that can break out of existing patterns and influence policies and events in the direction of needed change.
3. Raise the level of understanding and commitment to action on the part of individuals, voluntary organizations, businesses, institutes and governments.

One example of individual country resolution on sustainability is the Austrian strategy of building the future with twenty goals in four fields of action (2002), whilst similar accountabilities were created for European corporate responsibility (2001). Nonetheless, in the book titled "Beyond Growth", Daly (1987) critically examines the concept of sustainable development as a term that everyone likes although nobody is sure of its meaning. Even the definition of sustainable development introduced by Brundtland (1987) underestimates the concept of dependency by conceiving only human needs as wants and requirements. There is a serious lapse in considering the whole environment as a total entity in this quest after nearly 300 years since von Carlowitz realized the consequences of mass destruction of forests for mining development. It is important here to consider the key concept of "dependent co-origination" drawn from the Buddha's discourses, an eternal law, as an essential component in the sphere of sustainable development. The Sri Lankan case exemplifies how the environment was utilized with utmost care so as not to have any adverse effects on the community, the weather or physical and natural resources. By observing the law of cause and effect, the Sri Lankan monarchs have assessed weather patterns which dictate flow of water and the effects on cultivation

practices of Sri Lanka which is in vogue even today. This is in complete contrast to Western nations such as Australia or New Zealand, where forest lands gradually turned into grazing pastures for an industry that drew milk and meat. It is an industry that is paying its price environmentally and unsustainable even though the most modern equipment has been employed to produce the highest dollar value. It is profit and monetary gain rather than sustainable right livelihood that has resulted in the present scenario. Furthermore, these industries are nationwide and not limited to zoning which is not the case with Sri Lanka.

The Sri Lankan case demonstrates that the elements of sustainability were interconnected microunits of many tanks and canals that fed the many villages, rice fields and home gardens. It is within these microunits that the numerous Buddhist temples were settled. Sri Lankan kings and their administrators identified where exactly the rice fields were to be located and how water networks were to be set up to feed these fields and how to sustain the endemic natural forests and reap benefits from them as well. The planners did not forget that there was more to be done in terms of the requirements of the food supplies, land and resources including human resources, rather than rely on rice production and agriculture alone. As such they competently harnessed the dry, wet and semi-arid zones of Sri Lanka for a variety of crops paying due diligence to sustainable progress to maintain all segments of the environment. Ancient Sri Lanka undertook social development to underscore sustainable progress within microunits. These microunits created networks that influenced the other units and became models of viable enterprises for human habitat.

3.3 Right Livelihood

The arrival of Arahant Mahinda to the island with the message of the Buddha established a link between state and Buddhism. Royal authority and Buddhism supported each other, a practice which became formalized over the centuries (De Silva, 1982). A consequence of this development was the obligation of the ruler to provide and maintain the order of sangha or Buddhists priests. The organization of the Buddhist establishment in Sri Lanka paralleled that of society but "Buddhism had no power structure of its own, independent of the state" (Rogers, 1987, p. 351). The sangha was a necessary component in order to educate the general public and in a sense became essential in maintaining a rapidly growing sociopolitical order and the economics of the land. This phenomenon led to the expansion of monasteries when the number of priests taking to monastic life grew. Since the temples were positioned on crown land, subsequently the monasteries became the biggest segment owning land in Sri Lanka. This practice of "temples dedicated to the Buddha called vihāra were endowed with land long before any European presence was established in Sri Lanka" (Rogers, 1987). The topic of temple endowments subsequently came to be recognized by scholars for its importance in historical and sociological research (Rogers, 1987). Recent studies suggest that "politics of

representation and knowledge characterized South Asian societies both prior to and simultaneously with its better-known colonial counterpart" (Blackburn, 2001, p. 4).

A rapid systematization of monastic education also grew since the monks committed themselves to educating the people with the *Dhamma* and Buddhist practices (Rogers, 1987). This phenomenon bound the entire nation and had a lasting impact on the local populace. At this point, it is prudent to note that the Buddha taught that economic activity and its results must provide the basis for a good and noble life of the individual and social development (Debvedi, l992). The Buddha has articulated in the *Kutadanta-Sutta* that punishment will not change society, and therefore, in order to setback crime, the economic conditions of people should be improved (Ven Walpola, l958). Furthermore, ten principles on governance or ten rules and responsibilities for governance are extoled in Buddhist discourse, namely in the Jātaka tales. The very first principle states that a leader should be liberal and generous, should not be greedy and should distribute the wealth of the country for the benefit of the people. Thereby, we see the direct link of the influence of the *Dhamma* that influenced the rulers of Lanka who planned microcities or villages and built large reservoirs to sustain a prosperous and sustainable civilization with the temple as the hub of knowledge transmission. The important aspect to reckon here is that *Dhamma* in Pali or *Dharma* in Sanskrit is defined as that which upholds the natural order of the universe or nature of a thing or phenomenon (Nyanatiloka, 1952).

The application of the *Dhamma* in ancient Sri Lanka starts with the recognition of the importance of water to sustain the natural order of the universe and distribute the wealth of the country for the benefit of its people. Historical evidence from Sri Lanka provides a glimpse of the vision of those bygone planners and their enterprise of harnessing water as the first priority. It is a task that distinguishes the significance of managing the environment, sustenance of the villages and other aspects of social and economic policy. The example of King Parakramabahu the Great of Sri Lanka (1153–1186 AD) stands out in this regard who inscribed in no uncertain terms that "not a single drop of water received from rain should be allowed to escape into the sea without being utilized for human benefit" (cited in Tennekoon, 2006). There are far-reaching inferences in this quote for students of sustainability and provide a valuable lesson for all who are facing environmental calamities as a result of untenable development programs. It is in this light that one should view the widespread destruction related to water today either by way of drought or torrential rains caused by inclement weather patterns such as cyclones, typhoons and snow blizzards.

Water management became the hallmark of the hydraulic civilization that is synonymous with Sri Lanka. By the tenth century, a vast assortment of irrigation works spreads over majority of the dry zones of the nation which is described as a monumental feat (De Silva, 1982). A series of connected tanks existing even today are organized within the microcatchments of the dry zone landscape, for storing, conveying and utilising water from an ephemeral rivulet (Madduma Bandara, 1985). Scholars cannot identify a similar landscape with such numerous and extensive hydraulic works in much greater civilizations such as in Egypt, Syria or

India (Tenent, 1859; Bailey, 1859 cited in De Silva, 1982). Even the nineteenth-century British officials were awestruck by the masterly organization and maintenance of an irrigation system that sprawled through the dry zone which was in remarkable harmony with geological and geographical distinctiveness of the region (Murphey, 1957 cited in De Silva 1982). The result of all this inventiveness is that during the reign of King Parakramabahu the Great, Sri Lanka achieved the distinction of becoming the Granary of the East. There was surplus rice production for export with two hundred and sixty three (263) varieties of rice that were suitable for the different geographical landscapes and climatic conditions of the land. According to the University of Sri Jayewardenepura, rice which grew in coastal areas in salty conditions, the dry zones, arid regions and in cold climes are recorded. In addition, rice varieties that grew in muddy clay conditions and in home gardens even with hard soil conditions have now given way to cultivation of high-yield varieties that may be genetically modified as is the case with most other crops. Significantly, rice varieties used for medicinal purposes take the place of pride in ancient history.

The illustrious example of the hydraulic civilization of Sri Lanka that records sustainable social progress and economic prosperity validates Eli's (2007) definition of sustainability. Accordingly, sustainability is a "dynamic equilibrium in the processes of interaction between a population and the carrying capacity of an environment is such that the population develops to express its full potential without adversely and irreversibly affecting the carrying capacity of the environment upon which it depends" (Eli, 2007, p. 13). Ancient Sri Lanka accomplished such a civilization not through definitions or theoretical modelling but by understanding the law of cause and effect or dependent co-origination. By upholding the wisdom contained in Buddhist discourse, Sri Lanka gave the world a lesson in social sustenance. The illustrated concrete examples demonstrate the different interconnected aspects and at the same time establish the essence of right livelihood. In addition, the different aspects of this civilization exhibit social action which in Buddhist parlance ascertains a variety of engagements intended for the benefit of mankind (Jones, 2003). Social action can be simple acts such as charity work or *shramadana*, teaching, nursing or any such organized service and could also include various community development activities or political activity aimed at uplifting or betterment of society. As such, the nurturing of the hydraulic civilization by the ancient Sri Lankan monarchs can be labelled as social action that falls in the sphere of right livelihood.

A current example of a *shramadana* movement in Sri Lanka, namely the Sarvodaya movement, is undertaking sustainable development in post-colonial Sri Lanka. Described as an international role model in the sphere of development, it has modelled itself as the provider of knowledge or education just like the temples in ancient Sri Lanka. Their principal objective was to lend a hand and develop self-help initiatives that would empower students and teachers who live and work within the most remote villages towards self-reliance and community participation. The Sarvodaya movement now runs a development program to include hundreds of remote villages by observing philosophical tenets from Buddhist discourse and

Gandhian thoughts of non-violence. It has been described as an international role model by international bodies. Initially, it involved an education program aimed at enabling students and teachers to live and work with the most remote village communities in Sri Lanka to lend a hand and develop self-help initiatives. Within nine years, however, the "service learning programme" had expanded into a full-fledged development movement in hundreds of villages.

Respect for life is a fundamental aspect of Buddhism that fosters an attitude conducive to natural capital preservation that motivates many ecological and social values beneficial to a sustainable philosophy of life (Suwan, 2008). It is this central facet in Buddhist discourse that underlies the history of the microunits of the village bounded by the tank, the village and the temple in Sri Lanka, which became an ecosystem that is unparalleled in history.

3.3.1 Water Ecosystem or Tanks

The multitude of water tanks and reservoirs are more than 3000 years old and number around 30,000, and at the same time, the construction of canals and reservoirs continued till the twelfth century AD. The main purpose of the ecosystem of tanks or reservoirs was to store rain water. The tank bed in turn not only ensures water during spells of drought but also helps in flood mitigation during the rainy season. In order to achieve a sustainable ecosystem, many small feeder tanks were constructed with interconnecting system of canals that would fulfil the requirements of the entire ecosystem. This is in complete contrast to modern irrigation systems that feed only the requirement of the root zone. There was an entire system of tanks with interconnected cascades allowing surplus flow from the upstream tanks and return flow from the upstream command area to reach the tank that is immediately downstream. This village tank cascade water system is recognized as the traditional technology of drought and water management in Sri Lanka (Madduma Bandara, 1985). A cascade water system of water storage uses drainage sequences within a definite watershed boundary. These small tanks in Sri Lanka have been extensively studied during the last two centuries due to their remarkable socio-technical significance associated with the natural and physical environment (Jayasena, Chandrajith, & Gangadhara, 2011). Disregard of the form and content of the system would cause environmental, social and economic degradation, and therefore, utmost care is taken to measure water balance (Tennekoon, 2006). Moreover, the cascading tank system was advanced in line with the topography as it is considered an integral part of the river basin (Tennekoon, 2006).

The cascade management centre was the Buddhist temple though the management of one stage did not affect the other; they were designed as an all-inclusive management system by the incorporation of the feeder tank system (Tennekoon, 2006). Excess water from the monsoon rains fed the lakes whilst excess water from the tanks were released back into the ground soil through a percolation system via soil embankments, thus replenishing the groundwater table. Likewise, they invented

many types of sluices to contain and manage water in the reservoirs. The most widely studied piece of engineering in this water management sequence is a unique pit called the *Bisokotuwa* engineered around the third century BC or earlier (De Silva, 1982). The Sinhala engineers are acknowledged world over as the masterminds who invented this unique contraption that is not found anywhere else in the world. The opening and closing mechanism that controls the inflow to the *Bisokotuwa* with enormous pressure is still a mystery (Wijesena, 2014). Made of granite these sluice gates still exist at certain locations though most were ironically destroyed by the colonists notes Wijesena (2014). Furthermore, the design of these sluices was done thoughtfully enabling the system to weather any storm without giving way to torrential disaster that would wipe away the village and its environs. In addition, they were positioned and located at specific spots which the present-day hydraulic engineers acknowledge as the best location according to their latest design. Moreover, the state provided all water services and never sold it (Wijesena, 2014), which is another remarkable aspect of this scheme. Whilst water control was the responsibility of the irrigation headman when rain was due, severe penalties were imposed for misuse and abuse of this precious resource (Wijesena, 2014).

Water ecosystems or water networks were aimed firstly at conservation and secondly were diverted for the cultivation of paddy in the dry zones which provide a significant insight into the sustainable development programs undertaken then. From a careful understanding of the hydraulic system, it can be grasped that irrigation is only a part of the whole structure; the prevalent culture of the village settlement augmented the necessary conditions to sustain the whole system (amazinglanka.com). Therefore, it is clear that the ecosystems created through the water reservoirs, tanks and related infrastructure cannot only be attributed to their physical structures. Buddhist discourse has had the largest single impact "on the conservation of flora and fauna" in Sri Lanka with conservation measures endorsed since the beginning of the third century (Kabilsingh, 1987 cited in Henning, 2002, p. 13). Furthermore, it was vital that such formal government measures for the protection of nature were accepted by the people. Significantly, the *Dharma* as taught in Buddhist discourse stimulated a culture of sustainability in ancient Sri Lanka driven by the goal of equal sharing of resources among all living beings. Here, we see the three cornerstones of the tank, the village and temple forming that all important triangle in a civilization that understood the importance of equal ownership of natural and physical resources for maintainable growth. Nevertheless, population growth demanded more water and resources for paddy production, a challenge overcome by tapping into Sri Lanka's longest river towards both the central zones as well as to the southern regions. Sri Lanka today follows the same steps in irrigation management and cultivation practices although external pressures from transnational lending corporations such as the World Bank dictate terms that have altered most of the ancient practices. The very recent catastrophic flooding in Sri Lanka in 2016 can also be attributed to gross negligence of ancient practice that has given way to influences of non-traditional post-colonial designs. These recent events exemplify the effects of negligence in adhering to the age-old practices of water conservation in conjunction with irrigation methods and cultivation patterns.

In short, the concept of sustainability is missing in modern Sri Lanka even though some aspects are incorporated into the water system.

The ill effects of planning for monetary gain without consideration of the linkages to the environment can be drawn from the New Zealand dairy sector which is an industry designed to sustain the economic foundation of the nation. There are faults in the design in relation to dependent co-origination. Firstly, as economic prosperity is the sole guideline, there is a failure to take into account the meaning of right livelihood. Even though economics is an important segment of right livelihood in the Buddha's teachings, the ill effects of earning a living that directly or indirectly involves violence are not condoned. In that sense, animal farming falls into this category of a trade-in living beings and trade-in animal flesh as the farms do make a living by selling meat. It does not stop there; the relative association of the many diseases due to the over consumption of meat is backed by medical evidence today even though animal farming is seen as a highly profitable and a sustainable industry in economic terms. From an environmental aspect, there are many problems that are coming to light in facing climate change. For example, there are no planned water management systems for the cattle and sheep farmers who depend entirely on rain water collected in small ponds on their sites. Another highly volatile problem is the run-off of animal effluence that pollute available natural streams conserved for fishery development and/or feeding electricity grids. Still worse is the emission of methane gas from livestock in New Zealand which is the single largest contributor of greenhouse gases to the environment in the country. Thus, we see two problems of sustainability here with the emissions as well as water conservation and management. Nevertheless, New Zealand is ranked among the top half of the Organisation for Economic Corporation and Development (OECD) nations.

These farming communities are seen as economic communities that undertake their profession for the benefit of society in that they provide goods and services. But in terms of social action, these industries are not sustainable. Firstly, the term "for the benefit of society" is not completely understood as they fail to arrest environmental degradation. Secondly, they do not fall into the category of right livelihood in their commitment to a livelihood that does not take into account the ethical component of disregard to other living beings in their bid for economic profit. These aspects also fail to portray the observance of right effort and right thought through right mindfulness in comparison with the system of harvesting nature's bounties as in Sri Lanka. In this regard, it is important to examine the villages and their forest or home garden systems that provide a historical lesson in sustainable and right livelihood.

3.3.2 The Home Gardens

The traditional Sri Lankan home gardens particularly the *Kandyan* forest or home gardens are a "key endemic agricultural system" identified since ancient times (Welgama, 2014). The title *Kandyan* forest garden is a significant term because this

historical practice was and is still confined to the district of Kandy and adjacent regions in the central hill country or the wet zones of the island nation. It is also observed that these home gardens are possibly the best-developed agroforestry systems in Sri Lanka where perennial cropping has been practised for centuries (Ariyadasa, 2002). Most importantly, even though these home gardens are centuries old, the system has continued to evolve from one generation to the next in order to suit socio-economic, cultural and ecological needs (Caron 1995, Pushpakumara et al., 2012). Another observation is that the farmers who practice forest gardening enjoy a better-level living "by virtue of returns from both economic cash crops and subsistence produce" (Jacob & Alles, 1987, p. 123). Nevertheless, the most significant contribution of the Sri Lankan home and/or forestry gardens is that this ancient practice corresponds with the village, tank and temple model of sustainability. This is due to the fact that home gardens are a contributory facet to conserving biodiversity as they reduce the pressure on natural forests by their simple design (Pathmasiri & Bandara, 2016). Home gardens are now explored by scholars for future planning of land use and mitigation of climate change for their potential function and strategic foundations (Mattson et al., 2013). As such it is important to analyse their composition to demonstrate the applicability of the home gardens for sustainable development.

The productive activities at home garden sites and their "proximity to the ecologically important Sinharaja forest reserve emphasize the crucial, but perhaps undervalued role that local livelihoods and land management activities play in conservation" (Geiger, 2014, p. 100). The composition of these gardens varies in species whilst tree density of which 70% species in the rain forest region are endemic and found in the south-west as well as in the central hills (Myers, 1990). According to estimates, some of these endemic plants date back 5000 years whilst 858,000 of them are increasing annually. These gardens also consist of a highly diverse range of fauna and flora species (Geiger, 2014). Such a vast proportion of species link the natural forest cover and the wetlands to act as a complimentary corridor to facilitate the movement of wild animals and pollinators (Pathmasiri & Bandara, 2016) as well as seed dispersal from the forest (Geiger, 2014). This is one key area that is mishandled in countries such as New Zealand where a large segment of wild animals is classified as predators. New Zealand disperses massive quantities of the lethal poison compound 1080 into its wilderness ecosystem which is highly toxic to most air-breathing organisms (Pietak, 2011). Ecological conservation officials claim that aerial poisoning is an "essential strategy to protect vulnerable indigenous flora and fauna from exotic mammalian pests" (Pietak, 2011, p. 1). There is a national outcry on these operations, and Pietak (2011) notes that a large number of endemic and threatened or endangered omnivorous, insectivorous and carnivorous bird species are at risk by this action throughout an entire ecosystem, a serious issue needing urgent action. Once again we see the neglect of right livelihood and right mindfulness as there is no right effort to understand the ecosystem of all living beings without harm to the other.

The Sri Lankan forest home gardens are on the other hand very complex structures vertically as well as horizontally as the systems appear as naturally dense

forests with three to five vertical canopy layers (Soemarwoto, 1987). Jack fruit, coconut, areca nut and coffee dominate the hierarchy of these canopies in most instances whilst a very low emphasis is placed on livestock (Perera and Rajapakse, 1991). Home gardeners specifically are not engaged in fisheries or aquaculture, but some are beekeepers and many are interested to learn this activity (Galhena, 2012). The objective of land use is important in that non-commercial benefits are stressed in areas such as soil conservation, soil moisture improvement, enhancement of microclimate and protection of wildlife (Perera and Rajapakse, 1991). All these factors are significant as they exemplify the full understanding of "dependent co-origination" which can be directly associated with right mindfulness and the other relevant codes of ethics. Most importantly, they are also protecting wildlife in environmental conservation.

The home garden systems are essentially a system of mixed cropping and produce cinnamon, pepper, garcinia, clove, cardamom, medicinal plants and timber species (Jacob & Alles, 1987). These gardens also reveal specific plant associations; for example, black pepper vine climbing, a leguminous shade tree over tea bushes to enumerate their spatial relationship (Geiger, 2014). These home gardens produce a little less than half the requirement of saw logs and one-fourth of the biofuel demand, and therefore, the National Forest Policy recognizes their role as important (Ariyadasa, 2002). This policy outlines that "trees growing on homesteads, and other agroforestry, will be promoted as a main strategy to supply wood and other forest products for meeting household and market needs" (cited in Ariyadasa, 2002, p. 5). Though home gardens cannot be equated as profitable initiatives in monetary terms with commercial farming systems, they are definitely cost-effective and have multiple benefits over time for sustainability such as the preservation of the habitat and ecosystem (Galhena, 2012). Research has found more than 400 woody species in home gardens, some of which reproduce through natural progression whilst some are replanted (Ariyadasa 2002).

Furthermore, they also provide ecosystem services such as carbon sequestration which are prized both economically and for conservation efforts (see Geiger, 2014). Most importantly, these mixed forest and/or home gardens "offer a highly diversified and economically viable form of land use" (Jacob & Alles, 1987, p. 123). However, some scholars are of the opinion that this resilient management system came about as an alternative practice to resource depletion of the once-diverse rainforest (Wickramasinghe 1995). In addition, specific cultivation techniques are utilized to maintain these gardens which are common among some wet zones in the central hills to the south-western regions and the dry zones of the southern and north-west (Welgama, 2014). Furthermore, they also combine traditional methods with modern systems for subsistence farming.

Another important aspect of home gardens is the management of waste as set out in the report by Galhena (2012). For instance, the waste collected from animals is turned into biogas for the purposes of household cooking whilst the sludge, a by-product of this operation is used as fertilizer for the farm as well as in making compost. This is a highly efficient waste management system particularly applied to cattle sheds that are designed to divert cattle waste directly to drains reaching the

biogas plant. However in some regions firewood becomes the main source of energy for household cooking which in turn produce charcoal to demonstrate an efficient water distribution and purification system. This by-product charcoal is also used as a cleaning agent in these households without resorting to the use of chemical cleaners. As such all items generally considered waste are continuously recycled and are put to sustainable use in these home gardens. In a sense, they exemplify right livelihood in a perfect sense as there is a commitment to not harming other lives or the environment with due respect to cause and effect of the environment.

3.4 Conclusion

Sustainability as theorized by Daly (1987) and improved upon by Meadows (1999) hinged upon personal transformation as shown in Buddhist discourse; Buddhism is seen as a very influential facet in her later life (cited in Suwan, 2008). Therefore, the importance of the realization of "dependent co-origination" which translates to our natural order of things that humans and nature cannot be separated is a far-sighted approach to development. To attain sustainability, humans need to consider the well-being of nature and not as something to be exploited or dominated. This is the essence of right mindfulness attained through right view and right effort to culminate in right livelihood. The foundations of the hydraulic civilization that is still supporting the livelihood of the people of Sri Lanka together with the ancient agroforestry systems of forest and home gardens are exemplary cases of sustainable development.

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Chapter 4
Traditional Knowledge Systems, Culture and Environmental Sustainability: Concepts from Odisha, India

Maitreyee Mishra

4.1 Introduction

Many factors shape our understanding of and interactions with the natural environment and environmental conflicts. Corbett (2006) points out that our environmental belief systems are shaped by and defined through our experiences with Nature, as children. She suggests that we experience Nature in three ways: the "direct" experience, made of physical, real interaction with the natural environment; secondly, "indirect" experiences such as those in "managed contexts" such as zoos; and lastly, the "symbolic experience" that takes place through representation in books, movies and so on (Corbett, 2006: 14–15). Historical and cultural backdrops also play a key role in determining how we perceive Nature and act towards environmental injustice. Many non-western knowledge systems about the environment contrast those of conventional western thought, and these have recently been seen as key to achieving sustainable development.

In most parts of India, whether in mainstream or indigenous communities, Nature has always occupied a sacred space. The concept of *Vasudeva Kutumbakam* that sees the whole world as part of a large family protected by Mother Earth and the Jain concept of *Asteya* are examples of deep-rooted environmentalism. Since the 1970s, the country has seen a series of environmental movements, including the iconic Chipko movement. Recent environmental struggles are indeed of a more complex Nature—in the case of the Dongria Kondh in the east Indian state of Odisha, the tribe rose to protect its sacred mountain, streams and forests from the excesses of the neoliberal state that sees rapid industrialisation and encroachment as the only route to development.

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Yet for the state of Odisha, that has been called a "climate orphan", the stakes are high. Odisha experiences rapid changes in its environment, exacerbated by the opening up of its forests and natural resources to exploitation by foreign and Indian industrial houses (Mishra, 2013a). Indigenous communities, due to the spiritual, physical and emotional connections to their environment, are particularly affected by environmental change, and in Odisha, the lands of these communities are at the centre of natural resource exploitation. For Odisha, its environmental integrity is key to sustainable development.

The space given to traditional and indigenous knowledge has widened in recent years, with indigenous knowledge seen as having potential to inform observations, shape responses to climate change (Raygorodetsky, 2011) and make contributions to sustainable development (UN, 2015, UNU-IAS, 2015). Odisha, like many parts of India, has rich traditions of environmentalism. These traditions and knowledge systems, however, are varied and reflect the multitude of experiences within the state itself, between modern and traditional systems, between the "mainstream" and tribal (indigenous) systems of knowledge. During the annual Oriya Hindu festival of *Raja*, the Earth, believed to be menstruating, is to be treated with care. Yet, as people moved to cities, traditional belief systems and practices have often been altered. Modernisation, with its emphasis on the ways of the West, has since been embodied within the new cultural practices in cities. Cities, in many ways, have altered environmentally rooted practices. Village spaces, with larger areas that included trees and fields, are contrasted with smaller houses in the cities, with no direct interaction with natural spaces. Physical distances have perhaps marked a spiritual distance as well. As many traditional belief systems in the state are orally communicated, passed on through folklore, cultural and other practices, there is a great risk of their perishing. While Odisha's traditional environmental knowledge systems could have been critical to sustainability, these very systems are now experiencing change.

Drawing from some examples of sustainable practices and belief systems, this chapter examines traditional environmental knowledge systems in the east Indian state of Odisha, thus looking at the relevance of these knowledge systems to ideas of sustainability. Communication can be seen as central to bridging the divide between conventional, modern thought and traditional environmental belief systems. Using a conceptual approach, this chapter first defines traditional knowledge within the framework of Odisha's many traditions and approaches, examining these traditional and cultural solutions to environmental conflicts, particularly in the context of a neoliberal India and changing cultural and social dynamics, as well as exploring the risks to these environmentally sustainable knowledge systems. This chapter, while drawing on the impact of environmental change on tribal people and their traditional knowledge (TK), focuses largely on "mainstream" traditional ecological knowledge in Odisha's coastal district of Jagatsinghpur and discusses the space given to TK in modern Odisha.

4.2 Review of Literature

4.2.1 Capitalism and Nature

Many scholars have pointed out that the present ecological crisis owes much to capitalism and its increased global presence. Ruether (1998) states that colonisation as a system in which people and land served the "power and wealth of colonizing nations and their dominant classes" has now been taken over by global capitalism (1998: 71). Such a capitalistic system is based on a gap between a global elite and the poor "who are virtually excluded from the basic means of life is accompanied by growing impoverishment and poisoning of the natural environment of air, water and soil" (Ruether, 1998: 71). Economic development based on global capitalism forms the key basis for the control of and systematic erosion of natural spaces in developing countries. Vandana Shiva (1993) writes that "since the scientific and industrial revolution, technology and economics have mutually reinforced the assumption that Nature's limits must be overridden in order to create abundance and freedom" (1993: 28). In the same trajectory, she argues, industrial agriculture replaced traditional systems as Nature's ways were "dismissed as too slow and 'primitive'". Nature itself was converted into a resource in the conversion of "seed" into a "'genetic resource' to be patented and owned for corporate profit" (Shiva, 1993: 28). Shiva has criticised both hybridisation as invasive (to the seed) and modern-plant breeding as a method in which the seed's "inherent ability to regenerate and multiply" is eliminated (Shiva, 1993: 29). She also characterises modern, western patriarchal "scientific revolution" as *reductionist* as it "reduced capacity of humans to know Nature both by excluding other knowers and other ways of knowing and by [secondly] manipulating it as inert and fragmented matter, Nature's capacity for creative regeneration and renewal was reduced" (Shiva, 1993: 23). She argues that reductionism "reduces complex ecosystems into a single component, and a single component into a single function" (Shiva, 1993: 23).

4.2.2 From Tradition to Modernisation and Back

Modernisation saw traditional ways of knowing and traditional knowledge as unscientific and "backward", thus incapable of driving "progress" and development. The clash between modern and traditional (indigenous) systems of knowledge stems from the long-standing assumption of the superiority of western science and ways of knowing. Thus, from the 1950s onwards, the developing world was seen as almost fortunate to receive expert advice on all matters. Governments and research institutes undermined tradition, placing western science, industrial agriculture and western medicine above traditional/indigenous ways of knowing. The Green Revolution of the 1960s pushed farmers towards industrial agriculture, emphasising on higher yields through synthetic inputs, including high-yielding varieties (HYVs) of seeds and pesticides. Such dictates assumed that in all matters,

"expert" opinion and advice were essential and that the farmer/citizen was incapable of contributing to knowledge, or even planting a tree in the manner in which agricultural scientists found appropriate. This contributed to a centralisation of knowledge and neglect of the traditional knowledge and wisdom of farmers, fishers and tribal peoples, among others. Fairhead and Leach's (1996) seminal work on Guinea, however, shows the inadequacy of regarding inhabitants and farmers as incapable of improving forest savannahs without external programmes and projects.

While early development theorists saw indigenous or traditional knowledge as "inefficient, inferior, and an obstacle to development" (Agrawal, 1995), the last few decades have called for a rethinking of indigenous knowledge. Agrawal (1995) has, however, stressed on the problem of indigenous knowledge itself being cast "as an object that can be essentialized, captured in archives, and transferred". Agrawal (1995) argues that replacing western science (which was itself seen as inaccessible and irrelevant to local people) with indigenous knowledge would place the latter in the same predicament faced by western science, that is "strangulation by centralized control and management". As western knowledge systems have had multiple shortcomings in addressing environmental degradation, many see traditional knowledge as a solution to the inadequacies in western development thought. Given that modernisation played the largest role in replacing traditional knowledge systems (that regarded the environment with much reverence), with "modern" industrial thought (that has regarded Nature only as a resource), thus orchestrating the systematic destruction of natural spaces, it seems apt to revisit systems of thought that had been developed to prevent environmental conflict.

Traditional or indigenous knowledge refers to non-western systems of knowledge, practices and innovations that are orally disseminated from one generation to another. Vandana Shiva points out that "indigenous knowledge systems are by and large ecological". Indigenous knowledge (IK) is "a cumulative body of knowledge and beliefs, handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment" (Berkes, Folke, & Gadgil, 1995; Berkes, 1993). Traditional ecological knowledge (TEK) can be seen as a subset of indigenous knowledge (Berkes et al., 1995).

The knowledge systems of indigenous people have drawn much attention over the last several decades. Indigenous peoples, who "maintain 80 per cent of the planet's biodiversity in or adjacent to 85 per cent of the world's protected areas", have historically depended on "local biological diversity, ecosystem services and cultural landscapes as a source of sustenance and well-being" (Raygorodetsky, 2011). At the 32nd Session of the IPCC in 2010, it was recognised that indigenous or traditional knowledge may be useful to understand "the potential of certain adaptation strategies that are cost-effective, participatory and sustainable" (quoted in Raygorodetsky, 2011). Indigenous knowledge that has become "central to conservation and development projects" (Posey, 2000) is "rooted to a particular place and set of experiences, and generated by people living in those places" (Ellen & Harris, 2000). As this knowledge stems from a particular area, the transferring of this knowledge can dislocate it (Ellen & Harris, 2000). Also, as it is "orally

transmitted, or transmitted through imitation and demonstration", writing it down will alter "some of its fundamental properties" (Ellen & Harris, 2000). Indigenous knowledge is also "empirical and empirico-hypothetical knowledge rather that theoretical knowledge in the strict sense" (Ellen & Harris, 2000), and the source/creator of the knowledge cannot be identified, thus making the knowledge "unprotected" as well (Posey, 2000). Deri and Sundaresan (2015), however, warn of "treating local knowledge traditions as heritage" which tends to focus on "their protection and risks isolating them and ignoring their dynamic transformation".

Indigenous knowledge was used to predict weather among other phenomenon. In the Indian state of Mizoram, tribal people could forecast weather through various bio-indicators such as recognising unique situations, "behaviour of insects, birds, and mammals, characteristics of plants, and location, timing, and patterns of clouds, lightning, wind, moon, sun and stars" (Chinlampianga, 2011). In the Indian island of Lakshadweep, based on "inter-generational experience", islanders had been able to predict storms, pointing at a 12-year storm cycle (Mukundan, 1979 quoted in Deri & Sundaresan, 2015). However, this cycle can no longer be recognised. Deri and Sundaresan (2015) point out that triangulation has been beneficial in early warning and that in Vizhinjam village, fishers and scientists exchanged information —farmers received localised scientific forecasts and scientists received the first-hand experience of the fishers. The authors suggest that "linking traditional environmental observation skill (e.g. of fishers) with cross-scale social networking capabilities (e.g. via Facebook) creates a new paradigm in monitoring and understanding climate change" (Deri & Sundaresan, 2015).

Indigenous or folk knowledge, as it is "maintained, transmitted and augmented almost entirely in the course of applying it in practice…lacks a formal, institutionalized process for handling" (Gadgil et al., 2000). This folk ecological knowledge therefore is "highly sensitive to changing relationships between people and their ecological resource base" (Gadgil et al., 2000), and hence, "both are eroding at a fast pace" as people are "no longer dependent on local medicinal plants and animals as before" and also as "people are increasingly losing control over the local resource base" (Gadgil & Berkes, 1991; Gadgil et al., 2000). This is particularly relevant to so many of India's indigenous peoples, who when displaced from their forest homes experienced a sense of spiritual and emotional dislocation (Mishra, 2013a).

Gadgil et al. (2000) studied Kailad village in India's Himachal Pradesh where they documented declining knowledge of species of plants and animals among various age groups and found that younger people were neither able to identify local flowering plants, characterise nor mention their uses. On the other hand, they note that in Berhampur village near Odisha's Chilika Lake, the youth who were engaged in fishing had a deep ecological knowledge (Gadgil et al., 2000). The authors observe that "people's dependence on living resources has declined along with the decline in ready availability of such resources to them", and thus with "access to new resources that can substitute, e.g. allopathic drugs in place of herbal remedies, tiles in place of thatching for roof or synthetic dyes in place of vegetable dyes", the younger generation is less interested "in the knowledge of living resources" (Gadgil et al., 2000).

In many parts of India, the lack of access to modern technology may allow traditional practices to remain in place. Subrahmayeswari & Chander (2013) observe that in Uttarakhand, farmers preferred traditional breeds over cross-breeding (which was itself a Green Revolution technology) as this technology did not reach many remote areas. This region also used traditional medicinal systems (Ayurveda) over western allopathy to treat and care for animals; farmers managed livestock assets by using local materials and knowledge (Subrahmayeswari & Chander, 2013). The potential of indigenous knowledge in managing cultural landscapes and in dealing with climate change through collaboration with western science and technology is now documented (Culler-Unsworth & Maclean, 2015; Deri & Sundaresan, 2015).

4.2.3 India's Environmental Challenges

India's environment has seen drastic changes over the last several decades. The post-liberalisation period has accelerated the rate at which India's environment is declining. India is now the third highest emitter of carbon dioxide, and in June 2015, its capital New Delhi was declared the most polluted city in the world. India's Intended Nationally Determined Contributions (INDC) to the United Nations Framework Convention on Climate Change (UNFCCC) included a "reduction in the emissions intensity of its GDP by 33–35% by 2030 from 2005 level" (Press Information Bureau, 2015). The INDC also includes promises of grid-connected rooftop photovoltaic, issuing standards to 478 industrial plants, among others (Adve & Kothari, 2015). Adve and Kothari (2015) point out that although the INDC promises to "reduce emissions intensity of its GDP by 33–35% by 2030 from 2005", this will still result "in a massive rise in India's total emissions" amounting to "5 billion tonnes of CO_2" in 2030. This, as the authors point out, is 3.96 billion tonnes more than India's gross COs emissions in 2007. Adve and Kothari (2015) remind us that India's higher emissions do not benefit the poor, for they are the worst affected by climate change. The authors state that "when the Indian government states in the INDC that India's per capita emissions are only 1.56 metric tonnes, it is shamefully hiding behind the poor" by ignoring "the lifestyles of 175,000 households with assets of one million dollar or more" (Adve and Kothari, 2015), as the "top 10 per cent of India's population owns 53 per cent of the country's wealth" (Shrivastava & Kothari, 2012).

India has seen an increase in the number of wealthy people in recent years who are able to buy luxury consumer goods, and demonstrations of wealth are increasingly seen as social necessities. In many cities and towns around India, there are more cars per family now than even in the last five years, more air conditioners, more electronic goods and corresponding electronic waste. Shrivastava and Kothari (2012) point out that India's richest 1% has an ecological footprint that is "17 times that of the poorest 40%". They point out that "Indians are using almost twice of what the country's natural resources can sustain" (Shrivastava & Kothari, 2012).

India's emphasis on development has often been at the cost of ecological destruction. The post-liberalisation phase has accelerated this emphasis.

4.3 The Case of Odisha

4.3.1 Odisha's Environment, Development and Its Tribal Peoples

Over the last several decades, the east Indian state of Odisha has seen drastic climatic and environmental changes, with rising temperatures, widespread agricultural decline, eroding seasons and alternating droughts, flood and cyclones. With such volatile environmental conditions, many have called the state a "climate orphan". At the same time, Odisha's governments have stressed on rapid industrialisation to meet the state's development requirements and to allow it to compete with other Indian states. In the process, Odisha's mineral resources have been targeted. These resources are located in interior areas of the state that are inhabited by its tribal communities, "each with customs and cultures that are intrinsically unique to the region" (Mishra, 2013a). Tribal communities across the world and in Odisha have ecologically rooted cultural and traditional systems, possessing the knowledge of what and how much of natural resources to use, how to protect rivers and forests and how to regulate human relationships to animals and birds.

The Odisha government's post-liberalisation agenda has meant that industrial plants are now scattered across the state, polluting streams, wells and rivers that are crucial to the survival of tribal people. In the pursuit of quick industrialisation, Odisha's governments have displaced tribal communities—a physical, emotional, social and spiritual displacement—from their forest homes, which are seen as venues for mineral resource extraction, seemingly essential for the state's "progress" and yet destructive to Odisha's natural environment and its tribal communities. Many tribal communities have protested against the takeover of their lands and territories. In 2010, the Dongria Kondh tribe's battle to protect their sacred hills and forest homes from destruction by the mining activities of the UK-based Vedanta Resources ended in a legal victory for the tribe (see Mishra, 2013a). Yet many other indigenous peoples' protests, such as the one in Kalinganagar, Odisha, have not received much attention or success (Mishra, 2013a).

4.3.2 Odisha's Traditional Knowledge Systems

In Odisha, both in indigenous communities and among the communities in the mainstream, there is a strong sense of identification with the natural environment. Tribal communities have distinct customs and traditions from Odisha's mainstream, and in general, most of these reflect a physical, emotional and spiritual connection

with the forests, rivers, hills and mountains that are essential to their survival and well-being. Yet, tribal peoples' traditional rights over forest and other resources have in recent years been affected. Over the last several years, tribal lands have been taken over by the state. The state's pursuit of a neoliberal agenda has meant that tribal lands, which are in mineral-rich areas, are seen as the sites for mines, factories and other development activities. As neoliberalism is seen as "the exclusive guarantor of freedom" (Harvey, 2005), there are few to criticise these developments.

Odisha's post-liberalisation identity is thus based on an illusion of freedom, when in reality both tribal people and other Oriyas are gradually losing their rights over their natural environment. The mainstream cultures and traditions of Odisha owe greatly to Hinduism, yet Odisha's traditional environmentalism is distinct from other parts of the country. During *Raja*, for instance, the annual Oriya Hindu festival, the earth which is believed to be menstruating is to be treated with care (Mishra, 2013b). Farmers do not till the earth as the festival itself marks the earth's fertility and start of monsoons (Pattnaik, 2008).

Personal interviews and observation by the author, mostly in the coastal areas of Odisha, revealed a variety of cultural norms and practices around environmental sustainability. These traditions and belief systems correspond to what Houde (2007) refers to as the *fourth* and *fifth* "face of Traditional Ecological Knowledge", which are "ethics and values" and "culture and identity". The traditional knowledge that was identified is passed down orally and includes passing on the knowledge of identifying plant and animal species, how to treat and care for animals and plants, how to recognise medicinal plants and so on. Such cultural experiences are based on direct, physical interaction with the natural world. These environmentally conscious customs and traditions in coastal Odisha are embedded within oral culture. Some of these, identified from interviews and observation, are as follows. These can be clubbed into *cultural practices/traditions* and *manifestations in language* (through proverbs and other sayings):

4.3.2.1 Manifestations in Language

1. Do not unnecessarily break branches of trees nor pluck leaves as they would be hurt, particularly in the night as the tree/plant is asleep.
2. A proverb translated from Oriya says: "if no one else eats, then cows will eat". This proverb directs everyone to not waste food. If one cannot eat, animals can, and hence, any food that is not consumed can and should be fed to animals.

4.3.2.2 Cultural practices/Traditions

3. In the months of October–November (*Kartika* months), the Oriyas refrain from catching and eating fish. The reason is that the fish breed during these months and may also be prone to disease.

4. The *Kartika* months are also marked by the practice of vegetarianism, where many Oriyas avoid fish, meat and eggs.
5. During the festival of *Raja* in June, no ploughing is to be done as the earth is menstruating, *she* must not be injured.
6. Sun worship and moon worship were also prescribed in oral traditions, particularly for good harvests.
7. Worshipping of rivers, plants and animals is also common. The *tulsi* (basil) plant is worshipped during the *Kartika* months. In some parts of the state, the meeting points of two rivers are also worshipped. In August, *Gamha Purnima* is celebrated where cows are worshipped (cows are generally seen as sacred to Hindus). Food is specially prepared for them, and the cows would be offered bread that is commonly eaten by the families themselves. Other animals are also fed customarily.
8. In farming, it was considered appropriate to worship and ask the Earth for permission to sow plants and pray for a good harvest.

4.3.2.3 Loss of Biodiversity

Traditional knowledge also extends to knowledge of habitats, plants, animals and any corresponding impact or loss. Some individuals interviewed reported a loss of biodiversity. They revealed the loss of several species of plants, insects and fish in the coastal district of Jagatsinghpur. Those who were exposed to these species as children and adults were hence aware that they could no longer be seen. Species identified as lost/unseen in several years include the following:

– The red velvet mite (locally called *sadhaba bahu*) is a red bug that appeared after the first rains and has not been spotted in many regions for the last twenty years or so.
– The black-hooded oriole (*Haldibasanta* in Oriya) is a yellow bird that has also not been spotted in about twenty years.
– Trees such as the Streblus as per (Oriya: *sahada*), Crateva nurvala (Oriya: *varuna*), used in farming customs and for medicinal purposes, are also reported as unseen in some regions.
– A scrub locally known as *Pokasungha* (Ageratum conyzoides) was also mentioned as unavailable. This scrub was traditionally used in Jagatsinghpur to keep grains and pulses free of insects and to also increase the shelf life of the grains and pulses. Behera et al. (2006) have pointed out the Kondh tribe in Odisha's Kandhamal district use the leaves of the *pokasungha* for curing fever, vomiting and diarrhoea. It is unclear if the use of the leaves as a cure is traditionally known to other Oriyas.

- Some species of fish (found in rice fields, for instance) were also reported as unseen/lost.
- While interviews revealed biodiversity loss in Odisha, such information has not been conventionally recorded. Gadgil et al. (2000) note that some villages in Himachal Pradesh reported the loss of honey bees as a result of the use of pesticides in agriculture. In Odisha too, farmers interviewed by the author could sense that the climate was changing, and fishermen and women have noted the loss of several fish species. Traditional farming systems such as rice-fish farming saw a decline in Odisha over the last thirty years as a result of the use of pesticides and chemical fertilisers during India's Green Revolution. Farmers were able to recognise and report these changes.

Inadvertently, environmental changes impact India's poor the most—whether it is agricultural decline, large-scale deforestation, mining and so on. Over the last several decades since India's Green Revolution, industrial agriculture, with its emphasis on increasing production, has stressed on monocultures, thus contributing to biodiversity loss and deforestation. Many farmers who after abandoning traditional and locally available practices and practising industrialised agriculture have seen rising debts and farmer suicides have become common in many parts of India. This increasingly singular emphasis on profit has had a huge impact on not only on biological diversity but also on the food security and livelihoods of farmers.

In recent years, however, organic agriculture has seen a revival in many parts of the country, and organic food is now becoming available. The traditional knowledge of farmers has been effectively used to reduce the need for chemical fertilisers and pesticides. Many farmers' groups are increasingly becoming aware of the benefits of traditional and organic farming on soil systems and biodiversity. During her study in the Indian state of Kerala, Thottathil (2014) saw examples of "civic engagement, farmer empowerment and positive changes in agriculture—all the result of the organic farming movement". Thottathil (2014) notes that in 2010, there were nine thousand organic farmers in Kerala and these farmers "had diverse and complex reasons" for farming organically, something that was "overlooked" by American and European scholars and journalists. She notes that between 2003 and 2010, the area under certified organic agriculture totalled four thousand square miles (seeing an area growth of 2500%) (Thottathil, 2014). She also records how a young organic farmer "revealed that his cow had saved him from death, implying that he might have committed suicide or been forced off his land if he had continued to farm conventionally" (Thottathil, 2014). Her study reveals much satisfaction and self-sufficiency among farmers in Kerala who switched from conventional, industrial agriculture to organic farming.

In Odisha too, organic farming has taken off over the last several years. In November 2014, the Odisha government's Agriculture Department proposed setting up a state organic board. Of a total of 723,000 hectares of certified organic farm area, Odisha has 49,813 (PTI, 2015). This includes areas that have been converted from conventional agriculture to organic, as well as farms that followed traditional practices. The excesses of industrial agriculture have certainly paved the way for a

return to traditional farming, and a farmer's knowledge is not only being identified, but also revisited and passed on to other farmers.

4.4 Neoliberal States—No Place for Nature?

If it is the childhood experiences, sense of place, historical and cultural contexts that shape the belief systems, as Julia Corbett suggests (Corbett, 2006), these experiences decide how people act towards environmental change. In neoliberal India, forests, rivers and streams do not have rights by themselves. Their historical and cultural significance is overshadowed by the demands of the present development paradigm. In the neoliberal model, consumer-driven cityscapes are designed to keep Nature out, ensuring that we engage with distant, constructed environments instead. When living spaces have no gardens, nor sight of Nature through windows, there is no direct interaction and communication with or about the natural environment. Empathy is difficult when distances are created. This physical and metaphorical separation is exacerbated by the environments created in the mass media: these are virtual environments, constructed to create a longing for large gardens that one can never have, because cities cannot provide such spaces. One can stand in malls and not know what happens to the environment right outside our doors. These buildings are not porous—they only reconstruct snippets of the natural world. So, while perhaps one may watch a film at a theatre in a mall on an environmental issue, outside the mall massive trees may be felled, landscapes altered, and all this while people would be so close to act and yet not be able to act upon these changes.

In 2008, the author recorded that long stretches of trees in a central area of Bhubaneswar (the capital of the state of Odisha) disappeared almost overnight, yet attracted no media attention. It was evident that decisions regarding natural spaces in cities were not available to citizens, who were removed from any public debate and participation, unable to act on issues that affected them. When such connections are broken, when in narratives nothing is heard of the consciousness of other living beings, there will be no action towards environmental change.

In the course of neoliberalism, Nature lacks intrinsic value and a set of "invisibles" are thus created: in non-urban areas, these outsiders or invisibles include animals, birds, rivers, forests, mountains and indigenous peoples; in urban areas too, "invisibles" exist, with diminishing forest and tree cover, rivers die out, and animals and birds are displaced. Within the rise of consumerist India, many spaces are lost: natural environments that support species invisible to the eyes of the city dweller and the loss of the space that the natural world held within individual imagination and our very being.

Rural as well as urban areas have experienced rapid change. Once a planned city (one of India's few), its recent growth has meant Odisha's capital Bhubaneswar has not been able to keep up. Pockets of trees have disappeared, waste is everywhere, and previously controlled sewage systems are collapsing in some areas revealing a state of unprecedented civic chaos. For developing cities, trees, rivers and streams

become hurdles in the path of roads and other construction. Animals too in cities, within the purview of such development, must be tamed or controlled (spaying and neutering may also be seen as manifestations of such control).

Most Oriyas today are faced with a predicament: modern education does not necessarily account for the natural world. The orally disseminated traditional ecological knowledge is increasingly facing the challenge of dying out. Young people in schools and universities would not be able to identify the species of plants and animals that their parents and grandparents could. As cities themselves mark the ultimate separation from the natural world and knowing about the world, with limited direct interaction with natural spaces, children are far removed from this knowledge. As Oriyas migrated to cities from villages in search of what the modern state saw as "better opportunities", their intrinsic physical and emotional connection to the natural world saw a shift.

For children growing up in areas without greenery, the species of plants may no longer matter. In her earlier work, the author has observed that despite the fact that the Oriya people still celebrate the festival of *Raja* even after moving to cities, "the physical and perhaps (spiritual) distance from the village has changed the Nature of the festival" (Mishra, 2013b). Villages, where there were large open spaces in which children could naturally interact with the world around them, can be strongly contrasted to the cities in which there are smaller houses and limited garden spaces. That explains why the engagement with large swings hanging from trees, associated with *Raja*, has disappeared in city culture, as cities are designed to escape from the uncontrolled natural world.

Traditional knowledge, comprising of these customs and practices, was orally communicated. The uses of individual plants and trees were shared in families, and the knowledge was thus passed on through generations. The movement of people from villages to cities has meant the loss of this traditional wisdom. Certainly, the modern educational system does not adequately emphasise traditional and local knowledge. The traditional practices mentioned earlier in this chapter are not possible to follow in city spaces, for a variety of reasons, and hence, their relevance and place in Oriya city culture have seen a change. If these customs are followed, whether in the city or in the villages, they may just form a ritualistic part of tradition without adequate understanding of the purpose behind them. Unlike villages where each individual could be directly involved in all matters that affect them, cities are impersonal and naturally distant. Why would pockets of trees be cut in a city, and who is responsible for the trees that are cut? Norberg-Hodge's (2000) study of Ladakh, where the fabric of traditional society was systematically torn by westernisation and modernisation, does essentially apply to other parts of India. When removed from natural spaces, individuals can no longer find themselves, cultural identities are thus eroded, and knowledge systems are made to look inadequate. This is particularly true, as mentioned earlier, for tribal people. For mainstream communities too, modern society entails mimicking alien customs and being cut off from traditional knowledge systems.

4.5 The Challenge of Traditional Knowledge

The individual in modern Odisha has to constantly choose between modern western thought, seen as forward and progressive, and traditional knowledge, born out of the villages that the modern world views as inadequate and underwhelming. Interviews by the author revealed an overall disdain for Indian traditional medicine among those who had moved to cities twenty or thirty years ago.

Yet traditionalism is not automatically taken over by modernism and may instead be used to keep the existing dynamics of power in place. Indeed for much of India, traditionalism complements modern living. Even the most "modern" individuals may uphold traditional social practices such arranged marriages, dowries and sex-selective abortions. Such practices and beliefs are intended to keep the status quo in place (in this example—gender dynamics). However, it must be noted that Indian systems of knowing are themselves diverse and plural—it cannot be assumed that traditional knowledge dictates a certain practice as there are multiple practices and multiple truths. Notwithstanding their positive dimensions, some aspects of traditional society as practised today are far from ideal, the treatment of women for instance.

In the context of traditional environmental knowledge, however, little of it seems to have seeped into modern living. That may be the result of other factors. Capitalism separates people from their natural environments, looking upon everything as resources to be used for the benefit of a few. It naturalises the destruction of trees, forests, streams for this purpose and those who stand to protect another animal, human or tree are not looked upon as heroes but defectors of the grand system of "modern" society. These individuals and groups are increasingly viewed as "stalling progress", assuming thus that progress can only be achieved through the destruction or "proper use" of natural resources. Modernity expects full loyalty to itself, and in order to do that, one must abandon knowledge systems, customs and thoughts that do not appeal to the ways of the modern world. Thus, perhaps, capitalism has redefined both worlds—the city and the village.

4.6 Conclusions

While traditional Indian thought was characterised by a profound respect for Nature, neoliberal conceptions of the environment are marked by commodification —viewing Nature as a resource for development; reinforcing the idea that humans are above Nature. Perhaps, with diminishing green spaces in India's cities, many children will grow up without experiencing or communicating with the natural world, thus the breaking of cultural environmentalism. If such communication and interaction about and with the natural environment are critical to shaping belief systems, then perhaps, with such distances created between humans and Nature, it will be hard to empathise and harder to stand up against environmental degradation.

Traditional knowledge, embedded in proverbs, customs and practices, dictated a respectful relationship with the natural environment, largely seeing humans as part of the natural world and not above it. This traditional knowledge was central to the physical, emotional and spiritual links individuals were meant to form with animals, birds, trees and rivers. For mainstream Odisha communities, much like for tribal peoples across the state, traditional ecological knowledge (TEK) allowed for the preservation, protection and respect of natural environments, as well as reinstating the place of humans within the natural world.

Corbett's (2006) "symbolic experience" embedded in books, movies and other texts can also be extended to cultural systems. These cultural and historical backdrops are essential in shaping the perception of Nature, ethical foundations and determining how people act towards environmental justice. Traditional knowledge can play a key part in the new Sustainable Development Goals (SDGs). Traditional and indigenous knowledge systems need to be recognised and their place reinstated, for they have great potential in dealing with environmental destruction and conflict. They may possibly lead to sustainable living in cities among other things. Over the last several years, the indigenous medicinal system—Ayurveda—has gained much prominence. Can other systems of traditional knowledge be revisited and brought back? Indigenous knowledge has proved itself beneficial in addressing climate change and environmental destruction. The challenge remains in rethinking the culture of modernisation so that the spaces held by traditional ecological knowledge can once again shape human interaction with the natural environment.

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Part III
Communication, Communities and Capacity

Chapter 5
Toward the Sufficiency Economy Perspective: The Mass Media and Cultivation of Social Capital Among the Rural Youth in Thailand

Boonlert Supadhiloke

5.1 Introduction

In the wake of the global financial crisis in 1997, some significant social phenomena occurred in Thailand leading to the development of social capital among young people in rural areas. As a result of mass layoffs in business and the industry, a large number of young workers in Bangkok migrated back to their home towns in up-country provinces, mostly in the northeastern region. These young workers later organized themselves and established Farm Youth Groups and other related groups and expanded into Networks of Farm Youth Groups throughout the region (Ministry of Social Development and Human Security, 2006). They received some financial support from the Social Investment Fund (SIF) and Government Savings Bank. The National Networks of Farm Youth have been later connected to International Networks of Farm Youth in many countries including Australia, India, Indonesia, Japan, Nepal, the Philippines, South Korea, and Taiwan.

In the year 1997, Thailand sought to integrate His Majesty the late King Bhumibol's Sufficiency Economy (SE) philosophy into the Eighth National Economic and Social Development Plan (1997–2001), resulting in a change in the development paradigm from economic development to people-centered development. So far, SE has been applied in different development sectors including agriculture, business, public sector, and local communities. Although the mass media, the Internet and other popular media have been widely used to disseminate the best practices of the SE philosophy to inspire the Thai people, there exists little empirical evidence to indicate whether the mass media, the Internet, and cultural activities facilitate or hinder the development of social capital in young people in rural areas.

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This is an exploratory study aimed to achieve two main objectives:

1. To examine the effects of mass media use, Internet use, and cultural engagement on development of social capital among young people in rural Thailand,
2. To further analyze the differential effects of the media on the development of social capital across socioeconomic status.

5.2 Literature Survey

Social capital—broadly the individual's connectedness to others in their community constitutes much of civil society. The presence of social capital has been found to produce such benefits as better education, efficient government, safer neighborhoods, robust economy, and a more vibrant participatory democracy. Social capital is also the foundation of youth development and problem-solving. Building up social capital in young people by social interaction and social networks has, in turn, an impact on their well-being.

In general, there appear three relatively distinct theoretical approaches to social capital studies (Zhang & Chia, 2006). They are as follows: (1) Bourdieu's (1998) focus on unequal access to resources via the possession of more or less durable relationships; (2) Coleman's (1990) notion of social capital grounded in rational choice theory; and (3) Putnam's (1995) emphasis on norms, trust, reciprocity, social networks, and cooperative action seen as necessary for solving social problems and enhancing community.

Putnam's (1993) study on "Making Democratic Work: Civic Traditions in Modern Italy" was a source of inspiration for many studies on social capital in other countries. His emphasis on norms, trust, and social network was widely discussed and examined across cultures. In Thailand, for example, the practice of "mutual help" (Long Kaek) or "interdependent relationships" among rural people is a good example of cultural norms which have dominated the ways of lives for a long time.

Recently, Putnam and other scholars have lamented the declining or depleting of social capital. Putnam (1995) found evidence for a declining voter turnout in the past three decades, a shrinking membership in civic organizations and continuing decline of interpersonal trust.

Putnam proposes two reasons to explain how television and other media may undermine social capital. The first is based on Gerbner, Gross, Morgan, and Signorielli (1980) cultivation theory with emphasis on a "mean world syndrome" and the other on time replacement. In his mean world prediction, Putnam argued that heavy television viewing—with its focus on violence, fear, and abuse of power—induces a pessimistic worldview, which reduces interpersonal trust. In addition, time spent engaged with the media is time not spent in civic activities and building trusting relationships. Hence, Putnam expects heavy use of mass media, particularly television, to reduce both social trust and group activity and network.

However, the study by Romer, Jamieson, and Pasek (2009) to re-examine the pessimism effect on the television-interpersonal trust relationship found that "pessimism" did not account for a significant portion of the relationship. Further, the proposed spurious relationship did not account for other more favorable media-social capital relationship. The authors posited that many young people were using media to reinforce social ties leading to a robust relationship between civic activity and media use. Another study by Zhang and Chia (2006) found significant effects of mass media use and social capital on civic and political participation. Kim (2007) also found that use of the Internet for entertainment had positive relationships with both interpersonal trust and informal socializing, indicating that the Internet might enhance the production of social capital in youth.

After the global crisis in 1997, many scholars undertook studies on social capital and its impact on Thai society. For example, Pongsapich and Attic (2000) defined social capital broadly as "the glue that holds society together" and viewed it from a holistic approach to cover all levels from the national level (e.g., norms, religion, values, belief, culture, and custom), the community (social activities created by people in the community), and family (which lies at the heart of child and youth development). Nakabutra (2002) viewed social capital as local wisdom, value, and social heritage that already existed and accumulated in Thai society, for example, trust, sharing, social network, and social consciousness.

Wasi (1999) and Siamwala (2001) defined social capital as the gathering of Thai people who bring together virtue, knowledge, and resource that can be shared leading to mutual trust, understanding, and collective activities. Siamwala observed that although Thai communities have "strong" social capital and social groups, the existing "patronage" system and social structural inequality in communities could undermine them.

In 2006, the Ministry of Social Development and Human Security (Ministry of Social Development and Human Security, 2006) in collaboration with Mahidol University (2006) conducted a study of the use of social capital for youth well-being based on a sample of 680 young people who participated in Youth Council activities. The study found that social capital within the family in terms of close bonding ties between children and parents contributed to children's emotional stability, reinforcement of positive behavior, and their overall well-being. Moreover, social capital outside the family was found in school and the community.

Unfortunately, all these studies did not pay attention to the role of mass media as a social institution to build up social capital in young people in order to enable them to attain well-being. This study fills the gap and became a pioneer work to examine how the mass media, the Internet, and other popular media as a social agent along with family, school, church, and other cultural institutions function to influence the development of social capital among the youth and their well-being in Thailand. We used the indicators of social capital which have been formulated by the Ministry of Social Development and Human Security (2005).

Dimensions and components of Thailand's Social Capital.

The Ministry of Social Development and Human Security (2005) in collaboration with the Office of National Economic and Social Development Board has

undertaken studies for the formulation of the Dimensions of Social Capital Indicators in Thailand. To put it simply, Thailand's social capital is composed of six dimensions with 72 indicators. The six dimensions are as follows:

1. Groups and networks (26 indicators)
2. Trust and solidarity (20 indicators)
3. Collective action and cooperation (2 indicators)
4. Information and communication (7 indicators)
5. Social cohesion and inclusion (13 indicators) and
6. Empowerment and political action (4 indicators).

These dimensions are quite comparable to those of the social capital indicators formulated by the World Bank, USA, UK, Australia, and Indonesia.

5.3 Conceptual Framework of "Sufficiency Economy"

The Philosophy of "Sufficiency Economy" (SE) was conceived by His Majesty the late King Bhumibol Adulyadej, in his royal speech in 1974. After the global financial crisis in 1997, he reiterated and expanded on the concept of Sufficiency Economy in remarks made in December 1998 and the following years. His Majesty's SE aimed to help people better meet the challenges arising out of globalization and work toward achieving sustainable development. Within the philosophical framework, there is a choice of balanced development strategies for the nation in line with the forces of globalization, with the need for adequate protection from internal and external shocks (Khamman, 2012). The National Economic and Social Development Board (NESDB, 1999), with the collaboration of academics, drafted the definition of SE, after which His Majesty permitted its dissemination to all the Thai people and also its integration into the national planning process. Following is the unofficial translation of the Thai working definition:

> *Sufficiency Economy is a philosophy that stresses the middle path as an overriding principle for appropriate conduct by the populace at all levels. This applies to conduct starting from the level of the families, communities, as well as the level of the nation in development and administration so as to modernize in line with the forces of globalization.*
>
> *Sufficiency means moderation, reasonableness, and the need of self-immunity mechanism for sufficient protection from the impact arising from internal and external changes. To achieve this, an application of knowledge with due consideration and prudence is essential. In particular, great care is needed in the utilization of theories and methodologies for planning and implementation in every step. At the same time, it is essential to strengthen the moral fibre of the nation, so that everyone, particularly public officials, academia, businessmen at all levels, adhere first and foremost to the principle of honesty and integrity. In addition, a way of life based on patience, perseverance, diligence, wisdom and prudence is indispensable to create balance and be able to cope appropriately with critical challenges arising from extensive and rapid socioeconomic, environmental, and cultural changes in the world.*

In sum, SE stresses the "middle path" as an overriding principle for conduct and way of life at the individual, family, and community levels. The working definition of SE entails three components: moderation, reasonableness, and requirement for a self-immunity system that is able to cope with shocks from internal and external changes.

Two underlying conditions are necessary to apply SE. The first condition is to have knowledge, i.e., prudent and appropriate knowledge. The second condition is to have integrity-honesty, diligence, wisdom, sharing, and perseverance.

In Thailand, the First National Economic and Social Development Plan was implemented for the period 1961–1966. During the First to the Seventh National Plans, Thailand focused on the economic growth of the country. In 1997, the country was faced with economic crisis and sought to strengthen SE in the planning process. As a result, from the Eight National Plan (1997–2001), the country changed the focus of the development paradigm from economic development to people-centered development.

In his statement at the Asian-African Summit on April 22, 2015, in Jakarta, Indonesia, Prime Minister Prayuth Chan-o-cha said that "His Majesty's SE is a fundamental principle of Thai values, which has also been internationally acknowledged, and has guided Thailand toward the goal of sustainable development." Guided by SE, the framework of the Eleventh National Economic and Social Development Plan (2012–2016) was geared to foster a balanced, integrated, and holistic development by pursuing the shared vision of "a happy society with equity, fairness, and resilience." SE emphasizes a balanced use of material resources, social capital, environmental reserves, and cultural wealth (PRD, 2015).

In analyzing the capital resources of the country, NESDB (2012) considers the social capital, economic capital, and natural resources of the country. Social capital aims to increase the human quality through education and cultural aspects. Economic capital refers to the economic expansion of infrastructure and economic stability. Natural resources capital means forest, soil, water, and quality of the environment (Khamman, 2012).With rapid changes in the global environment, the NESDB analyzed the three capitals and linked them to six capitals; the three other capitals are: cultural capital, human capital, and physical capital. After analyzing these areas, NESDP came up with the strategy of making decisions with moderation and reasonableness. Based on the analyses, it was found that there were imbalances in the Thai society in the areas of democratization, environmental wellness, human wisdom, social well-being, cultural stability, demographic change, and technological development.

SE has been applied to different sectors: agriculture, business, press and media, public sector, political institutions, educational institutions, and local communities. The NESDB is a key actor to facilitate these applications. Overall, there is clear evidence that many local communities in all regions of the country that pursue SE as their way of life can actually serve as viable alternatives for the well-being of these communities. The social capital at the community level was very strong. Some local communities became leading examples for the others to follow (NESAC, 2007, p. 27). The press and mass media were widely used to disseminate

best practices of the SE application to inspire the Thai people, especially the youth (Khamman, 2012).

5.4 Method

The preceding literature suggests that use of the mass media and the Internet has the power to connect people and build social capital (McLeod, 2000; McLeod, Rush, & Friedrich, 1968; Pasek, Kenski, Romer, & Jamieson, 2006; Shah, McLeod, & Yoon, 2001).

5.4.1 Hypotheses

Based on the SE perspective, young people who have access to the media and Internet informational contents will be able to make a moderate, reasonable, and balanced decision on their social and cultural conduct. With knowledge and ethical concern, young people in rural Thailand are expected to conform to collective norms and have self-immunity against any external cultural shock. Thus, we posit that the moderate use and consumption of the popular media and the Internet as well as other cultural activities will have positive relationships with social capital: interpersonal trust and groups and networks. The hypotheses are as following:

H_1: The use of mass media—television, radio, and newspaper—has a positive relationship with both interpersonal trust and groups and networks.
H_2: The use of the Internet has a positive relationship with both interpersonal trust and groups and networks.
H_3: Cultural engagement has a positive relationship with both interpersonal trust and groups and networks.

5.4.1.1 Social Structural Constraint

In the literature survey, many studies, for example, McLeod and O' Keefe (1972), Kline (1971) and Lyle (1971) showed clear evidence of the social structural constraints on communication behaviors which in turn exerted influence on their cognition and social capital. Structural constraints have significant effects on the issue of "knowledge gap" or "digital divide" in developing societies (Robinson, 1972; McNelly & Molina, 1972). Accordingly, this study further explores the possibility of social structural influence on the differential growth of social capital among rural youth as a consequence of their media use. Also, in view of Siamwala's (2001) observation, we posit that:

H_4: The use of mass media and the Internet has stronger relationships with social capital within the low-socioeconomic-status subgroup than within the high-socioeconomic-status subgroup.
H_5: Cultural engagement has stronger relationship with social capital within the low-socioeconomic-status subgroup than within the high-socioeconomic-status subgroup.

Sampling

This study is part of the pilot study project to examine the effects of mass media and other popular media on development of social and cultural capital in young people in Thailand's rural areas under the author's supervision and academic guidance from the NESDB's representative. The pilot project involved a series of sample surveys among rural young people in the South Eastern province of Trat and the northeastern province of Loei. The Trat study constituted a master's degree thesis on "mass media use, social capital, and civic participation among Thai youth in Trat province" by Pitchaya Krupanich (2014). This study is a result of the analysis of the same set of data.

A sample survey of young people aged 15–24-year-old was conducted during the years 2013–2014 in Trat province. The multistage sampling procedure was used to draw a random sample of 400 youth from all six districts: Muang (City), Kongyai, Bohrai, Khao-sming, Koh-chang, and Laem-ngorb. The sample consists of 274 females (68.5%) and 126 males (31.5%) with 359 in the age group from 15–18 years (89.8%) and 41 of them in the age group of 19–24 years (10.2%).

5.4.2 Measurement

5.4.2.1 Dependent Variables

The Ministry of Social Development and Human Security's Formation of Social Capital Indicators was adopted and interpersonal trust and group and network were used as dependent variables in this study.

Interpersonal trust

Interpersonal trust was assessed with four items coded on a 5-point scale from "least" (0) to "less" (1), "neutral" (2), "more" (3), and "most" (4). Respondents were asked "At what levels do you trust other people": The responses were general persons in society (M = 2.32, SD = 0.79), general persons in community (M = 3.01, SD = 0.89), monk (M = 3.45, SD = 0.95), and teacher (M = 3.85, SD = 0.83).

Group and network

Group and network variable was indexed with four items coded on a 4-point scale from "least" (0) to "less" (1), "more" (2) and "most" (3). Respondents were asked

"At what levels, you think the following statements are important to you:" (1) You can provide financial aid to friends (M = 2.42, SD = 1.21). (2) You allow friends to consult you about their family problems (M = 3.23, SD = 1.01). (3) You are likely to carry out activities with your peer groups (M = 2.74, SD = 1.16). (4) You are likely to discuss community problems with your friends (M = 2.75, SD = 1.19).

5.4.2.2 Independent Variables

Mass Media Use

Following the Ministry of Social Development and Human Security's (2005) Indicators of Social Capital, the frequency of media use has been used to measure the use of mass media and the Internet as independent variables. Respondents reported the frequency of their media use on a 5-point scale ranging from "never" (0) to "every day" (4). They were asked how frequently they "watched television per week" (M = 4.34, SD = 1.03), "listen to radio per week" (M = 2.26, SD = 1.12), and "read a newspaper per week" (M = 2.40, SD = 0.98). In addition, time spent on the medium each time (in hours) was measured ranging from "not at all" (0) to "more than three hours" (4). Respondents were asked how much time "they spent watching television each time" (M = 3.68, SD = 1.25), "listening to radio each time" (M = 1.60, SD = 1.35), and "reading a newspaper each time" (M = 1.28, SD = 0.76).

Internet Use

The use of the internet has also been measured by the frequency of its use and duration of time for each use. Respondents were asked how frequently they "use the Internet per week" (M = 3.97, SD = 1.09) and how much time they "spent on it each time" (M = 3.86, SD = 1.12).

Cultural Engagement

Cultural engagement was indexed with four items assessing the frequency of youth's participation in cultural events. These items were assessed on 3-point scales ("never = 0, "some days" = 1, "most days" = 2). Respondents expressed how often they participated in the following cultural activities: (1) Trat province's memorial day anniversary (M = 0.97, SD = 0.80), (2) local dialect heritage ceremony (M = 0.65, SD = 0.57), (3) fruit festival (M = 0.95, SD = 0.72), and (4) folk dance (M = 0.87, SD = 0.62).

Socioeconomic Status

Socioeconomic status (SES) was indexed with two items: the levels of education and income of respondents. Education was a dichotomous variable based on whether respondents indicated that they were currently attending high school, vocational school, or university. Income was also a dichotomous variable assessed

by whether respondents had a monthly income below 2500 baht (around US$ 80.00) or 2501–5000 baht.

5.5 Results

The analysis used the product moment Pearson r's to examine the relationships between the independent variables—use of mass media and the Internet and cultural engagement—and the dependent variables—interpersonal trust and group and network (social capital). The media use—social capital relationships were subjected to further investigation across different SES to examine differential growth of social capital in young people. The results of the analyses are presented in Tables 5.1 and 5.2.

The results of the analysis provided partial support for the first hypotheses. Among the mass media, only TV viewing was significantly related to both personal trust (r = 0.13) and group and network (r = 0.12) among rural youth in Trat province. Radio listening was found to correlate only with group and network (r = 0.11) while newspaper reading correlated well only with interpersonal trust

Table 5.1 Relationships between mass media use, internet use, cultural engagement, and interpersonal trust

Independent variables	Total sample (N = 400)	High SES (N = 190)	Low SES (N = 210)
Television viewing	0.13[b]	0.09	0.14[b]
Radio listening	0.06	0.06	0.07
Newspaper reading	0.10[a]	0.01	0.08
Internet use	0.14[b]	0.09	0.18[b]
Cultural engagement	0.22[b]	0.13[b]	0.31[b]

Note Cell entries are Pearson r's and differ from zero at the following significance levels: [a]$p < 0.05$; [b]$p < 0.01$

Table 5.2 Relationships between mass media use, internet use, cultural engagement, and group and network

Independent variables	Total sample (N = 400)	High SES (N = 190)	Low SES (N = 210)
Television viewing	0.12[a]	0.02	0.15[b]
Radio listening	0.11[a]	0.07	0.16[b]
Newspaper reading	0.09[a]	0.04	0.01[b]
Internet use	0.18[b]	0.17[b]	0.16[b]
Cultural engagement	0.17[b]	0.14[a]	0.21[b]

Note Cell entries are Pearson r's and differ from zero at the following significance levels: [a]$p < 0.05$; [b]$p < 0.01$

(r = 0.10) for the total sample. The broadcast media of television and radio enabled the rural youth to enhance their groups and networks which have long existed in rural Thailand. Newspaper reading was found to enhance social trust along with television. There was clear evidence that the moderate use of television was instrumental in building social capital in Thai youth in the rural areas.

The second hypothesis was supported by the analysis. Internet use was significantly related to both interpersonal trust (r = 0.14) and group and network (r = 0.18) for the total sample. In fact, the Internet emerged to be a viable resource for rural youth in Trat province to facilitate their social trust as well as group activities and information networks. Most young people used Facebook to connect with friends and other people in the community and society.

The third hypothesis was also supported by analysis. Cultural engagement turned out to be a popular platform for young people to socialize with friends and connect with their networks in the community as well as to reinforce social trust. Youth participation in such cultural events as a memorial day festival, local dialect heritage ceremony, fruit festival, and folk dance was found to correlate well with interpersonal trust (r = 0.22) and group and network (r = 0.17). This is not surprising. In rural Thailand, such cultural norms as collective work and interdependence relationships were strong and closely linked with social capital. In fact, since the global financial crisis in 1997, cultural capital and local wisdom acted as a mechanism of self-immunity for local communities to protect their cultural identity against external shocks.

The last two hypotheses sought to further explore the social structural constraints on the media-social capital relationships. The analysis provided mixed results. The fourth hypothesis was partially supported by the analysis. The overall findings show that the mass media of television and radio and the new media of the Internet were more likely to work in favor of the less privileged subgroup of young people in rural areas. Of particular interest, cultural engagement was also found to work for the less SES subgroup of rural youth. As shown in Tables 5.1 and 5.2, television viewing correlated significantly with both interpersonal trust (r = 0.14) and group and network (r = 0.15) only within the low SES subgroup, compared with the high SES subgroup. Radio listening was significantly related to group and network (r = 0.11), and the relationship was stronger within the low SES subgroup (r = 0.16). Newspaper reading had a weak relationship with social capital and the Pearson coefficient "r" dropped below the significance level in both SES subgroups. Thus, only the use of broadcast media was found to function as a "social leveler" among the less privileged SES subgroup. Internet use was favorable for the low SES subgroup only in building interpersonal trust (r = 0.18). It worked equally well to enhance group activities and networks for both high SES subgroup (r = 0.17) and low SES subgroup (r = 0.16).

The last hypothesis was well supported. Cultural engagement emerged to correlate more strongly with interpersonal trust (r = 0.31) and group and network (r = 0.21) with the low SES subgroup than within the high SES subgroup (r = 0.13 and r = 0.14, respectively). Youth participation in local cultural events was clearly helpful for the less privileged SES subgroup to enhance social trust and networks.

5.6 Discussion

The findings have some significant implications for policy making and planning. Above all, the use of mass media and the Internet to disseminate the best practices of the Sufficiency Economy Philosophy has inspired the rural youth to enhance interpersonal trust and group networks which in turn culminated in solving their risk behavior, such as smoking, drinking alcohol, engaging in unsafe sex, and even experimenting with drugs. "Moderate" and "reasonable" consumption of the media enabled the young people to have "appropriate" knowledge and make "balanced" decisions to protect themselves against both internal and external cultural shock arising from the globalization process. Most importantly, the youth engagement with the local cultural heritage and wisdom served as a form of "self-immunity" against threats of any global cultural domination. As in the case of the 1997 global financial crisis, local culture and wisdom were found to be an effective form of self-immunity against the threat of globalization in a culturally diverse society.

The findings have also a special implication for demographic change in Thailand. The country is now entering the phase of aging, leading to a large increase in the older population compared to the earlier decade. In the future, the population structure shows that those in the working age will have a greater burden in taking care of the elderly (NESDB, 2012). Current statistics show that, during the years 2000–2030, those in the child ages (0–14-year-old) tend to decrease, population in the working age (15–59-year-old) decreased after 2010, and the elderly population (60+) continued to increase. It was estimated that the elderly population will increase from 12.26% in 2011 to 25.12% in 2030 while those in the working age will decrease from 67.63 to 61.38% during the same period. The challenge in Thailand's development process is how to increase "quality" human capital and social capital within this context. Along with education, the mass media and the Internet can be effectively used to enhance social capital among young people in rural area so that they become supportive working groups to take care of their aging parents within a healthy cultural context.

This study has explored Thailand's social structural constraint on media effect in the rural areas and found that the broadcast media and Internet could function as a "social leveler" to narrow down the global barriers of "digital gap" or "knowledge gap". In this study, television, radio, and Internet use were found to enhance social capital among the low SES young people more than in the high SES subgroup. The same was especially true for the cultural context of the low SES subgroup. Subjected to further empirical study, an appropriate development strategy by policy makers and planners can make full utilization of the mass media, particularly television, the Internet and cultural resources to boost the social capital, and well-being of rural youth, especially the less privileged subgroup.

In another related development, Prime minister Prayut Chan-O-Cha then Head of the National Council for Peace and Order (NCPO) outlined NCPO's major guidelines for national development. In his televised public address on July 11, 2014, in the program "Return Happiness to the People," he said that the quality of

Thai people would improve with various security guarantees on socioeconomic dimensions. NCPO will focus on developing people and social quality, safeguarding people's lives and property, ensuring transparency in public administration, promoting fair competition, and distributing economic gains from development in order to reduce disparity and inequality in Thai society. He also suggested that the core values of the Thai people should be clearly defined, so that the people could build a strong nation. He proposed the following 12 core values that Thai people should develop (PRD, 2014, July 14):

1. Upholding the three main pillars: the nation, the religion, and the monarchy;
2. Being honest, sacrificial, and patient, with positive attitude for the common good of the public;
3. Being grateful to parents, guardians, and teachers;
4. Seeking knowledge and education directly and indirectly;
5. Treasuring cherished Thai traditions;
6. Maintaining morality, integrity, being generous, and sharing as well as wishing others well.
7. Understanding, learning the true essence of democratic ideals, with His Majesty the King as Head of State;
8. Maintaining discipline, respecting laws, and the elderly;
9. Being conscious and mindful of action in line with His Majesty the King's royal statements;
10. Applying His Majesty the King's Sufficiency Economy, saving money for use in times of need, being moderate with surplus for sharing or expansion of business while having good immunity;
11. Maintaining both physical and mental health and unyielding to the dark force or desires, having sense of shame over guilt and sins in accordance with the religious principles;
12. Putting the public and national interest before personal interest.

5.7 Conclusion

In light of the wide application of the Sufficiency Economy Philosophy to people-centered development in the local communities of Thailand since the 1997 global financial crisis, this study explored whether the use of mass media—television, radio, and newspaper—and the Internet as well as cultural engagement facilitated the development of social capital in young people in the South Eastern province of Trat. The overall findings provided partial support to the hypotheses that moderate and reasonable consumption of television and radio, Internet use, and cultural activities tended to enhance both interpersonal trust and group activities and sharing networks among the rural youth. Moreover, these media were found to have the potential of being a "social leveler" among the less privileged SES subgroup. The findings suggest that the mass media and the Internet as well as

cultural activities are an important resource for the development of social and cultural capital among the rural youth in Thailand.

This exploratory study has some shortcomings. Above all, the analysis aimed at the "association" between media use and social capital which could not be inferred as "causal" effects of the variables. Thus, media use might not necessarily precede interpersonal trust and group activity and network or cultural engagement. It might be the case that group activity and cultural engagement facilitated both favorable use of media and interpersonal trust. Additional studies employing more rigorous research design and statistical techniques are needed to probe the causality of the media and social capital among rural youth.

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Chapter 6
Making the Difference: Communicating Campaigns for Sustainable Development in the Opposition State of Penang, Malaysia

Mustafa K. Anuar and Shakila Abdul Manan

6.1 Introduction

Since the stunning victory of the opposition pact, Pakatan Rakyat,[1] in Malaysia's 12th general election on 8 March 2008—and subsequently a similar repeat performance in the 2013 general election[2]—in seizing a greater number of

[1]The Pakatan Rakyat was an informal political coalition of opposition parties of the Democratic Action Party (DAP), Parti Keadilan Rakyat (PKR) and Parti Islam SeMalaysia (Pas) that was formed in 2008. This grouping, however, collapsed after disagreement emerged over certain Islamic issues between DAP and Pas, which subsequently gave rise to the formation of the Pakatan Harapan coalition in 2015 between DAP, PKR and Pas splinter group, Parti Amanah Negara (Amanah). The DAP-led Pakatan Rakyat (and later, Pakatan Harapan) coalition rules the state of Penang since 2008.

[2]This general election was intensely contested, resulting in the incumbent Barisan Nasional (BN) coalition getting a mere 47.38% of the popular vote while its rival Pakatan Rakyat (PR, People's Pact) won 50.87%. However, given the current delineation of the constituencies or gerrymandering, the BN coalition managed to form government as it captured 60% of the parliamentary seats. The BN, which rules the rest of the Malaysian federation, consists of the following 13 political parties: United Malays National Organisation (UMNO), Malaysian Chinese Association (MCA), Malaysian Indian Congress (MIC), Malaysian People's Movement Party (Gerakan), People's Progressive Party (PPP), Parti Pesaka Bumiptera Bersatu (PBB), Sarawak United People's Party (SUPP), United Sabah Party (PBS), Liberal Democratic Party (LDP), United Sabah People's Party (PBRS), United Pasokmomogun Kadazandusun Murut Organisation (UPKO), Sarawak Progressive Democratic Party (SPDP) and Parti Rakyat Sarawak (PRS).

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Parliamentary seats, Malaysian voters have had high expectations in terms of good governance and what is considered as a model of sustainable development, particularly in the three opposition states of the Federation of Malaysia, i.e. Selangor, Penang and Kelantan. In other words, voters had expected a political agenda from these respective state governments that differed from what was offered by the Barisan Nasional (BN) government to the rest of the federation where it rules. In Penang, the stakes and expectations have grown higher, especially after its capital city of George Town attained (together with the historical town of Melaka in the south) the coveted status of UNESCO World Heritage Site on 7 July 2008.

In Penang, concerned Malaysians, social activists and civil society groups (which have sprouted, especially since the 1960s) with competing notions of socio-economic development at times come into conflict with the state and other actors in their campaign for sustainable development. This is especially so when the Penang state government has made sustainable development part of its "Green Agenda".[3] At the same time, it is, however, seen to have embarked in recent years on big development projects that not only incur huge amounts of expenditure, but may also have environmental repercussions as well as a possible adverse impact on George Town as a UNESCO World Heritage Site.

While the concern for the environment and sustainable development had already captured the imagination of many civil society groups in Penang[4] in particular and Malaysia in general several years ago, this newly acquired status of George Town provides an added impetus for these groups to make a further push for their agenda of sustainable development and environmental protection in the state of Penang. The periodic events and campaigns for sustainable development of these Penang organisations are waged, and their positions on issues of this nature are made known publicly, through the use of social media as well as newspapers and, to a very limited extent, the electronic media.

This chapter aims to examine the various, and at times creative, ways in which these civil society organisations, particularly those that come under a loose coalition called Penang Forum, convey their messages and political stand in the public domain pertaining to two related important issues, i.e. the Penang Transport Master Plan and the status of George Town as a UNESCO World Heritage Site—within the larger social context where the public-interest coalition navigates Malaysia's prescribed freedom of expression and controlled mainstream media as well as the relatively freer Internet. The mainstream newspapers that were also considered for this study for the duration of 2016 were *New Straits Times*, *The Star* and *The Sun*, while the online newspapers were *Malay Mail Online* and *Free Malaysia Today*.

[3]See https://dapmalaysia.org/en/statements/2016/06/05/23329/.

[4]For a glimpse of the dynamism of civil society organisations in Penang, see http://penangmonthly.com/a-citys-status-and-its-civil-society/.

6.2 The Malaysian Context

Malaysia, which is multi-ethnic, multicultural and multi-religious, is a federation of thirteen states and three Federal Territories of Kuala Lumpur, Putrajaya and Labuan. A former British colony, Malaysia models its parliamentary democracy after the Westminster system which provides for the three governmental branches of the executive, the legislature and the judiciary. The legislative is divided on two levels: the federal and the state. At the federal level, the bicameral Parliament is made up of the lower House of Representatives (*Dewan Rakyat*) and upper house of Senate (*Dewan Negara*). At present, there are 222 representatives in the *Dewan Rakyat* who are democratically elected and serve a term of five years. At the state level, on the other hand, each state has a unicameral State Legislative Assembly (*Dewan Undangan Negeri*) where the number of representatives can range from 15 representatives in the small state of Perlis to 71 in the eastern state of Sarawak. The electoral system employed in Malaysia is the "first past the post" electoral system. The constitutional monarch, His Royal Highness (or in the national language called the *Yang di-Pertuan Agong*) serves as the King of the Malaysian Federation.

At the federal level, the country has always been governed by the BN coalition since independence, starting with its predecessor Alliance Party, which consisted of UMNO, MCA and MIC. The party was later enlarged after the tragic 13 May 1969, ethnic riots to absorb a few opposition parties into its fold under the guise of promoting national unity and development. Consequently, the opposition as a whole was weakened. As alluded to above, the opposition, however, experienced a political rejuvenation in recent times, particularly after its unprecedented electoral gains in the general election of 2008 and a capture of a few states in the federation —and it was subsequently reinforced in the 2013 electoral contests.

Civil liberties and political rights were also jeopardised in varying degrees following the 1969 ethnic tragedy. For instance, the Federal Constitution had been amended over a period of time to supposedly maintain law and order. Articles 10(2)(a), 10(4), 149 and 150 authorise Parliament to impose certain restrictions on free speech if it feels necessary or expedient on the following grounds[5]: As an example, security of the Federation or any part thereof (laws such as the Official Secrets Act [OSA], Printing Presses and Publications Act [PPPA] and the Sedition Act, which are in many ways undemocratic, come under this rubric); and morality (Film Censorship Act, PPPA, Finas Act, etc.).

Furthermore, certain existing laws, such as the Sedition Act and OSA, were further tightened or, as in the case of the repealed Internal Security Act (ISA), were increasingly applied thereafter in the supposed objective of protecting ethnic harmony by prohibiting certain "sensitive issues", such as the special privileges of the Malays and other Bumiputras (indigenous peoples), the status of the national language and the position of the non-Malay communities, from being debated or discussed in the public domain. A few laws, particularly the PPPA, were further

[5]See Faruqui and Ramanathan (1998, pp. 15–16).

constrained with the passage of time in the wake of the political clampdown codenamed "Operasi Lalang" in October 1987 under the Mahathir administration, which saw the detention of more than 100 people, comprising politicians, social activists, student leaders, academics, religious leaders, under the draconian ISA. Four mainstream newspapers were suspended.

Indeed, the political hegemony of the ruling BN has been assailed, especially after the rejuvenation of the opposition and also the vibrancy of the civil society since the 2008 general election. In recent years, however, there has been a steady rise of ethnic and religious tension in the country which in turn triggered actions on the part of the state that can only be deemed anti-democratic. Colonial-era laws, particularly the Sedition Act, have been used increasingly and in a cavalier manner even against legitimate criticism and dissent that emerged from the opposition parties, civil society and academia.[6] In addition, political and religious conservatism has crept in over the years, further restricting the democratic space enjoyed so far by Malaysians.[7]

The overall impact of all these developments is particularly felt in the areas of freedom of expression, media freedom and human rights in Malaysia.

6.3 Media Ownership and Control

There are several laws in Malaysia that have been instituted and used in the name of protecting and promoting law and order, internal security as well as national development. The mixed composition of the Malaysian population also often provides a convenient justification for the state to apply these illiberal laws. The Printing Presses and Publications Act (PPPA), the predecessor of which is the Printing Presses Ordinance of 1948, is a piece of legislation that governs the press industry. This Act stipulates that all newspapers and other regular publications should possess a publishing permit issued by the Ministry of Home Affairs. The Act also empowers the Minister concerned to revoke the permit of a publication should he or she decides that the publication concerned has acted in a way that is "prejudicial to the nation's security".

Prior to 1984, the law gave the Minister the power to grant a permit for no less than twelve months. After an amendment in 1984, the Minister is empowered to grant a permit for a more limited duration if he or she deems it fit to do so. In 1988, the PPPA was further amended to preclude any judicial review of the Home Minister's decision if the Minister revoked or suspended a publishing permit on the grounds that the publication was prejudicial to public order. However, a 2012

[6]See for instance http://www.hrw.org/news/2014/09/14/malaysia-sedition-act-wielded-silence-opposition to have an indication of the political implications of this piece of legislation.

[7]See for instance http://www.themalaymailonline.com/malaysia/article/global-report-singles-out-malaysia-for-trampling-rights-of-non-religious to have a sense of political and religious extremism in Malaysia.

amendment to this law allows the holder of a permit to contest in court should the Minister decide to revoke the permit, and there is no longer a prescribed duration for a permit.

The OSA is another law that hinders journalists who, in their professional duty, seek information, especially from government departments. Their daily routine task becomes all the more challenging, especially when the law—that underwent a series of amendments over a period of time—is made vaguer, or all encompassing, in terms of its very definition of "official secrets".

The PPPA is also instrumental in promoting an unhealthy trend in the Malaysian media industry. Over the years, there has been a concentration of press ownership in Malaysia in the hands of a few who are closely aligned, or friendly, to the government. Given the immense power that the Home Minister wields, it follows that most publishing permits have been conveniently issued to applicants who are deemed friendly to the powers that be. This is especially the case with the granting of a publishing permit for a daily newspaper.

Another law, the Communications and Multimedia Act (CMA), was enacted specifically to oversee and govern the broadcasting industry as well as the Internet in Malaysia. The Minister concerned is also empowered to determine the kind of service providers in the industry.

Over the years, there has been a growing and troubling trend of media ownership concentration and consolidation in Malaysia's media industry. Equally worrying is the fact that the mainstream press outfits are in the hands of a few who are closely aligned with or friendly to the ruling coalition. The key feature of this unhealthy development is indeed the state's use, or abuse, of the PPPA.

A cursory look at the press ownership pattern in Malaysia would denote the degree of involvement of the various component parties of the ruling BN and their economic allies. For instance, the conglomerate Media Prima, which is closely associated with UMNO, has a big stake in the New Straits Times Press (NSTP) which publishes the English-language newspapers *New Straits Times* and *New Sunday Times* and the Malay-language newspapers *Berita Harian*, *Berita Minggu* and *Harian Metro.* It also owns the Sistem Televisyen Malaysia (popularly known as TV3), channel 8TV, TV9 and ntv7. Another BN component party, the MCA owns The Star Publications and publishes the English-language *The Star* and *Sunday Star*, and its online publications The Star Online. Closely connected to the dominant ruling party UMNO, the Utusan Melayu Group owns and publishes, among others, the Malay-language newspapers *Utusan Malaysia, Mingguan Malaysia* and tabloid *Kosmo*!. The timber tycoon Tiong Hiew King, who owns Media Chinese International Limited, publishes the popular *Sin Chew Daily*, *Nanyang Siang Pau*, *China Press* and *Guang Ming Daily.*[8] *The Sun*, the first national free daily newspaper, is published by the Sun Media Group that is part of the Berjaya Media Group, which is politically friendly to the powers that be.

[8]For a detailed analysis of media ownership in Malaysia, see for instance http://rickshriver.net/textfiles/Malaysian%20Media%20Paper%20-%20CARFAX2.pdf; Anuar (2005, 2014).

As far as the Internet is concerned, there are a number of news portals that provide news and information that many a time are ignored, or consciously avoided, by the mainstream media, especially those that touch the political sensitivities of the ruling BN coalition. Examples of these online publications are *Malaysiakini*, *Malay Mail Online* and *Free Malaysia Today*. Online newspapers are relatively freer compared to the print and electronic media given that the advent of the Internet into the country in the mid-1990s was greeted by then Mahathir administration with a guarantee of no censorship,[9] aimed at encouraging foreign investments particularly those that are cyber-related. Additionally, such publications are not required to have a permit from the government. The Internet constitutes a realm where freedom is enjoyed by social activists and politicians to a certain extent. However, recent years have seen an increase in the breach of this guarantee by the powers that be through the use of other laws such as the Sedition Act and OSA against Internet users.

6.4 The State of Penang

The state of Penang is situated on the northeast part of peninsular Malaysia. It is the second smallest state in Malaysia, consisting of Penang Island and Seberang Perai (formerly known as Province Wellesley) on the mainland. The physical size of Penang Island is about 293 km^2, while Seberang Perai occupies an area of about 738 km^2. The state has a population of about 1.89 million. The major urban centres on the island are George Town, which is the administrative and commercial centre, and Butterworth and Bukit Mertajam on the mainland.

Recognised as the *Silicon Valley of Asia* for its electronic industries, Penang is also one of the most urbanised and economically important states in the country. George Town, which was founded in 1786 by the colonial British under the leadership of Francis Light, is a UNESCO World Heritage Site and a flourishing tourist destination.

6.5 Seeking the Public Sphere: Penang Forum

The Penang Forum is a loose coalition of civil society groups based in Penang, Malaysia whose primary objective is to foster "participatory local democracy, sustainable planning and development, economic justice, affordable housing, environmental consciousness, sustainable transport, workers' rights and heritage

[9]This guarantee of no censorship forms part of the Multimedia Super Corridor (MSC) Bill of Guarantees. See http://www.mscmalaysia.my/bogs.

conservation".[10] In a sense, this collective is a mixed bag of people and interests, but nonetheless is underpinned by concerns for democracy, social justice and sustainable development.

The coalition, which consists of non-governmental organisations such as the Consumers Association of Penang, Sahabat Alam Malaysia (Malaysia's Friends of the Earth), Penang Heritage Trust, Tanjung Bungah Residents' Association and Aliran, is led by a Steering Committee that handles events and campaigns and is run on the basis of consultation and consensus as a collective without a permanent secretariat. Every group or individual in the coalition is considered equal.

The collective regularly organises a major event—Penang Forum—which brings together Penang-based civil society groups and concerned individuals to discuss important issues of the state and then present their deliberations to the Penang state government. The first Penang Forum was held on 13 April 2008, soon after the opposition pact, Pakatan Rakyat, took control of the Penang state from the BN.

After the first Penang Forum that was held in 2008, a Penang Forum Declaration was submitted by 40 civil society groups to the state government requesting for a new partnership with the Penang people based on the principles of "popular participation, transparency, accountability, sustainability and social justice".[11] They generally achieve wide publicity via their events and campaigns as well as the reportage of these activities in the media—as will be discussed below.

6.6 Public Sphere and Sustainable Development: A Theoretical Consideration

This study is informed by Jürgen Habermas' concept of "public sphere"[12] that refers to a civil arena where public opinions take shape and robust circulation of public opinions can exert pressure on authorities and limit their actions. Put another way, it is a place or space permitting citizens to interact and discuss issues of interest, which goes a long way towards encouraging people to participate actively in the democratic process as a full functioning citizenry.

Although there are flaws in Habermas' initial conceptualisation of the "public sphere", particularly its exclusion of important factors of social class, ethnicity and time period as well as equal access to the media, a modified version of this concept is nonetheless useful in the context of the contemporary world where immense social and technological transformations have taken place. The advent of the Internet in particular has provided the opportunity for many people of various backgrounds to participate in public debate and dialogue in the collective goal and to give inputs to the decision-making process of the state. Public communication

[10] https://penangforum.net/about/.

[11] https://penangforum.net/events/penang-forum-1/declaration-of-the-penang-forum/.

[12] See for instance, Hartley (2002).

has been made more accessible to the general public, especially with the emergence of the social media. In Malaysia, the mainstream media generally owned and controlled by the powers that be used to be the only the platform available where certain quarters could have the opportunity to express their opinion and have them disseminated in the public domain, or in the Habermas' language, the "public sphere".

The concept of "sustainable development" employed in this study is guided by the notion advanced by the World Commission on Environment and Development in 1987: "Humanity has the ability to make development sustainable—to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs. The concept of sustainable development does imply limits—not absolute limits but limitations imposed by the present state of technology and social organisation on environmental resources and by the ability of the biosphere to absorb the effects of human activities. But technology and social organisation can be both managed and improved to make way for a new era of economic growth".[13]

In other words, it is the kind of socio-economic development pursued by the state and the private sector that should be mindful of the environmental implications and resource limitations so as to ensure that the needs and interests of the future generations are not jeopardised. The professed goals of the Malaysian federal government's "sustainable development"[14] appear to sit well—at least theoretically—with this notion of "sustainable development". That said, there are cases of crude forms of deforestation and rapacious logging in the state of Sarawak, for example, which put into question the government's commitment to sustainable development.

6.7 Two Contentious but Related Issues

As already mentioned above, this study looks at how a coalition of civil society organisations called Penang Forum championed their causes that were related to two important issues in Penang, i.e. the state-sponsored Penang Transport Master Plan (PTMP); and the status of George Town as a UNESCO World Heritage Site.

The PTMP is an endeavour of the Penang state government to address the growing problem of traffic congestion on the island. With this in mind, the government commissioned the UK-based consultancy outfit, Halcrow Consultants, to draw up a transport master plan which it endorsed in 2013. The Halcrow plan, as it is called, proposed mainly bus rapid transit and trams. Subsequently, SRS (South Reclamation Scheme) Consortium Sdn Bhd—a Malaysian consortium comprising construction giant Gamuda Bhd and two Penang-based property developers, Loh Phoy Yen Holdings Sdn Bhd and Ideal Property Development Sdn Bhd—was

[13]World Commission on Environment and Development (1987, p. 40).

[14]See for instance http://unfccc.int/resource/docs/natc/malnc1.pdf.

appointed by the state government to be the project delivery partner (PDP) for the implementation of the PTMP which combines air, water, rail and road infrastructure. The PTMP is now estimated to cost RM46 billion (US$10.3 billion),[15] which critics of the plan asserted was a far cry from the original estimate of RM27 billion (US$5.8 billion). The state government retorted that the increased cost was due to land acquisition and other related expenditure.

Under the PTMP, the first phase, estimated to be completed by 2022–23, entails the construction of a six-lane highway which will link Gurney Drive via Air Itam to Bayan Lepas to the coastal highway (Pan Island Link), and an elevated light rail transit (LRT) line. Both the highway and LRT are to link central George Town to Penang international airport. In addition, three new islands—covering 930, 485 and 323 ha for a total of 1738 ha or 4295 acres—would be created off the southern coast of the Penang Island by land reclamation and subsequently sold to finance the public transportation projects.

To be sure, the PTMP evoked criticism particularly from the Penang Forum coalition regarding the high costs of implementing these gigantic projects. The coalition, in turn, offered a counter-proposal to the plan, emphasising the need to choose trams over the LRT which, they claimed, was more expensive. The proposed highway also invited brickbats from this coalition as they feared that it would not solve traffic congestion in the long run as it would only attract more people to use their own private vehicles as opposed to utilising means of public transportation. The state government maintained that this was the only way to resolve traffic congestion. The land reclamation also raised concerns, especially among fishermen and environmentalists who feared that it would have an adverse impact on the environment and marine life as well as the fisherfolk's livelihood in the areas concerned.

The issue of the status of George Town as a UNESCO World Heritage Site emerged, and became contentious particularly among members of the Penang Forum, when the Penang state government announced that it had earmarked the Prangin Canal area, also known as Sia Boey (meaning the "end of town" in Penang Hokkien dialect), to be an integrated exchange hub servicing two monorail lines and a LRT. This controversy became heightened when it was found out that Sia Boey is situated at the border of the George Town World Heritage Site. But more importantly, the preliminary work on Sia Boey stumbled upon archaeological findings beneath it which may have historical and heritage value. Sia Boey and the surrounding areas were previously planned by the state government as "an open space, arts and culture district that seeks to blend the rich social values, cultural memory, tangible and intangible heritage into a modern day inclusive area for George Town's urban generation".[16] It has been shelved since.

Fearing that this plan to set up a transport hub could have a negative impact on the outstanding universal value of the George Town world heritage properties and

[15]See http://www.theedgemarkets.com/en/node/293330.

[16]See http://www.pht.org.my/prangin-market-and-the-penang-transport-master-plan/.

consequently jeopardise the status of George Town as a UNESCO World Heritage Site, a member of Penang Forum sent a letter[17] to UNESCO seeking advice regarding this latest development. However, this letter stoked the indignation of the Penang state government and its ancillary institution dedicated to heritage protection and preservation, i.e. the George Town World Heritage Inc. Relations between the Penang Forum coalition and the Penang state government became acrimonious when a public spat erupted between the state government and Penang Forum, with the former accusing the latter of backstabbing and precipitating the possibility of George Town being withdrawn from the World Heritage List.

It is in this context that Penang Forum endeavoured to make public its views and their stand known on these two related issues through various means of public communication.

6.8 Campaigns and Contestations in the Public Domain

The state government of Penang held a public exhibition of documents pertaining to the Penang Transport Master Plan (PTMP) for the purpose of allowing public viewing as well as providing an avenue for public feedback. This is apart from the various press conferences that the Chief Minister of Penang, Lim Guan Eng and other political leaders conducted over a period of time in their attempt to provide further explanation and clarification regarding the PTMP as well as convincing public opinion.

In response to what it perceives as initiatives of the state government that may cause harm to the environment and also the long-term sustainability of the state, the Penang Forum resorts to a number of strategies, one of which is the holding of press conferences. In the case of the PTMP, the coalition of civil society organisations makes its case at a press conference before the media practitioners who would subsequently disseminate the deliberations via their respective media organisations for public consumption. Apart from that, the Penang Forum also records its press conferences which are then uploaded on social media such as Facebook[18] and YouTube to ensure maximum visibility.[19] Indeed, communications technology has come in handy, especially when trying to appeal to members of society many of whom are technology savvy.

In an attempt to widely publicise the campaign to members of the general public, the coalition also presented their counter-proposal to the PTMP via YouTube,[20] through a visual presentation that is made easily accessible in three languages of

[17]The entire letter was posted on Penang Forum's website at https://penangforum.net/2016/08/17/sia-boey-that-letter-to-unesco/.

[18]See https://www.facebook.com/penangforum/.

[19]See for instance https://www.youtube.com/watch?v=L1muYPgGyyo.

[20]See https://www.youtube.com/playlist?list=PLQ9Gh6bH71s9utE_Kh0nv9uJ39RbHHuLp.

English, the national language (Malay) and Mandarin, apparently as a response to a YouTube presentation[21] of the PTMP by the state government. To reinforce its campaign and put pressure on the state government, the Penang Forum has also mounted an online petition to garner public support for its alternative plan to the PTMP[22] which they claim is much cheaper and environment-friendly than the government's proposal.

An interactive Web application and social media have also been utilised as a means of getting the public to participate actively in an important issue that confronts the community. For example, Penang Forum launched a Penang Hills Watch (PHW) initiative[23] in October 2016 that involves the citizenry to help monitor hill clearing activities in Penang. PHW, an online repository of mapping information on hill clearing activities in the state, admits reports from the public via its Facebook page, website, email and WhatsApp hotline.

Furthermore, many members of the Penang Forum, such as Consumers Association of Penang,[24] Penang Heritage Trust,[25] Sahabat Alam Malaysia[26] and Aliran[27] also have their own websites where messages regarding the controversy surrounding the PTMP and environmental issues, among other issues, can be disseminated to their respective constituencies to shape public opinion.

Another form of activity that the Penang Forum indulges in as an attempt to publicise its views to the outside world is letter writing. Letters written by the collective get picked up by sections of the mainstream press particularly *New Straits Times*, *The Star* and *The Sun* as well as the *Malay Mail Online*, and *Free Malaysia Today*—apart from them being posted on the website of Penang Forum.

In particular, the *New Straits Times* carried verbatim a long letter from the Penang Forum in January 2016 regarding the controversial PTMP. This is perhaps because of the stormy relationship between the BN-related daily and the Penang Chief Minister who claimed that the newspaper (as well as the BN-affiliated *The Star* daily) tended to resort to journalistic distortion[28] when it comes to the Penang state government.

The above observation of the *New Straits Times*' coverage of the controversy, however, does not reflect the general trend of reporting by other mainstream English-language newspapers, namely *The Star* and *The Sun*. While the amount of reporting by the *New Straits Times* is miniscule—given that the daily has been

[21]See https://www.facebook.com/PenangTransportMasterPlan/.

[22]See https://www.change.org/p/penang-state-government-better-cheaper-faster-penang-transport-master-plan.

[23]See https://hillclearinginpenang.ushahidi.io/views/map.

[24]See https://www.consumer.org.my/.

[25]See http://www.pht.org.my/.

[26]See http://www.foe-malaysia.org/.

[27]See http://aliran.com/.

[28]See https://www.therocket.com.my/en/star-lies-again-penang-government-clarifies/.

barred from various official functions of the state government[29]—compared to the other newspapers concerned, the number of journalistic reports of the other two dailies throughout the period of 2016 that are positive towards Penang Forum is relatively smaller than that of the reporting that is fair and even supportive of the state government. In particular, out of 30 news items of *The Star* regarding the PTMP controversy, there are only eight items that can be considered positive towards the Penang Forum, and out of 22 news items on the topic in *The Sun*, only five are positive towards the loose coalition (i.e. Penang Forum).

A similar trend prevails in the reporting of the same topic by the *Malay Mail Online* and *Free Malaysia Today*. From a total of 20 news items in the *Malay Mail Online*, only five items are positive towards the Penang Forum. Out of a total of seven news items of the same topic, only two emerge in the *Free Malaysia Today* reporting that are positive towards the loose coalition.

Similarly, on the issue of George Town as a UNESCO World Heritage Site, the *New Straits Times* coverage is miniscule with four out of five news items being positive towards Penang Forum. *The Star* has 18 news items related to the same topic, but only seven are positive towards the Penang Forum. *The Sun* has a total of ten items but only three of them are positive towards the collective.

The *Malay Mail Online* has 12 news items regarding this issue, but only two are positive towards the Penang Forum while none of the six news items of *Free Malaysia Today* are positive towards the loose coalition.

Although the news items that are positive towards Penang Forum are relatively smaller in numbers in all of the news publications under study, there are a few news items that provided a platform for other actors, such as the MCA, a component party of the BN coalition as well as a local politician from PKR (a member of the Pakatan Harapan coalition), to express criticism against the state government regarding the two related issues. The Department of National Heritage, a federal government agency, is also given space by a few of these mainstream newspapers to articulate its concern for Sia Boey and the status of George Town as a UNESCO World Heritage Site. Furthermore, these items have the potential of high visibility given that they are also posted on the websites of the mainstream newspapers as well as the online newspapers. The ordinary members of the public in and outside of the Penang state have easy access to these news items.

The controversial issue and reporting regarding the Penang Forum's letter that was sent to the UNESCO World Heritage raised much public awareness and concern. The public spat that ensued only enhanced the visibility of this mediated controversy in the public domain.

Another factor worth considering is that, as asserted by Anil Netto,[30] a member of the Penang Forum representing the civil society organisation Aliran, there appears to be some degree of reluctance on the part of some of the mainstream

[29]See http://news.asiaone.com/News/AsiaOne+News/Malaysia/Story/A1Story20101113-247064.html.

[30]An interview with Anil Netto on 19 January 2017 in George Town, Penang.

English newspapers to cover aspects of a news story that may affect adversely the corporate interests of property developers. To be sure, the PTMP does involve certain property developers. In this regard, one has to take cognizance of the fact that some of these dailies carry periodic supplements (as well as corporate advertisements) that report about property development in the country and Penang in particular. These supplements, incidentally, carry many advertisements that generate handsome revenue for the newspapers concerned.

Put another way, while government control of the media constrains the general reporting of the mainstream press, the profit-making philosophy of certain media establishments may also impose their own version of censorship in order to ensure that advertising revenue flows in uninterruptedly. In this way, the interests and concerns of certain marginalised and disempowered groups may consequently not be entertained or overlooked by the mainstream media, thereby indirectly contributing to social injustice.

6.9 Concluding Remarks

From the examination of the strategies adopted by Penang Forum in advocating its agenda of sustainable development and environmental protectionism, it is observed that the collective employs conventional means of public communication such as holding press conferences and town hall meetings as well as writing letters to the media in the face of the Penang state government's array of resources that range from press conferences, press statements and public exhibitions to the social media.

The issues at hand also precipitate an adroit utilisation of communications technology and the social media by Penang Forum not only to cast a wider net in terms of disseminating messages of the collective, but also in appealing to members of the general public who are technology savvy, which includes the younger generation. In a sense, the consciousness-raising is conducted within a wider audience so as to bring about greater participatory democracy in the state of Penang.

And this brings to the fact that a contentious issue such as the PTMP is likely to go viral on the social media, thereby raising the possibility of it having a higher degree of visibility in the public domain. It was equally noteworthy that the conferment of the status of UNESCO World Heritage Site to George Town not only excited members of the Penang Forum collective, but also raised concerns from the general public about the preservation and protection of that coveted status. This issue also unavoidably highlights other related concerns among members of the general public, in particular the clearing of certain portions of the Penang Hill, a lack of efficient public transportation and the environmental repercussions arising out of the land reclamation scheme in the southern part of the Penang Island.

These related issues of the PTMP and UNESCO World Heritage Site also suggest that the presence of BN-controlled mainstream media in an opposition territory need not necessarily result in an overwhelming support of the causes of the collective vis-à-vis the contestation of the Pakatan Harapan state government. There are, however, a few news items that did provide a platform for other actors, such as

opposition politicians and even a politician from one of the member parties of the Pakatan Harapan in the state, to express their concerns and criticisms against the state government. A federal agency such as the Department of National Heritage was also given space to state its critical stand regarding Sia Boey and concern about the status of George Town as a UNESCO World Heritage Site. Additionally, these issues also suggest, as alluded to above, that the media in general are disinclined to conduct a measure of investigative journalism when it comes to property developers for fear of its negative impact on the media's revenue and long-term survival.

Finally, the public sphere that is available in the state allows for the coming together of many civil society groups and concerned citizenry to articulate and share their collective concerns and interests with the general public, especially with the help of the Internet and advanced communications technology. This is apart from the holding of periodic events by the Penang Forum and other public activities such as press conferences. It also reminds us of the importance of freedom of expression and also freedom of information[31] in the making of an informed citizenry in a state like Penang where its government has a professed policy of competency, accountability and transparency (CAT).[32]

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An interview with Anil Netto, a member of the Penang Forum.

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Chapter 7
Communication for Development of the Nilgiri Biosphere Reserve

I. Arul Aram and Carolin Arul

7.1 Introduction

The Nilgiri Biosphere Reserve is unique and biodiversity-rich, and it is the first such reserve in India. The reserve has medicinal plants, traditional landscapes, crops and their wild relatives, ancient races of domestic animals and indigenous people. It is located in the Western Ghats at the intersection of three states—Tamil Nadu, Kerala and Karnataka in south India. The protected areas in this reserve are Mudumalai Wildlife Sanctuary, Wayanad Wildlife Sanctuary, Bandipur National Park, Nagarhole National Park, Mukurthi National Park and Silent Valley. The Nilgiri Hills (also called 'blue mountains' as translated in English) is in Tamil Nadu. (Many varieties of orchids and the unique *kurinji* shrub that produces a blue-coloured flower to which the Blue Mountains owe their name are also found here.) The area *in toto* has different primitive tribal communities with distinctive cultures. The tribal communities include Badagas, Todas, Kotas, Kurumbas and Irulas, Paniyas, Kasavas, Katunaichens, Kadunaikas, Adiyans, Edanadan Chettis, Cholanaickens, Allar and Malayan. The tribal communities have a symbiotic relationship with the forests.

The Nilgiri Biosphere Reserve was declared as a World Heritage Site by UNESCO in 2012. Fauna includes over 100 species of mammals, 350 species of birds, 80 species of reptiles, about 39 species of fish, 31 amphibians and 316 species of butterflies. It includes the tiger, Asian elephant, lion-tailed macaque and Nilgiri tahr. The latter two are endangered. The total area of the Nilgiri Biosphere Reserve is 5520 km^2. The reserve is constituted with 2538 km^2 in Tamil Nadu, 1455 km^2 in

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Kerala and 1527 km^2 in Karnataka. It is located in the Western Ghats between 76°–77°15′ E and 11°15′–12°15′ N which is one of the 35 biodiversity hotspots in the world. The annual rainfall of the reserve ranges from 500 to 7000 mm with temperatures ranging from 0 to 41 °C. The pristine areas of natural vegetation in the reserve range from dry scrub to evergreen forests and swamps. The altitude nourishes diverse ecosystems, mainly of moist evergreen forests and 'sholas' and grasslands. ('Sholas' are the local name for patches of stunted tropical montane forest (ecosystems found in mountains) found in valleys amid rolling grassland in the higher montane regions of south India.) Livelihood options for the tribes include non-timber forest products (NTFP) which include honey hunting, traditional agricultural revival and enterprise (through commercial bank loan). These also contribute to an alternative model of sustainable development. The case studies dealt with in this chapter are conservation of the sensitive Silent Valley ecosystem, sustainable development of water resources, issues of honey hunters, and human–animal conflicts.

7.2 Stopping of the Silent Valley Hydel Project

The Silent Valley which is in Kerala had a people's movement in the 1970s to stop a major dam project across the Kunthipuzha River meant to generate hydroelectric power. The Silent Valley hydel project evoked the 'Man vs. Monkey debate' as the area is the habitat of the lion-tailed macaque, an endangered species. In 1973, the valley became the focus of 'Save Silent Valley', India's fiercest environmental movement of the decade. The movement involved thousands of people who did not even live in the vicinity of the area that was to be destroyed. It was powerful despite any centralized planning. The strategies include: letters to the editors of newspapers, seminars, widespread awareness programmes and petitions and appeals in court and other high offices. The colonial British had named the area 'Silent Valley' because of a perceived absence of *cicadas* bugs which are noisy. In 1985, Silent Valley was declared a National Park.

Here is a brief account of the sequence of events as told by Kumari (1999) in the book *Silent Valley: Whispers of Reason*.

1970: The Kerala State Electricity Board (KSEB) proposed a hydroelectric dam across the Kunthipuzha River that runs through Silent Valley that would submerge 8.3 km^2 of moist evergreen forest.

Arguments KSEB made for Silent Valley Hydroelectric Project (SVPH): It would generate electricity for Kerala with the installation of four units of 60 MW each. (The KSEB averred that the state's electricity requirements would not be met without this additional power.) The benefits projected were: it would irrigate an additional 100 km^2, and it would provide jobs to several thousands of people during the construction phase and boost the economy.

1971–72: Steven Green, a scientist from the New York Zoological Society, conducted studies on primates, especially the lion-tailed macaque in Silent Valley. Steven expressed concerns about the possible threats to the endangered macaque. Around the same time, herpetologist Rom Whitaker explored Silent Valley to study the snakes of the region. He wrote a letter to the Bombay Natural History Society about the need to conserve the Valley. Reports like these alerted other naturalists.

February 1973: The Planning Commission approved the project at a cost of about Rs. 25 crore. But the implementation was delayed due to lack of sufficient funds. Protests began to mount against the project.

October 1976: The National Committee on Environment Planning and Coordination (NCEPC) set up a taskforce to study the ecological problems that could be precipitated by the project. Work on the project was suspended pending the taskforce's impact analysis. The taskforce recommended that the project be scrapped. But it stipulated that if abandoning the project was not possible, a series of safeguards should be implemented. The Kerala government opted to proceed with the project by promising to implement all safeguards. The state argued that the area submerged by the dam would be only 1022 ha, of which 150 ha was grasslands. It also argued that only 10% of the ecosystem would be damaged, while ecological safeguards would protect the rest.

But several NGOs opposed the project and urged the government to abandon it. Environmentalists argued that:

- The entire lower valley would be submerged by the dam, destroying its biodiversity,
- The 10% loss projected by the government would actually be far worse, and
- The workforce brought in for the construction of the project would reside in the area for several years and the destruction they cause in terms of illegal wood felling, cattle grazing, poaching and encroaching would destroy the valley.

1977: Sathish Chandran Nair visited Silent Valley and he started a movement to create awareness in academic circles through talks and slide shows. V.S. Vijayan of the Kerala Forest Research Institute studied the impact of hydroelectric projects on the environment and wrote to the authorities not to begin the project till his report was submitted. But his report was suppressed.

The message of the environmentalists was taken to villages and cities all over Kerala. S. Prabhakaran Nair toured the villages of north Malabar. Prof. John Jacob trained young nature lovers, and Nature Clubs sprang up all over the state.

But the state government went ahead with the project work.

The Silent Valley Hydroelectric Project—which started as a localized movement through individual and small group protests—went national and international.

The International Union for Conservation of Nature (IUCN) urged the Government to conserve the undisturbed forest area. Environmentalists, corporate and political leaders wrote to the Government of India not to approve the project.

They included Salim Ali, Madhav Gadgil, C.V. Radhakrishnan, M.S. Swaminathan, Subramaniam Swamy, Sitaram Kesari, Piloo Modi and Krishna Kant. They pointed out that the project was 'short-sighted' and had 'limited objectives'. Institutions like the Bombay Natural History Society and the Geological Survey of India asked that the area be declared a Natural Bioreserve. The then Prime Minister, Morarji Desai rejected the appeals and recommended starting of the project.

June 1979: Kerala began the project.

August 1979: N.V. Krishna Warrier of the Prakriti Samrakshana Samiti (Environmental Conservation Society), Prof. Joseph John and P. Gopalakrishnan Nair, an advocate, filed a petition and got a stay order from the High Court of Kerala, stopping the work. Soon after, the Silent Valley Samrakshana Samiti and the Kerala Sastra Sahitya Parishad, a leading science organization in Kerala, started mass awareness campaigns with renewed vigour. They held protest meetings, rallies and debates all over the state, turning the campaign into a mass people's movement. Famous writers from Kerala joined the movement and contributed poems, plays, stories and articles, to convey the message to the ordinary people. Meanwhile, Charan Singh took over as Prime Minister replacing Morarji Desai. He instituted a central committee to reinvestigate the issue, headed by M.S. Swaminathan. The Kerala state set up its own panel of 'environmentalists' and scientists who supported its views.

January 1980: The High Court rejected the writ plea, saying that it was not for the courts to go into the merits of scientific arguments and that it was 'satisfied that the matters have received attention before the state decided to launch the project'. Work on the project began again.

A small group of campaigners met the Kerala Governor and requested her to issue a stay order against continuing work on the project until the committee set up by the Government of India gave its report. She agreed, and work was halted once again.

In the media too, the fight for Silent Valley marked a distinct curve. The leading Malayalam newspapers first carried positive columns on the hydroelectric project. By 1977, even four years after the project was approved and environmentalists began their opposition to it, the newspapers largely carried only news of the government's efforts to start the project. Editorial opinion expressed on rare occasions supported the project and 'development'. Some publications even criticized the importance given to the lion-tailed macaque, which became a symbol of the wildlife in Silent Valley.

The Express, a local daily, was an exception. It carried editorials that constituted a deliberate and strong tilt towards saving Silent Valley. It also carried a feature explaining the importance of rainforests. In 1979, there was a slight shift in newspaper coverage. Along with support for the project, some newspapers raised concern about the ecological consequences of destroying the rainforest. *Malayala*

Manorama, a popular newspaper, though favoured the project, opened up its letters and feature columns to environmental issues.

At first, a few national newspapers considered the environment a particularly interesting subject. The political interference got the newspapers to cover the opposition to the project. *The Indian Express*, with its many southern editions, picked up the issue. Its Kochi edition regularly featured Silent Valley and its concerns. *The Hindu* regularly featured editorials on the subject. In August 1979, the newspaper carried a full-page report on the flora and fauna of Silent Valley. The letters section of the paper attracted eminent people who included Rom Whitaker, M.K. Prasad and Madhav Gadgil. The eminent naturalist, M. Krishnan wrote, 'In my lifetime, I have seen many fine wildlife habitats demolished for hydel projects. Silent Valley is more important than them all—the last authentic sizeable evergreen forests left'.

Charan Singh's term as Prime Minister ended in six months. Indira Gandhi replaced him. She showed keen interest in the ecological issues of the Silent Valley project, as national and international pressure mounted.

January 1981: Indira Gandhi declared that Silent Valley would be protected. But it was learned that the area under the hydroelectric project was not covered under the protected area. When the people came to know this, protest telegrams were sent to the Government of India. NGOs, scientists, intellectuals and common people exerted more pressure.

June 1983: The Government of India re-examined the issue through a commission chaired by Prof. M.G.K. Menon.

November 1983: The Silent Valley Hydroelectric Project was called off.

7 September 1985: Prime Minister Rajiv Gandhi inaugurated Silent Valley National Park.

7.3 Water Resources in the Nilgiris

The Nilgiri Biosphere Reserve is a critical catchment area. Many of the major tributaries of the Cauvery River like the Bhavani, the Moyar and the Kabini and other rivers like the Chaliyar and the Punampuzha have their source and catchment areas within the reserve. Lives of the tribal communities are shaped by water flows. The 'sholas' and grasslands retain water and supply it to these streams. A drastic decline in the 'sholas' and grasslands has led to water scarcity. The 'sholas' were used for grazing cattle. The livestock population inside the reserve is low but the population in the fringes is high. Destruction of the 'sholas' by human settlements upstream has led to the disappearance of the perennial streams. Extension of agriculture and the use of lands unsuited for agriculture have accelerated soil erosion. The east and south-west areas of the Nilgiris with heavy rainfall face severe

soil erosion. Water in the Nilgiris contributes to a rich ecology and wildlife and has cultural and social linkages. Pollution and water scarcity affect the delicate ecology of the reserve. For instance, the Ooty Lake has been accumulating garbage and sewage due to unplanned urbanization.

A series of hydroelectric projects, tunnelling for irrigation, building reservoirs, planting the upper areas with commercial pulpwood species and replacing the natural grasslands with tea and marshes with vegetables have depleted water supply. The management of water resources has shifted from the local communities and indigenous groups to the state. This has led to the collapse of several community-based systems. Keystone Foundation (2007a, b), a non-governmental organization, attempted to document these community-based systems through field visits, observation and interviews. They observed that:

Changes in land use have degraded the watershed. The commercial plantations of eucalyptus and wattle wood increased in the upper areas and tea cultivation increased in the middle zone. Water yield from the catchments of the eucalyptus plantations has reduced when compared to that of the grasslands.

Water stress has set in the Nilgiri district with a prolonged six month dry spell, changing pattern of rainfall, and aquifers with limited capacity to hold water for long periods. The ready availability of reliable water sources for settlements is at stake.

The district depends on a variety of sources including springs (feeding about 30% of the settlements), wells (28%), streams (24%), check-dams (6%) and others (rivers, tanks, borewells, etc.). There is a high dependence on and preference for water from springs, streams and wells among the user communities.

Overall, water resources are said to be abundant in the area but about a third of the sources are seasonal, more than 80% of the rural settlements have less than 40 litres per capita per day of water (lpcd) available, and shortages are common in the urban locations. In fact, the norm of the Tamil Nadu Water Supply and Drainage Board (TWAD) is 55 lpcd. This calls for judicious use of water resources.

Traditional practices in water management have thrived in the district and have provided an opportunity to gain knowledge for design of management mechanisms for the present and the future. There is a need to document and revive traditional water management systems that are fast disappearing.

Water harvesting must be developed. An enterprise approach to water products and value addition such as high altitude stream fishing, mineral water units, laboratories for testing water, and small hydel projects for tapping energy may be developed. Today, people depend on the Government to provide water, though shortages are common in summer and pollution is rampant. The challenge would be to ensure year-round quality water and to initiate sustainable land use and water uses which do not adversely change the quality of water. This has to be achieved through peoples' groups. There is a need to study water flows in the region and support community institutions for protection of local springs.

Springs and 'sholas' do not necessarily have a symbiotic relationship. The occurrence of a spring does not mean it flows out of a 'shola', or otherwise—the 'shola' always does not support a spring. 'Sholas' are good protectors of the entire

biota, with swamps, grasslands, and the springs remain protected. Even in areas under tea plantation, there are several springs which are being tapped by a large population. There is an urgent need to understand spring habitat and introduce practices to rejuvenate them.

There is a breakdown of sharing systems within and between communities. Community-based water management systems should be revived. This had worked effectively, but now with most of the water system being piped and the dependence high on TWAD, the community participation has reduced significantly.

Coliform contamination in water due to human wastes is common. This has resulted in water-borne diseases. As many as 80 drinking water samples were collected and tested for different parameters. As many as 51 cases have reported coliform pollution. Most of the pesticide sprayed (for example, 19 sprays are applied in the Ooty valley for a single garlic crop) goes into water bodies and flows downstream which serves as drinking water sources for the villages (Keystone Foundation, 2007a, b).

The major groundwater problems are:

- Decline in the groundwater level and drying of shallow wells;
- Large-scale deforestation, rapid and unplanned industrial and agricultural development; and
- Changing land use/land cover patterns.

The Badagas are the largest tribal group in the Nilgiris. (There is a long-standing demand to restore the Scheduled Tribe status to the Badagas). Their settlements, mainly on hill tops, depend on upper spring sources close to the 'shola' forests and grasslands. This water is pure and the water sources are protected and worshiped once a year in a ritual called *Halla paruva* (water worship). In the *Halla paruva*, an offering of milk is poured into the water source and the first crop of millet is cooked with water from the source and served as a ritual meal. This ritual is done prior to the north-east monsoon to receive abundant rainfall.

In most Badaga villages, one finds that an underground source or *Huttu neeru* (emerging water) has been protected for drinking water. This is a sacred place which is out of bounds for outsiders, thereby reducing the risk of contamination. The location of the settlement was determined following a spring source emerging out from *Sembare kal*, a type of red soil. The sighting of this stone in the ground is the signature of *Huttu neeru*. To invoke the rains, a special pooja is conducted in the month of May, which is done by looking at all the four directions and the clouds. During this period, there is also another interesting water ritual—connecting the cows (buffaloes in the olden days) and water. This is called *Uppuattu habba*, in which the cattle are given salt water in *uppukal* or salt stones. The ritual of *Halla paruva* and the salt ceremony are considered part of the lifecycle of the community.

The Badagas are an agricultural community and the location of agricultural fields reflects the social stratification. The Badagas have better access to water facilities than the Thoraiya Badagas (a subgroup). For agricultural purposes, water is first used by the Badagas and then made available to the Thoraiya Badagas. Thoraiya

Badagas and Sri Lankan repatriates are located in relatively lower elevations. Their water source is from the valley, which is also the water source used by Badagas for their agriculture. With changes in and the non-availability of enough water from upper spring sources, Badagas have also had to depend on lower valley sources for drinking water.

The Badaga village of Alakare has water with a delicious taste. Water at Alakare emerges from an underground spring or *Baavi*, close to a 'shola'. A beautiful temple marks the water source. Families earlier used to maintain water channels from the origin to the settlement by removing blockages and de-silting. This community effort made everyone take responsibility for maintaining water purity. This practice has been discontinued with the government bringing in piped water and the water channels having become state-owned property. The management style is different, with a few salaried people doing all the work. The government water supply is often insufficient in summer; and the old *Baavi* is used then. Among the community sanctions imposed on the use of the water from the *Baavi* water is that no water is to be tapped at night. All those in need of water are to store it by the day. Throughout the night, the springs recharge.

Todas rear buffaloes. Bikkepathimand is a Toda settlement located in a thick 'Shola' forest in the upper plateau. The buffalo is a guiding motif of the Todas. The Nanjanad area was a zone of large swamps that are almost 20–30 km wide and the crossing would take time. These areas had good clean water sources from springs and grass that the buffaloes fed on. Government policy introduced pine, wattle and blue gum and dried up the swamps. With dryness—the land developed cracks—and buffaloes were unable to walk on these pasture lands without the risk of slipping into the swamp mud.

The Alu Kurumba is a forest dwelling tribal group that has moved as tea estate labourers towards the fringes of the road over the last two decades. Many of them still frequent their homes within thick forests, where they cultivate annual crops such as coffee and jackfruit. The Alu Kurumba in Pudur Kombei village used bamboo poles as pipes to bring in water from uphill mountain springs. Nowadays, PVC pipes and plastic buckets are used for water supply. A similar practice by the Betta Kurumba from Vaacikolli village of the Devarshola town panchayat is the use of banana leaves for collecting rainwater from the rooftops. Their regular water supply is from a water hole nearby.

Wild willow or Baige tree is a good indicator of water. Alu Kurumbas believe that their roots attract water and form springs in the vicinity. In Bellathi Kombei village beyond Manjoor, the Alu Kurumbas dig holes for water near these trees. In the village of Kurumba Medu near Yellamalai, the Bettakurumbas still practice the tradition of drawing water from a spring or a swamp. They do not fetch water from the wells as they consider it 'dead' water. There is a well close to the village but nobody uses it. They go far down the valley for fetching water in vessels from the springs.

In most parts of the Nilgiri district, the source of springs is a sacred place out of bounds for women due to menstrual taboos. But in a Paniya village in Melambalam, it is a Moopathi—a woman priestess who does the ritual pooja to raise the water table.

7.4 Honey Hunters

Honey hunting in the Nilgiris is an ancient eco-friendly tradition that still continues. The honey hunters of the Nilgiri mountains belong to the tribal groups of Kurumba, Irula and Kadunaikas, specializing in harvesting of the precious bitter honey of the *Apis dorsata*, the biggest social bee known today. Keystone Foundation (2007a, b) documented the traditional knowledge on bees, honey and honey hunters, to improve the lives and livelihood of these tribes.

Wrapped in swarms of thousands of bees, the Indian honey hunters work without any protection. They hunt barefoot and entrust their lives only to a strong rope and long purification rituals: for weeks before harvest time begins in the forest, they stop using soap, perform daily prayers, avoid any contact with women and follow a strict vegetarian diet.

The honey of *Apis dorsata* is now commonly known as 'liquid gold'. Honey hunting is a declining skill, and it has dropped by 40% in recent years. The bee makes a nest on the cliffs or tree tops. In the past 20 years, its price has increased from about 5 rupees (approximately USD 0.08) a litre to the current 500 rupees (approximately USD 8). Between the Blue Mountains in southern India, a true 'honey war' has started: rival groups of collectors perform real works of sabotage to win exclusive territory on the best hives.

The honey hunters of the Nilgiris are a living form of tradition linked with modernity. These men, praying under the high cliffs and risking their lives among the swarms of giant bees, have turned entrepreneurs. Their request for prosperity to the Gods has now become very concrete: in fact, as in many other parts of the world, today they just pray for a salary.

Various tribal communities hunt honey and each has its own specialized methods. The Alu Kurumbas in the eastern and southern parts of the Nilgiris and in Attapady are renowned for scaling 150 m high cliffs, while the Kasavas and Irulas are adept in harvesting large quantities of honey from giant trees. The Kattunaichens are expert hunters in and around Mudumalai and Muthanga forests, just as Jenu Kurubas are famous in Nagarhole and Mysore regions. Cholanaichens are known for their legendary skills in the New Amarambalam region, using basic equipment to scale high trees and cliffs. Kurumbas and Irulas often share the same village but one is an expert on rock hunting while the other is a master of scaling trees. Tribal communities worship their gods before setting out. Spirits are accorded special status during this period, as there is a belief that disturbing or angering the spirits can lead to an unsuccessful hunt or even death. The honey collecting ritual also includes an invocation to the bees to leave the combs so that honey can be collected (Sharma, 2008).

The Keystone Foundation has had interventions with the tribal people in the areas of sustainable harvesting, hygienic filtration and processing of the honey, developing quality parameters, improved marketing and value addition.

7.5 Human–Animal Conflicts

The increase in the influx of population from the surrounding areas has led to deforestation and consequent habitat destruction. Dense forests become open forests and non-forest areas. Intensive tree felling has led to multiple problems such as destruction, depletion and degradation of the environment and its natural resources. Heavy runoff during rain because of decreased green cover results in depletion of water sources within the forests. Indiscriminate clearing of forests is destroying the habitat of the several species of animals and birds of the Nilgiris. Some of them like the Nilgiri wood pigeon, Nilgiri pipet and Nilgiri langur that are endemic to this region are now endangered. Animals like the elephant, tiger and leopard are moving closer to human settlements owing to the shrinking of forest areas.

Being one of the hotspots of biodiversity, the Nilgiri Biosphere Reserve has some national parks and wildlife sanctuaries within its boundaries. Conservation of wildlife is the main objective of these national parks and wildlife sanctuaries. Some of these areas have been designated by the government as Project Tiger and Project Elephant areas.

Illegal red soil mining in the forest boundaries on the Bhavani River in the Coimbatore forest division is the major reason cited by the Forest Department for the increased human–animal conflict. It is estimated that from 2006 to 2016, 96 human beings and 74 elephants have died in the Coimbatore forest division. Some of these soil mining areas fall in the elephant corridor where hundreds of elephants cross the river and reach their water source. As vehicles transporting mined soil continuously move around these parts, the animals are disturbed and find it difficult to cross the river and reach the Nilgiri foothills, and hence the animals take alternative ways through human habitation.

Where animals and people compete for space and resources, in extreme cases they kill each other. While tiger attacks are rare, human and leopard conflicts happen on an almost daily basis. Injured animals have a tendency to attack human beings. The post-mortem of a man-eater tiger revealed that the tiger had injuries, probably from a fight with another tiger. Such man-eater tigers are either killed or tranquilized (to be taken elsewhere).

There are numerous forest encroachers, illegal resorts and unauthorized buildings coming up all across the Nilgiris. These pose a serious threat to the forests. Shrinking of forests compels the wildlife to move outside the forest and attack the fields and humans. Human encroachment into the forest area induces a conflict between human beings and the wildlife. Wild animals stray into agricultural land when vegetation dries and water sources in the forests are depleted. Because land has become a scarce resource, farmers encroach upon forest areas or start cultivation in areas near forests which have once been left free. Taking to plantain cultivation and sugarcane in the plains near forests becomes an easy source of non-forest food for wild animals like elephants. Such intricate issues are yet to

come to light in the media. Environmental activists who facilitate the coverage of environmental issues in the media may take note of this.

7.6 Lessons Learnt

By adapting different techniques like documenting the age-old practices, indigenous knowledge on environmental conservation may be revived. Communication for development could play a dominant role in reviving the old practices which had contributed to sustainable development down the ages. Environmental NGOs facilitate this process. The media also joins hands through its coverage of such issues.

New media offers unlimited opportunities to tap at least the techno-savvy youth. While people turn towards nature for a peaceful, healthy and sustainable living, it is time for communities to reconnect with nature and the environment. Even the elderly are found addicted to the new wave of green concepts. They think of community living, organic farming, alternative medical therapies and flair to care nature. The continuous streaming of messages on climate change, environmental pollution and global warming in the media has set the alarm bells ringing towards conservation. This has led to an increase in viewership of nature-related channels like Discovery, Animal Planet and National Geographic (Jayaprakash, 2010).

This chapter has dealt with the conservation of the Nilgiri Biosphere Reserve vis-à-vis scrapping of the Silent Valley hydel power project, safeguarding water quantity and quality, traditional honey hunting and human–animal conflicts. The underlying aspect of communication for development through the process of documenting the initiatives for sustainable development (through field visits, interviews, observation and interviews) in Nilgiris is the need of the hour. Such stories have to be retold for eco-conservation for generations to come.

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Chapter 8
Indigenous Communities of the Chittagong Hill Tracts in Bangladesh: Coping with Environmental Perils and Scoping Adaptive Capacities

Remeen Firoz and Jonas Dahlström

8.1 Introduction

8.1.1 Introduction and Background

In Bangladesh, a majority of the Bangladeshi population identify themselves as 'Bengalis' and practise similar culture and religion. Yet, a section of the country's populace has distinct identities, languages, culture and traditions. About 3 million non-Bengali citizens are scattered in forested areas such as the Chittagong Hill Tracts (CHT), coastal areas in Khulna and the Barind Tract or the greater Rajshahi division (dry-lands). The most prominent groups include Mongoloid natives from over 11 indigenous communities that inhabit the CHTs (Gain, 2011). While Bengalis speak Bangla and are mostly Muslims, the people in the CHTs speak Burmese, Chin and Bodo languages and are Buddhists, Christians and Animists (Gain, 2000).

The Constitution of Bangladesh guarantees equal rights to all its citizens irrespective of creed, race, caste and religion. It fails, however, to acknowledge ethnic minorities as distinct cultural groups by proclaiming the country as 'culturally and ethnically homogenous' (Gain, 2011). The UN Universal Declaration on the Rights of Indigenous People drafted in 1989 terms indigenous people as the '…descendants of a people which had lived in the region prior to the invasion of colonizers or foreign settlers who, in many cases, have since become the dominant population' (Khaleque, 2013). The minority ethnic communities are identified as tribal or sub-cultures (*upajati*) and small ethnic groups (*khudro nri jonogoshti*) in

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Bangladesh. Anthropologists use the term 'ethnic groups' instead of the term tribal, particularly because the latter is used in a derogatory sense. However, the indigenous people refer to themselves as '*Adivasi*' or '*Jummia*' in the CHTs (Gain, 2011).

8.1.2 Description of the Study Site

The CHTs are a confluence of three cross-cultural regions: spanning the Himalayan range in Bangladesh, Assam and Tripura of India and Arakan of Myanmar. The CHTs are surrounded by plains and extensions of the Himalayas (Gain, 2002). At 13,295 km^2 or 10% of Bangladesh, the CHTs are mountainous and contrast with the rest of Bangladesh in terms of geography and human habitation (Gain, 2013). This region is characterized by mountain ranges, which are the western ridges of the Arakan Yomas and Chin Hills. With abundant rainfall and soft soils, the topography of the CHTs is etched with innumerable streams, hills, ravines, cliffs and natural coverage of bamboo, trees and creepers (Rashid, 2013). The relief ranges from about 1000 to 3000 ft. above sea level (Rafi & Chowdhury, 2001).

The economy is predominantly agricultural; there are no major industries or manufacturing units. About 71% of the agricultural farm holdings produce a variety of staple and cash crops, and the communities in the CHTs are engage in fishing, forestry and livestock rearing (Rashid, 2013). The type of agriculture practiced in the CHTs is shifting cultivation, locally known as *Jhum*. Traditionally, the economy is based on meeting the needs of the *Paharis* (hill people), rather than producing surplus for trade. However, some trade occurs—including bamboo, handicrafts and textiles (Rafi & Chowdhury, 2001).

The natural vegetation of the hills is composed of rain forests and bamboo (BBS, 2013). Compared to the national average of Bangladesh (about 1200 per km^2 in 2013), the population density of CHTs is 96 per km^2 (Gain, 2000), and in remote Thanchi, it is as low as 23 per km^2 (BBS, 2013). There are few schools in the CHT and only a small proportion of the youth are enrolled in schools. The literacy rate lags behind the national average of 57.7% (Rafi & Chowdhury, 2001 and BBS, 2013).

8.1.3 Rationale for the Study

In comparison to lowland Bangladesh, the indigenous communities of the CHTs face a unique set of environmental and social hardships such as deforestation, decline in soil fertility, loss of plant and animal species and human rights violations including militarization and land grabbing (Gain, 2013). The CHTs have experienced a 'low-intensity armed conflict', which has lasted for about two decades and altered the natural landscape (Gain, 2011). The construction of Kaptai Dam in 1960s, for generating hydro-electric power, displaced over 100,000 people from

their land and homes and submerged 54,000 or about 40% of the prime arable land and forests in the CHTs (Roy, 2013).

Against this backdrop, the chapter aims to present the environmental perils faced by the indigenous communities of Thanchi *upazila* of the Bandarban Hill District of CHTs (a sub-district that houses several communities) and discusses the potential for future sustainable development. The purpose of this research is to orient the reader about the predicaments of environmental change that the indigenous communities face and are trying to cope with. Since environmental problems in the CHTs cannot be separated from socio-political factors, this chapter will also provide a prognosis encompassing some of those issues. Based on the findings from interviews with indigenous people and quick review of development initiatives that are implemented in the CHTs, strategies for sustainable development in the region, addressing issues such as environmental health, livelihood security, biodiversity conservation, education and awareness are recommended. Future programme officials and policy makers in the field of environment and development in the CHTs as well as the other indigenous communities in Bangladesh can find it useful as it recommends pathways that are environmentally sustainable and culturally sensitive.

8.2 Methodology

Research was carried out by using a combination of tools and techniques, including review of literature and interviews with key informants, a collection of testimonies from representatives of six ethnic communities, photography and video documentation and consultations with indigenous people. The interviews and consultations were carried out between 2013 and 2015 in the CHTs. Additional interviews with Dhaka-based experts were also conducted.

8.2.1 Tools and Techniques

The sites covered are located in the Thanchi upazila (sub-district) of the Bandarban region due to its cultural diversity. The indigenous communities consulted were Tripura, Khumi, Chakma, Marma, Mru and Khiang. The stakeholders consulted were men and women across all ages, local and international NGO representatives, health professionals, foresters, farmers, traders, the elderly, musicians and members of the royalty.

A brief description of the tools used in the research is as follows:

Review of Secondary Information: Secondary, the literature was reviewed related to environment and development in the CHTs of Bangladesh.
Transect Walk: Transect walk through the villages (para), to learn through observations.

Social and Institutional Analysis: Detailed discussions were held with the local people, regarding the role of different social institutions, activities and services.
Key Informant Interviews (KII): KIIs were carried out with representatives of ethnic communities and experts of the area. The KIIs focused on topics such as climate change and disasters, environment and forests, livelihoods and vulnerabilities, coping capacities and future needs.
Focus Group Discussion (FGD): FGDs were held with men and women of indigenous groups to identify their concerns, vulnerabilities and recommended strategies.
Photography and Video Documentation: A number of interviews with people from Thanchi were captured in videos and photography for documentation.

8.2.2 Constraints and Limitations

The key challenges faced included cultural barriers and prevalent social tensions in the CHTs because of militarization. The indigenous people do not generally speak Bangla (or English) whereof communication was layered with interpretations. Information was lost due to subtle cultural differences. Moreover, the study site Thanchi has an army presence. The authors were not permitted to travel freely and had to inform the military about their activities. The paucity of funds also posed as a hurdle, as the researchers lacked external funding. Further, because of the working difficulties in the CHTs, development partners are not keen to support research.

8.3 Key Research Findings

8.3.1 Bengali Settlers and Migrants

From 1960s onwards, about 600,000 Bengalis were settled in the CHTs under the state-sponsored settlement programmes (poor and landless Bengalis from different parts of the country). The proportion of Muslims in CHT dramatically rose from 6.3% in 1951 to 44.1% in 1991 (Rafi & Chowdhury, 2001), and according to the 1991 Population Census, Bengalis constitute nearly half of the population of the CHTs (Gain, 2000). In addition, unrestricted inflow of climate migrants from the low-lying coastal areas of Bangladesh has occurred. The growing Bengali population has caused an unhealthy competition over scarce resources and led to eroded indigenous systems (Chakma, 2010).

Ushanu Marma and Biddyut Tripura, development workers in Thanchi opined that:

> Young people communicated through *Langya* or *Kappya* songs, but now with mobile phones, these cultures have disappeared. In the quest for modernisation, Bangla, Hindi and English cultures are replacing our indigenous traditions.

8.3.2 Development Versus Environment

The indigenous people of the CHTs today interpret 'development' as dislocation, disruption and destruction (Tripura, 2000). Two projects the Karnaphuli Paper Mill and Kaptai Hydroelectric Project stand out as milestones in the history of state-driven projects in the CHTs (Schendel, Mey, & Dewan, 2001). Raw materials for the Karnaphuli Paper Mill (mainly bamboo and softwood) have been extracted from the forests, and with the booming number of paper mills, further degradation is a likely consequence (Gain, 2013). The Kaptai Hydroelectric Project has had immediate and long-term ecological impact, inundating valleys, displacing more than 100,000 indigenous people and wiping out the population of flora and wildlife (tigers, elephants, bison, barking deer and sambar) (Gain, 2013). Development activities have violated environmental ethics and harmed people, culture and ecosystems. The environmental problems in the CHTs are mainly anthropogenic caused by production of hydroelectricity and commercial plantations of tobacco and teak wood (Gain, 2002).

In the post-Accord period, national and international bodies have been vying to carry out 'reconstruction' and peace-building work in the CHTs. In a complex interplay of actors, it is increasingly being recognized that protection of indigenous people's rights need locally sensitive strategies by including local people (Roy, 2010; Tripura, 2000). According to Ms. Hla Shing Nue, member of the royal family and Executive Director of Bolipara Nari Kalyan Samiti (BNKS), a local NGO based in Bandarban:

> The hill people are not aware of their rights, let alone ask for them. Development is viewed not as a right, but as a relief. Because most of the projects and priorities are donor-driven, the real needs are often left unaddressed, such as securing land tenure.

8.3.3 Militarization and Conflict

Since 2010, the Government of Bangladesh has imposed restrictions on foreign nationals visiting the CHTs. All development projects in the CHTs require clearance from the DGFI (Army Intelligence Wing) and especially the local NGOs face serious interference (Arens, 2013). According to the local people, the number of army camps continues to expand, despite the signing of the Peace Treaty (there are 10 military bases in Thanchi alone). This is violation of the 1997 Peace Treaty, which specifically mentions the withdrawal of army camps. Further, the construction of military camps and expansion of Bengali settlements has resulted in deforestation and loss of local biodiversity. According to development practitioners, Namenu Marma and Ubaunu Marma:

> Women are constantly undermined and harassed by the Army and BDR, who go into the *paras* (local term for villages). We always live in fear! We get checked all the time and they are suspicious, accusing us of selling alcohol and drugs.

Ubastowai Marma, a paramedic from Thanchi further added:

> The torture from the army motivated the hill people to form the *Shanti Bahini* (Peace Force). When we go to the *bazaar* (local market) for shopping, the army would go through all our goods, because they suspected us of feeding the *Shanti Bahini*.

8.3.4 Land and Ownership

To establish functional institutions in the CHT, the traditional mobile and custodianship-based governance system, determined by territoriality and ethnicity, and agricultural practices (*Jhum*) have to be acknowledged. However, the state has often failed to do this, leading to a resource struggle between 'natives' and Bengali settlers, the military and the state (Khan, Alam, Khisa, & Millat-e-Mustafa, 2002).

The major conflicts during the internal war (1973–1997) were oriented around the access of land and natural resources (Roy, 2010). Landholdings in the traditional systems of the CHTs were based on century-old customs, disallowing individual ownership of land. Land belonged to the community and was utilized for traditional shifting agriculture by all members (Gain, 2000). Today, there are problems with the land resources—as local leaders (Headmen) cannot allocate land to the community members as indigenous structures are over-ruled by national mechanisms.

The Peace Accord of 1997 signed between the Government of Bangladesh and representatives of the indigenous groups of the CHTs explicitly stipulates the set-up of a Land Commission to provide rapid resolution of the disputes pertaining to the occupation of lands by settlers and the military. The Peace Accord specifies that the Land Commission will take into account customary laws, local traditions and procedures of the CHTs when carrying out its activities (Adnan, 2010). Till date, the Land Commission has not become functional.

8.3.5 Policies and Development Initiatives

After the signing of the Peace Accord in 1997, national and international donors such as the UNDP, BRAC and Grameen initiated development projects in the CHTs. Despite criticism from the indigenous people, it has been observed that NGOs replicated micro-credit programmes which disconnected them from nature (Arens, 2013). Mr. Philip Gain, human rights activist and Director of Society for Environment and Human Development (SEHD) said that:

> In the 1980s and 1990s, it was donor agenda that destroyed natural forests, through monoculture of commercial plantations. Now, the development priority rests with climate change and donors have shifted their activities to adaptation. The problem is that they are not based on actual needs.

The CHT has a pluralistic form of administration, where responsibilities are shared between traditional leaders, members of the CHT council, government functionaries at the district administration and other relevant departments. Moreover, most of the institutions are new, such as the Ministry of CHT Affairs. In order to achieve good governance, it is necessary to foster the disadvantaged sections of the CHT society through social and economic empowerment (Roy, 2000). According to Mr. Chiang Shing Mong, head of GRAUS—a local NGO based in Bandarban:

> The biggest challenge we face is that we lack capacity and skills. Moreover, the Government institutions in Thanchi are not really functional and we are excluded from planning activities.

8.3.6 The Hill Forests

The Village Common Forests (VCFs) in the CHTs include any forested area that is used by village communities on a collective basis and is regarded as their common property, irrespective of its legal classification (Roy & Halim, 2013). However, at present, VCFs are dwindling due to population pressures, sedentary agriculture and immigration. VCFs traditionally maintained not only the ecological balance as the herbaria for traditional medicinal plants, but were also the common property resources. According to Dr. Farid Uddin Ahmed, Executive Director of Arannyak Foundation,

> The CHTs were a hub of biodiversity, where the VCFs were teeming with life. Human greed for land and resettlement has caused serious degradation of the ecology. The best thing would be to revive the traditional practices.

The reserve forests are maintained to ensure the catchment areas of the Sangu and Matamuhuri Rivers in Bandarban (BBS, 2013). Most of the reserve forests have been cleared for commercial monoculture plantations which have sparse canopies and high water demand (Gain, 2000). This has led to decline in wildlife and topsoil erosion causing more landslides (Gain, 2013). The Divisional Forest Officer (DFO) of Bandarban informed that:

> The plantation of fast growing and commercial species such as teak has disrupted the local ecology. There is no undergrowth, birds or local species of trees anymore. For instance, in the once bamboo covered Sangu Reserve Forest, poppy flowers are being cultivated. There are conflicts over resource harvests, compounded by corrupt government officials.

Large-scale monoculture of commercial species like teak, rubber, pine and pulpwood has led to decline of the original fauna and wildlife, the siltation of rivers, soil erosion and health issues, disappearance of traditional livelihoods, and indigenous practices (Roy & Halim, 2013; Gain, 2002). The species such as *garjan*, *koroi*, *champa* that occurred before have almost disappeared now. Kaibok Mru, a 90-year-old indigenous farmer stated:

> I have worked all my life in *jhum* cultivation, growing rice, vegetables and fruits. As traditional and nomadic people, my family has moved around quite a bit and we always replanted trees in the areas we cleared for farming. Over the past 50 years, changes in land use have led to a decline in soil fertility and affected local plants and animals.

8.3.7 People's Perceptions of Climate Change and Disasters

According to a report of the Planning Commission of the Government of Bangladesh, climate change is yet to emerge as a significant issue in the CHTs. Many environmental problems are caused by unplanned agricultural extension and forestry programmes. However, there are scientific assumptions that climate change will result in more intense rainfall, flooding and landslides (GoB, 2012).

During the interviews conducted for this research, the local people in Thanchi reported that land erosion and landslides occur especially during the monsoon along the Sangu River and that disasters are untimely and there are anomalies in the seasons, i.e. delayed start of winter or monsoon. They also think that the temperature at all seasons has increased, causing illnesses such as nausea, diarrhoea and headaches.

The respondents understood that changes in climate are worsened by other anthropogenic factors like deforestation and reduction in water flow. To them, problems such as land rights, holding on to their identities as ethnic groups and water and sanitation override the manifestations of climate change.

8.3.8 Degradation of Nature and Erosion of Cultures

In case of the forest-dwelling communities of Bangladesh, the cultural norms and practices are based on land, water, trees, birds, fish, animals, air, sky and the planets. The indigenous people regard nature as Mother Earth—land is revered by the indigenous communities (D'Souza, 2013). According to Railoong Khumi, 80, an indigenous farmer from Thanchi:

> Even 30 years ago, you could see monkeys, wild pigs and deer, foxes and beautiful birds. Because of deforestation and the construction of roads and camps, they have disappeared.

This is supported by a female farmer called Zinnati Tripura:

> This area was rich in biodiversity at one time; there were tigers in our forests. The corruption within the Forest Department is probably the main reason for deforestation and monoculture. Because of closing of the biological corridors and loss of fodder and habitat, several species such as elephants are rarely sighted.

The hydrogeology of many places in the CHTs is severely affected by stone quarrying. When stones are removed from a stream, it dries up quickly and there is less fish. This has resulted in the displacement of several indigenous communities practising agriculture and fishing (Rashid, 2013).

8.4 Conclusion and Recommendations

The situation in the CHTs has worsened since the signing of the Accord, according to the researchers and indigenous people interviewed. The enlargement of Reserve Forest areas have restricted the indigenous peoples' access to the forest and, as the Land Commission is not functional, land custodianship remains disputed. They are generally marginalized in terms of access to land and basic amenities such as education and healthcare. The workload of indigenous women is high, as they tend to the farms, care for families and fetch water and firewood from distant sources. The conclusions drawn from the research, along with recommendations for future courses of action have been summarized in the following section.

8.4.1 Social Forestry

The forest patches of the CHTs are rich and can, if left untouched, regenerate through seeds and coppices (Gain, 2013). Plantation of indigenous species, instead of commercial timber and softwood can be an option in degraded areas. A number of indigenous trees such as *Garjan, Gamari, Telsur, Boilam, Jarul* can be planted to revive the biodiversity, along with medicinal plants. In addition, inclusive social forestry programmes that incorporate local people's needs should be adopted.

Thousands of indigenous people are denied land ownership within the reserve forest areas. There are large tracts of lowlands, which are suitable for plough cultivation and horticulture (Khan et al., 2002). It is not possible to evict the indigenous people on humanitarian grounds. However for livelihood sustenance, there can be legal provisions to allow sustainable resource harvest from the forest.

8.4.2 Village Common Forests

Initiatives, namely the Arannyak Foundation and Nishorgo funded by North American donors, have introduced the concept of 'co-management' in the CHTs. They are striving to revive the age-old practice of the indigenous communities and maintain Village Common Forests (VCFs).

VCFs are a repository for biodiversity and serve as the herbaria for traditional medicinal plants. They are important for watershed management and a major source of construction and other materials (Roy & Halim, 2013). There needs to be formal mechanisms for VCFs. If local people are included in participatory management, they can practise common property management, while conserving the ecological integrity.

8.4.3 Research and Investigations

In an article on research in low-intensity armed conflicts situations, the author has concluded that there have been opportunities and diversification of research in the CHTs after the signing of the Peace Treaty. Since 1997, there has been substantial research on nature and environment of the CHTs such as indigenous water use system, cropping patterns and hill agriculture, land use and mapping (Irfanullah, 2012). Nevertheless, research is limited in the region, as access is restricted.

The climatic variables such as precipitation, diurnal temperatures, sunshine hours and wind speed have not been researched and documented in the CHTs (Rashid, 2013). Research on the impact of climate change in the region is needed. Taungya, a local NGO based in the hill district of Rangamati, surveyed the forest to create an inventory of the birds, trees, bamboo and animal species. Research on the ethno-botany especially for medicinal plants of the CHTs has also been carried out by International Union for Conservation of Nature (IUCN), Bangladesh Country Office. Such efforts need to be scaled-up for documenting the biodiversity and traditional knowledge related to climate adaptation and utilization of natural resources.

8.4.4 Alternative Income-Generating Opportunities

Tourism can bring income, but poses a number of threats to the social and natural environment (Gain, 2000). Over the past decade, private tour companies have sprawled across the CHTs, without much involvement of the local indigenous people. Responsible and sustainable tourism should be promoted. Home stays can be arranged with local communities with local youth as guides for income-generating opportunities.

The indigenous people of Thanchi are interested in learning new things, such as extracting wool from the sheep. Their major needs for securing their livelihoods are education, awareness and training. Leaving their homes to go elsewhere for training is not feasible for them. Micro-enterprises such as ‘Turtles for Conservation’ are good examples, where the local people make handicraft items for sale in Dhaka. Women make jewellery with beads and baskets with bamboo, which can be sold for a handsome profit. Indigenous handwoven textiles can be marketed through proper channels for earning extra incomes. NGOs like CARITAS and UNDP have also trained women in horticulture and gardening for fruits like pineapple, mango and banana which has secured their incomes.

8.4.5 Basic and Extension Services

The Livestock Officers (from the Department of Livestock Services) do not have adequate knowledge and training on tackling diseases that affect swine, and thus, they have high mortality. The extension service providers need to be more sensitive and respond to the local needs, either by training existing staff or recruiting members of the indigenous societies, who have knowledge about treating livestock.

People in Thanchi and in more remote areas like Tindoor, Remakri, Boromodhu and Bolipara are poor, and the lack of education opportunities makes it difficult to improve their status. Most villages do not have secondary schools, as the government policy requires a minimum of 30 students to set-up an institution. Innovative approaches such as 'travelling teachers' can improve the situation for the children growing up in the remote areas of the CHTs.

As specified by the local people, 'multilingual' education is required. Informational posters for health services circulated by the government depict a woman wearing a *saree*, but since locals cannot relate to it, they are unlikely to capture and absorb the information provided. The education and communication materials should be culturally appropriate to drive home the message to the indigenous communities.

8.4.6 Secure Land Rights

Stringent application of laws and policies to prohibit the growth of harmful industries such as brick kilns and sawmills needs to be in place. A complete moratorium needs to be imposed on the acquisition of common land of the indigenous people, whether it is Bengali settlers, the Forest Department or state or donor-funded development projects (Adnan, 2010). Such processes can be facilitated by the proper implementation of the CHT Peace Accord 1997 and effective operation of the Land Commission. In the words of Chikon Kala (82), a representative of the Chakma indigenous community:

> There are problems related to the governance, as our Headman (local leaders) cannot allocate land to community members. The traditional governance structures are over-ruled by national laws.

8.4.7 Health and Sanitation

In Thanchi, there is only one Government Health Complex, with provision for 31 patients and only one assigned doctor (BBS, 2013). Even though there is a state-of-the-art health complex, people rely on traditional and herbal medicines that are readily available, as the doctor is seldom available.

Currently, they have to collect water from the spring, and women usually carry the water in baskets and in pitchers. A family typically needs a minimum of 20 litres of water every day, and each pitcher can hold up to 2 litres of water. This means about 10 burdening trips to the water source for the women, with 15 min to cover each trip.

NGOs like ActionAid have installed tube wells and ring slab toilets in Thanchi to improve local health and hygiene. But compared to the need, the supply of such amenities is minimal. In the future, government and non-government development initiatives should focus on water, sanitation and health aspects through multi-level investments.

8.4.8 Cultural Identity

The indigenous people of Thanchi sense that their hardships will increase manifold over time, and the only way out of poverty is through 'education' and improvement of infrastructures like schools and health facilities. They also feel that '*Pahari*' (hill people) and the 'Bengali' can develop symbiotic relationships based on mutual respect. As citizens of Bangladesh, the people in CHTs demand the same rights and treatment. According to them, if the Treaty is implemented judiciously, many problems will diminish and they can co-exist in peace with their traditions and cultural practices.

At present, there are only a handful of traditional musicians around, as there are no schools for learning traditional instruments or nurturing the musicians, just like the indigenous languages. A group of Marma musicians from Monai Para in Thanchi stated that:

> Music and dance is necessary for our souls; we cannot think of a festival without it. If our age-old instruments are no longer in existence, it will be a real shame. With disappearing forests, bamboo is in dwindling supply, which means that there will be no more bamboo flutes.

In order to preserve the identities and existence of the indigenous people of the CHTs, the Government and development partners need to invest in culturally sensitive and environmentally sustainable development. Development activities have to be people-centred and focus on addressing basic needs such as environmental health, education and livelihoods.

8.4.9 Concluding Remarks

Based on the findings from indigenous people and a number of noteworthy initiatives that are implemented in the CHTs, this chapter has recommended strategies for sustainable development in the region, addressing pressing issues related to

environmental health, livelihood security, biodiversity conservation, education and awareness. The recommendations can be instrumental in designing environment and development projects and future programming in the region. The conclusions were based on indigenous people's needs and can guide investigative and comprehensive research in future. Last but not the least, this research can direct policy making in the CHTs as well as the other indigenous communities in Bangladesh facing similar perils.

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Part IV
Challenges for Communication in Sustainable Development

Chapter 9
Rethinking Crisis Communication at a Time of Climate Change: Lessons from the Philippines

Jude William Genilo

9.1 Introduction

The chapter argues that crisis communication needs to be rethought in the context of climate change, and lessons must be learnt from the Philippine experience. In particular, crisis communication should focus more on:

- creating messages attuned toward the social construction of disasters;
- promoting dialogues rather than simply disseminating information;
- incorporating new media as part of the media mix;
- utilizing a community-based information flow parallel to the traditional top-to-bottom approach.

Before tackling these shifts, it is necessary to provide the context in terms of natural disasters and climate change in Philippines. The chapter also discusses the traditional methods in crisis communication and the lessons learned in this regard—such lessons give rise to new approaches in crisis communication at a time of climate change.

9.2 The Philippines and Natural Disasters

The Philippines is a disaster-prone nation. It is part of the "Ring of Fire," the "Belt of Pain," and the "Typhoon Alley." The "Ring of Fire" refers to the string of 452 volcanoes extending along a tectonic fault line from New Zealand to North Sumatra and then going from Japan to South America through the coast of North America. The Philippines has 37 volcanoes, 18 of which are still active. The "Belt of Pain,"

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on the other hand, is an area of extreme seismic activity stretching from below Hong Kong to Malaysia and Singapore, while the "Typhoon Alley" is the path usually taken by storms generated in the Pacific Ocean. Due to these conditions, the United Nations Office for Disaster Risk Reduction (UNISDR) reported that the Philippines was fourth in the world among countries hit by disasters over the past 20 years. It had a total of 274 disasters from 1995 to 2015, trailing behind the USA, China, and India. The Global Assessment Report on Disaster Risk Reduction (2015) estimates 1817 deaths and an economic loss of USD 1.66 billion due to earthquakes, floods, and storms from 2005 to 2014.

In dealing with the situation, the Philippines used to have a traditional approach, which viewed natural disasters as one-off events to be responded to by the government and relief agencies. The focus was on the physical devastation; the social and economic implications were not well appreciated. Disaster management was synonymous to disaster response. Hence, in 1972, the Office of Civil Defense (OCD) was given the task to coordinate with the government agencies, private institutions, and civic organizations for the "protection and preservation of life and property during emergencies" (Letter of Instruction No. 19, 1972). The OCD replaced the National Civil Defense Administration (NCDA), which was created through the Civil Defense Act of 1954. In 1978, the Presidential Decree 1566 (Strengthening the Philippine Disaster Control Capability and Establishing the National Program on Community Disaster Preparedness) was enacted to serve as the legal basis of the National Disaster Coordination Council (NDCC). The NDCC consisted of several government agencies involved in disasters such as Department of Health, Department of National Defense, Department of Public Works, Philippine Information Agency. The OCD would serve as the NDCC's operating arm and secretariat. With this, the OCD's capability in disaster control was strengthened.

Given its orientation, the NDCC and OCD were more reactive—focusing further on emergency management and on emergency specialists and hazard scientists. It had an "all hazards approach," i.e., surveillance of geophysical, hydrometeorological, terrorism, epidemics, civil disturbance, infestation, and nuclear/radiological hazards. In terms of communication, it followed a more traditional top-to-bottom route. Communication about disaster preparedness and response flowed from the central authority to the 17 regional centers. It's Media Relations and Communications Unit provides messages to the print and electronic media. During typhoons, however, the Philippine Atmospheric Geophysical and Astronomical Services Administration (PAGASA) acts as the warning agency—providing the necessary information to the media and municipal/city governments. The media, in turn, disseminate the information to the public, while the municipal/city governments relay the warning to the *barangays* (villages).

In the mid-1980s, some NDCC members and civil society groups lobbied for the amendment of PD 1566 or change it entirely. They felt a need for a paradigm shift from disaster preparedness and response toward disaster management. After the catastrophic effects of typhoons Ondoy (Ketsana) and Pepeng (Parma) in 2009, PD 1566 was replaced by Republic Act 10121, which was enacted on May 27, 2010.

The act signified a proactive orientation emphasizing prevention and mitigation. It represented a more bottom-up and participatory communication approach and changed the view of disasters as merely physical hazards to include an integrated approach to sustainable social and human development. The act likewise referred to climate change as "a change in climate that can be identified by changes in the mean and/or variability of its properties and that persists for an extended period typically decades or longer, whether due to natural variability or as a result of human activity."

The Climate Reality Project (accessed from https://www.climaterealityproject.org/blog/how-climate-change-affecting-philippines) reported in January 2016 that the Philippines has been struck more often and severely because of climate change. Half of the ten deadliest tropical storms that hit the country occurred since 2006. Given climate change, the ocean's surface temperature has increased over time, allowing more and more heat to be released into the atmosphere. The additional heat in the air and ocean resulted in more frequent storms. The Global Climate Risk Index 2015 listed the Philippines as the number one most affected country by climate change based on 2013 data. This situation has devastating economic effects on the country. A destructive typhoon season costs two percent of gross domestic product and costs another two percent to rebuild lost infrastructure. The country loses at least four percent of gross domestic product each year due to tropical storms.

Recognizing the impact of climate change, disaster management in the country dealt more with risks specialists, economic managers, and development partners. Its approach shifted toward building the resilience of communities to natural disasters. It expanded the membership of the NDCC from 19 to 38 and transformed it into the National Disaster and Risk Reduction Management Council (NDRRMC). The proactive stance of the NDRRMC to address disasters was strengthened with the institutionalization of the new NDRRM Framework signed on June 16, 2011.

The chapter now presents its main arguments on why (in line with the paradigm shift) crisis communication should focus more on creating messages attuned toward the social construction of disasters; promoting dialogue rather than simply disseminating information; incorporating new media as part of the media mix; utilizing a community-based information flow parallel to the traditional top-to-bottom approach.

9.3 Creating Messages Attuned Toward the Social Construction of Disasters

In traditional crisis communication strategies, it is often taken for granted that the dissemination of geophysical, scientific, and official messages hold the key to successful communication. Such strategies do not consider the perception and understanding of communities regarding hazards. Hence, there had been many

instances where communities/individuals refused to be evacuated and/or have not undertaken the necessary preparations. Concretely, when typhoons Sendong (Washi) in 2012 and Ondoy (Ketsana) in 2009 hit the country, people did not expect them to be so strong and disastrous in spite of constant signals and water level warnings in the media. As a result, typhoon Sendong (Washi) claimed 1268 lives, while typhoon Ondoy (Ketsana) left 464 people dead.

Pante et al. (2013) explain that disaster preparedness is often viewed from the perspective of formal institutions; the perspectives of those who suffer are ignored. In reality, however, disaster response is a moment of agency. People need to make fast judgments and organize a response. They need to rely on family, friends, and local heroes. In a participatory action research conducted with a community organization in the town of San Mateo, the authors found out that the local community differed with the government in viewing disaster preparedness and response. On one hand, the government offered the residents a relocation site in another area so that a riprap can be constructed to lessen soil erosion. They were likewise promised an amount of Php 5000 (around USD 100) to construct new homes. On the other hand, the residents argued that although they will have physical security in the new area, their economic security will be compromised due to lack of jobs. It made more sense to them to stay rather than relocate. They just had to be resilient to the challenges posed by disasters.

For this reason, the community residents formed an organization to deal with disaster preparedness and response. The organization has equipment such as boats, first aid kits, and cleaning materials. They also have sandbags, an evacuation site (nearby school) and conduct workshops on first aid and rescue. Aside from constructing a community map, they have designated health volunteers who kept the surroundings clean. For them, it is better to stay in the location and manage the disaster's effects rather than go to an unknown place to live. They have achieved this with some success. During typhoon Ondoy (Ketsana), the community did not have any casualties. Residents feel that they are 75% ready for the next disaster. In official and popular discourse, however, community residents such as the ones in San Mateo are depicted as stubborn who unnecessarily place burden on the government with their refusal to relocate. They are also shown to be the cause of flash floods as their household wastes block the waterways.

The truth is communities respond to disaster preparedness and respond in various ways. Some may be proactive but most would not. Viloria et al. (2013), in a study of Iligan city *barangays* (villages), discovered that most communities were not prepared for typhoon Sendong (Washi) in 2011. Around 28 out of 44 *barangays* (villages) were severely damaged with 17,709 families affected, 652 confirmed dead, and 808 reported missing. Only one *barangay* (village) was able to create and implement its disaster reduction and management plan, aligning theirs with the one of the city government. It had its own response team and conducted a house-to-house information drive. The rest of the *barangays* (villages) were basically unprepared. They did not conduct information drives and did not have proper equipment attributing these failures to a lack of budget.

Bankoff (2004), however, provides an interesting view on the differences in disaster preparedness of communities. According to him, hazards are socially constructed. "People's actions are influenced by their cultural interpretation of what they are experiencing." Behaviors that appear illogical to relief workers may be entirely rational in the context of the operating schema of the individuals experiencing the hazard. Bankoff (2004) presents at least two perceptions about disasters. For one, the Filipino belief system places the forces of nature at the service of the divine command. Being hit by a disaster is an expression of a vengeful deity. For another, natural disasters such as typhoons have been feminized. PAGASA provides female names to typhoons to reflect the maternal perception of nature of the Filipinos, where nature is the bountiful mother and humans are her wayward children who need to be reminded of their powerlessness from time to time.

Ladrido-Ignacio and Perlas (1996) concur stating that disasters are multidimensional affecting the ecological, economic, material, psychological, social, and spiritual. It causes both material damage and human suffering. Hence, it is imperative that disaster response should focus both on the structural and economic losses and on the human person. Human beings respond to disasters at three levels—physical, psychological, and social. Victims of disasters may be classified into direct, indirect, and hidden. The dominant psychosocial effect of disasters is the experience of loss of control; the need to depend on others for survival. In this sense, the key is to transform the disaster victim into a survivor. The victim is passive and feels powerless, while the survivor has regained a sense of control and is able to meet the demands of the situation.

Both Bankoff (2004), Ladrido-Ignacio and Perlas (1996) illustrate that disasters are a perceptual and psychological phenomena; occurrences that take place and shape in people's minds. In this sense, it is important to deliver messages that are contextual; not just to focus on the standard, geophysical, scientific, and official dimensions. In this manner, crisis communication strategies may be more effective as they become more relevant to the receivers. In communication parlance, messages are directed toward receivers, but senders must have an understanding of the receivers, and they should not assume that one key central message will work all the time. The government should understand the reasons for a community's refusal to evacuate or failure to prepare for disasters in order to construct appropriate messages.

9.4 Promoting Dialogue Rather Than Simply Disseminating Information

In the Philippines, the mass media are perhaps the most vital conduit for information about disasters. It is the first to cover disasters being proactive in chasing such stories. In several instances, it has put its reporters at risk—showing them in the disaster locations. The International Development Unit of the Australian

Broadcasting Corporation or ABCID (2014) observed that "media personalities and organizations have a strong following across the country." Radio reaches 85% of the households with 1000 stations. Television, on the other hand, covers 99% of the population with 200 stations.

The government has a number of agencies that monitor hazards ranging from weather to volcanoes and epidemics. These agencies provide warnings and advisories to the OCD, particularly its Operations Center. The Center forwards the warnings to local disaster management councils and sends alerts and situation reports to the media. ABCID (2014) distinguishes the approaches taken by the national and local media after receiving this information. The Manila-based national media focus on the severity of the event and question government responsiveness. The provincial media look into how to prepare for a disaster and report more on the facts. The local media are more engaged with the citizens after a disaster.

However, in the case of typhoon Yolanda (Haiyan), there was definitely something wrong in the crisis communication strategy. Esteban et al. (2015) conducted a survey among survivors in the islands of Samar and Leyte. They found out that only 47% of respondents understood what a storm surge was. Most respondents (56%) mentioned that they never experienced damage from coastal hazards and were not aware of the threat of storm surges. As a result, respondents did not know how to prepare for such occurrence. Esteban et al. (2015), through group interviews, discovered that local authorities and residents alike, although warned of the possibility of seven to eight meter high waves, were not aware that storm surges can manifest as floods. Local hazard maps (created by local authorities) underestimated the potential damage of storm surges. Many expressed that it would have been better comprehended had the media described the event as "tsunami-like." Kure et al. (2016) concur that the main problems hindering evacuation efforts were the "lack of disaster education, poverty, and inappropriate evacuation facilities. Many people did not know what a storm surge could do to them." This resulted in people staying on their land instead of evacuating.

Most respondents (52%) mentioned that they got information about storm surges mainly from the electronic media (more than 75%) and, to a lesser extent, from family members. They (69%) also assessed the information about storm surge to be moderately useful. In the fourth National Communication Research Conference (2014) held at the University of the Philippines-Diliman, the author listened to the confessions of two journalists (one newspaper and one television) admitting that they did not realize what a storm surge can do and that they were not also prepared. In this sense, it is clear that two-way communication (such as dialogues) may be more effective as compared to one-way communication (such as mass media) to mitigate the impact of disasters.

Typhoon Yolanda (Haiyan) caught the country by surprise. There was no forced evacuation of residents—many deciding to stay in their homes. The first responders in the locality also became victims. There was a communication blackout between the capital and the locality. Due to these and more, over 6300 persons perished in the typhoon while 1031 were declared missing. Damage to property was estimated at USD 2.86 billion. Around 13 million people across the Visayas region were

affected. Statistics showing the devastation clearly indicated that the country was not prepared for the super typhoon. Typhoon Haiyan was classified as Category 5 with peak winds of 230 km/h. Low-lying areas and coastal communities were hardest hit, with some areas completely washed away. Flooding extended for one kilometer inland on the east coast of the Leyte province. It was the storm of the century.

Garnett and Kouzim (2007) point out the media treat disasters as one-off events and not as something to anticipate within technological, political, ecological, and economic systems. For this reason, they have developed a conceptual lens for understanding crisis communication, which includes not only media relations but also interpersonal influence, interorganizational networking, and technology showcase. They assert that emphasizing multiple lenses reduces the risks that result from applying one lens predominantly. Interpersonal influence rates high in agency since actors in this lens tend to be proactively involved in the crisis. The interorganizational networking perspective involves communication among agencies, while the technology showcase prioritizes the application of technologies for communicating before, during, and after the crisis. There is a need to promote stakeholder dialogues and multiple communication platforms to ensure greater understanding about disasters. Otherwise, relying mainly on the mass media may have deadly consequences.

9.5 Incorporating New Media as Part of the Media Mix

Disaster management utilizing new media comes as no surprise. The ABCID (2014) notes that there is 100% mobile phone penetration in the Philippines. Time spent using mobile devices, especially among younger Filipinos, is now greater than time spent accessing traditional media such as television, radio, and print. Also, mobile users claim that 15% of time spent on the device is for information gathering. Given these, plus the fact that the country has one of the highest short message service (SMS) usage rates in the world, it is imperative that new media be made part of the crisis communication media mix.

Republic Act 10639, also known as the Free Mobile Alert Act, was introduced in June 2014. It requires mobile service providers to send out warnings from relevant agencies. With this, disaster management organizations include the use of SMS service in providing early warning notices to the public. Several government agencies communicate to the public through both mass media (using the traditional mix of scheduled bulletins and press releases) and social media. Custodio et al. (2014) document how various disaster management-related government agencies in the country utilized Facebook and Twitter. Paladin et al. (2014) investigate the usefulness of Twitter messages sent by the universities, national media, and local government during typhoons as perceived by students studying in the Intramuros (Manila) area.

There are innovative examples illustrating how new media have become part of the crisis communication media mix. Rappler.com, the country's only online news and information service, has an integrated disaster coverage. The service monitors social media for trends and encourages people to take action relying on the Internet and mobile penetration to create an alternative distribution platform. Erharuyi and Fairbairn (2003) suggest mobile geographic information handling technologies to support disaster management, which would enable a mobile user to access, use, and upload geo-information and processing capability anytime, anywhere, and anyhow. Cool et al. (2015) assert that social media have played an important role in public health message dissemination, particularly as a tool in emergency preparedness and response. Proactive communication provides important health information and advice to the public to adopt protective behaviors that augment disease surveillance post-disaster, reduce public confusion and allows for better resource allocation. According to them, Facebook users in the country comprise 97% of the urban and 69% of the rural dwellers. To reach the public, new media have become indispensable.

9.6 Utilizing a Community-Based Information Flow Parallel to the Traditional Top-to-Bottom Approach

Both government and nongovernment organizations in the country have shifted toward disaster risk reduction (DRR) as an approach to Community-Based Disaster Risk Management (CBDRM). There is recognition that disasters can be prevented or reduced by enhancing the capabilities of communities to cope with hazards and resist its impacts. The Partnership for Disaster Reduction Southeast Asia (2008) acknowledges that it is important to use local knowledge about hazards in the formulation of disaster risk reduction plans and strategies. Vulnerable groups in the communities should be considered as a key resource and frontline actors in the process of planning and implementation.

The Citizens' Disaster Response Center (CRDC), in line with this new thinking, has an orientation program where it prepares both "less vulnerable" and "most vulnerable" sectors in coping and getting over disasters via education. Through its experiences, the center learned that it is better to rely more on the community's own talents, skills, and resources in disaster preparation, mitigation, and rehabilitation. For CDRC, "the key to people's empowerment is developing the ability and confidence of community folk to decide and chart their own development direction, which includes capacity-building programs against disasters." Part of the disaster preparation includes the creation of hazard maps (checked by *barangay* officials) and the improvement of community-level warning systems (Kure et al., 2016). In this manner, local communities can better cope with the crisis situation and transform themselves from being hapless victims to becoming survivors of disasters.

The significance of community-based communication during crisis situation is also underscored in the Asian Development Bank Manager Handbook (2008), written by W. N. Carter. The aim of the public awareness programs is "to promote an informed, alert, and self-reliant community capable of playing its full part in support of and in cooperation with government in all relevant disaster management matters." In undertaking public awareness, the community needs to know what the disaster will do, the best immediate action to take, how to help other community members, what the government has planned, how to participate in disaster communication, and how to improvise shelter and sustenance. Messages to be communicated include community needs, government assistance programs, seasonal preparedness reminders, and post-impact information. Information channels include community gatherings, existing government programs, popular sporting events, church, voluntary organizations, school programs. To be successful in building resilient *barangays* (villages), there is a need for a strong community-based communication. Information flows taking place within a community complements the traditional top-to-bottom approach.

9.7 Conclusion

Given its geophysical location coupled with climate change, the Philippines has had more than its fair share of disasters. As shown in this chapter, the country has learned lessons and has moved from the reactive emergency management approach toward the proactive disaster management strategy. As it develops the present paradigm further, the country's disaster managers need to rethink crisis communication in ways that create messages attuned toward the social construction of disasters; promote dialogue rather than simply disseminating information; incorporate new media as part of the media mix; utilize a community-based information flow parallel to the traditional top-to-bottom approach. And hopefully, by rethinking crisis communication, local communities will be more resilient and better able to cope with disasters at a time of climate change.

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Chapter 10
Media Perspectives on the Particulate Matter (PM 2.5) Crisis in China

Yifan Zhang

10.1 The Emergence of Particulate Matter 2.5 Crisis in China

China was the birthplace of the great philosophies of Lao-tzu and Confucius: Lao-tzu taught about the balance of Yin-Yang in the universe and Confucius taught the principles of respect the nature. After Lao-tzu and Confucius, Chuang-tzu raised the idea of 'obey nature,' while Xuncius insisted in his philosophy the idea of 'making use of the nature while still respecting nature.' Managing nature well is also considered as an obligation of a good emperor. As a civilization heavily influenced by Taoism and Confucianism, the Chinese ruling classes and Chinese people were dedicated in practicing the ecological ideas of these teachings for a long time.

China, as a country in the East, has long-standing trading and cultural connections with the West. The images of China were brought to the West by international traders and world travelers such as Marco Polo. China—a far away destination—left the people in the West with an image of wealth, powerful emperors, and the land of idyllic lifestyles. Bamboo forests and the endless rice paddies became the symbols of man-nature harmony in China. Even in this contemporary era, symbolic images of China can still be found in renowned movies such as *Crouching Tiger Hidden Dragon*.

Recently, especially when the rate of Particulate Matter (PM) 2.5 in Beijing was indexed and posted on the Web pages by the US embassy in Beijing, it attracted the popular attention of the Chinese general public despite the Chinese government's

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criticism that the way in which the US embassy made the measurement was not correct.[1] Started from Beijing, the PM 2.5 index in many other main cities was also measured by the active civil organizations and different individuals. It was found that the cities as far as Chengdu and Xi'an also have a very high level of PM 2.5 index. Lhasa, the capital of the TAR (Tibet Autonomous Region), was also exposed to smoggy weather on December 19, 2013, reported by *Deutsche Welle*. As time goes on, the PM 2.5 has become an issue at the forefront of Chinese society and a hot topic around the world. The *Liberty Times* has reported that the air pollution in mainland China also spread to the Western side of the island of Taiwan on December 11, 2013. On November 6, 2013, the *South China Morning Post* also released the news that Japan and South Korea also raised an alarm about the flow of polluted air from China spreading eastwards to South Korea and Japan after the occurrence of smog along the eastern coast of China in 2013.[2] Furthermore, the Environment Protection Agency of the USA also showed its concern that the air pollution from the mainland China might affect the air quality along the Western coast of the USA due to the cross-Pacific Ocean airflow. No matter the percent of smog in Taiwan, South Korea, and Japan which actually came from mainland China, the internationalization of the air pollution issue in mainland China does represent the severity of the situation.

Looking back to Chinese history, as early as the late nineteenth century, while China was facing the threat from the Western and Japanese imperial powers, many open-minded gentries and Western-oriented intellectuals influenced the growth of light and heavy industries of China in order to develop the competitiveness of China in the world and increase the capabilities of China to defend itself. Many gigantic factories such as Hanyang Iron Works and Kaping Mines were operated to produce the raw material for further usage. Even though these newly developed projects led to a rise in pollution, it was still comparable very small when compared with the pollution levels in some of the Western countries and Japan.

When Dr. Sun Yat-sen's Xinhai Revolution successfully overthrew the Qing Court in 1911, Asia's first Republic was established and Dr. Sun Yat-sen himself drew the blueprint of the general development plans for China. The newly born Republic was still facing many crises from within and from abroad. In 1927, the country was united under the flag of the Kuomintang, and the country experienced a booming period from 1927 to 1937 in a short term of 10 years. In 1937, the capital was moved temporarily from Nanjing to Chongqing under the pressure of Japanese attacks on November 20, 1937. During these 10 years, different types of industries such as textile industry, mechanical industry, and beverage industry progressed greatly, and the growth rate of industries increased by 9% for many years. During this period, many foreign investments also came to China; In particular, Japanese investment was the main source of economic development in the northeastern part of China. The foreign investment was the driving force of the economy, but also caused pollution of the environment since the foreign-funded industrial projects

[1]Zhou (2012).

[2]Ryan and Yoo (2013).

were inherently heavy with pollution. During the turbulent period at this time, the awareness of environmental protection in Chinese society developed much more slowly than in the Western countries. But the National Government promulgated several regulations which related to environment protections, for instance, the Fishery Law (1932), Land Law (1930), Forestry Law (1932), etc.[3]

After the Civil War in China came to a close in 1949, the Communists almost took charge of the whole country after the collapse of the National Government in mainland China. The communist government of China received a big portion of financial and industrial support from the Soviet Union. Many Soviet industrial experts were sent to China to help with the founding of the modern industry of China. Following the Soviet model, China focused on the existence of strong heavy industries, resulting in numerous factories and chimneys being set up around the country. Aggressive ideologies, such as 'Surpassing Great Britain' and 'Catching up with the United States,' were propagated widely at the national level. In 1958, the world famous Great Leap Forward took place in China. Left-wing ideologies were applied around every corner of the country, with every person being encouraged to do steelmaking which was based on family units. Mountains of trees were cut down to keep the fires going for days and nights for steelmaking. At the same time, forests and wetlands were forcefully turned to farming fields, and blind-minded polices during that time stirred up the passions of ordinary people to make tremendous efforts. However, finally not only did this result in economic development in vain but also harmed the already fragile environment. This was followed a few years later with the beginning of the Great Cultural Revolution in 1966, which pushed the deterioration of the environment to a new level, which continues to have a great impact on China's environment even today.[4]

Deng Xiao Ping's returned to power after ups and downs, led to the reform and opening-up polices raising a new agenda for development. Having missed the golden period to position itself in the global development stage during the previous decades, China was now facing the opportunities to overtake the low-level manufacturing from Japan, the USA, and many other advanced countries. Deng's preferential policies attracted many enterprises to set up factories and industrial chains in China. Many of them were actually highly pollution-intensive industries. Based on the GDP-oriented non-democratic political system, many governors, who were concentrating on pursuing political achievements, signed contracts with these factories which might have brought harm to the inhabitants of the places. In addition, the laws and regulations which were proposed to protect the environment and deal with environmental issues were seldom considered seriously by the Chinese government until the Ministry of Environment Protection of the People's Republic of China was formed in 2008, and the Law of Environment Protection was passed in 2014, by the Standing Committee of the 12th National People's Congress of China. The idea of 'treatments after pollution' was propagated since

[3]Shi et al. (2006).

[4]Sun and Guo (2004).

Mao's period as the proper way to balance economic development and environment protection, in the school textbooks 'treatments after pollution' was interpreted as the way experienced by the advanced countries also while developing themselves.

In reality, the energy structure of China has been largely dependent upon coal instead of petroleum and natural gas, coal mining still being common around China. Shanxi Province in the North has long been recognized as the biggest coal production province of China. Many cities that have based their economies on mining as their sole source of income can be found in different regions of China, like iron-based Anshan, Panzhihua, coal-based Linfen, etc. In spite of developing hydro power, solar power, wind power, and nuclear power, very fast in China, coal continues to account for 66% of energy production in 2014.[5] Compared with the other fossil energy, coal brought heat to the people in Northern China in chilling winters and also stimulated the growth of the Chinese economy for many years, meanwhile releasing sulfur dioxide, carbon monoxide, inhalable particles into the surroundings for the past decades, resulting in the problem of concentrated air pollution.

'It doesn't matter whether the cat is black or white, as long as it catches mice', said Deng Xiao Ping himself. He brought order out of chaos while untying the economic development difficulties of China. Many brave people attempted to get their first pot of gold, and many of them succeeded. In general, to some extent, development policies led to the fast growth rate of the economy as well as upgrading the living qualities of most of ordinary people. The head of the World Bank office in China, He Fuman, has mentioned that in the case of poverty alleviation, China did much better in creating jobs than India. According to a report of the World Bank in 2015, China has alleviated more than 0.439 billion people out of poverty from the period 1990 to 2011. In this background, the purchasing power of the Chinese people reached a new level. At the same time, the government's five-year plans sped up the infrastructural development around the country; expressways were integrated into a transportation network, and spare savings allowed people to think about purchasing automobiles. The huge population base brought numerous customers to the domestic and Sino-Foreign joint automobile companies, but at the same time created a big proportion of the pollution of automobile exhaust fumes. The number of automobiles nationally reached 0.14 billion in 2014; Beijing was listed as the city which has the largest number of automobiles in China with the number of 5.37 million cars. The ever-increasing desire for automobile purchase in Chinese society gradually worsened the air quality at many places around China.

After the establishment of the PRC (People's Republic of China) in 1949, environmental protection was ignored for a long time when the economic interests were raised to a new unprecedented level, and this situation continues even today. The everlasting political turmoil from 1956 to 1978 deteriorated the moral standard around the country, cruelly damaged the influences of different religions and

[5]National Bureau of Statistics of the People's Republic of China (2015).

traditional cultures in the civil societies; different religions and traditional cultures lost their control over the behaviors of people since that time. Deng's new policy changed the doomed economy of Mao's period, but also raised materialism in China, leaving different levels of government and many individuals heavily money-oriented. Open-ended policies allowed many inherently pollution-based, foreign funded as well as state-owned and private enterprises to be constructed around China, pursuing opportunities to earn more profits bringing pollution to a beautiful land, not only air pollution but also water, soil, sound pollution, etc. In April, more than 500 students from Changzhou Foreign Language School were found to be affected by strange symptoms such as dermatitis, eczema, bronchitis, and some of the students even got lymph cancer and leukemia. The investigation revealed that the land was operated by a factory before it was handed over to the school. This case shows the severity in terms of the depth and width of the pollution in China.

10.2 Rising Awareness of Chinese People on Environmental Protection

In 1911, the revolution led by Dr. Sun Yat-sen overthrew the Qing Empire and established the first Republic of Asia which intended to follow the three stages of military rule, political tutelage, and constitutional government. During the Republican period, even though the political situation was in chaos at that time and the country was facing domestic strife and foreign aggression, the opinions and demonstrations from the academia and the public were expressed to certain levels. When the regime changed in mainland China, the Communist collective ideologies replaced the growing democracy in the society.

For many years, the government made decisions instead of collecting enough public opinion. Five-year plans were operated since 1950 leading to a gradually industrialized China meanwhile ignoring the development of the civil society. In addition, the political unrest from the 1950s to the 1970s was largely controlled by top leaders of the Communist party and suppressed the basic feelings of the most ordinary people. After the opening up and reform in 1978, the pace of the urbanization process around China was fastened, and booming cities extended their sizes in all directions, taking the spaces that once belonged to the rural areas. Massive housing demolition and relocation took place around Chinese cities; many people who were not willing to relocate themselves were always pushed out from their original locations by the governmental forces, as the housing demolition and relocation always brought plenty of taxes and superficial political achievements. The freedom of speech and expression were never taken seriously by the authorities in China.

The author himself also experienced the environmental crisis and the awakening of peoples' awareness against severe environmental problems. In March 1998,

a yellow phosphorus factory which owned by Sichuan Chuantou Electrometallurgy (CTEC) was built not far from the newly established Yanbian new town with the permission of Panzhihua prefectural government of Sichuan Province, China. This factory continuously released poisonous emissions, harming the peoples' health for days and nights and also ruthlessly breaking peoples' passions to develop their new homes. With the increasing level of worsening air quality, many retired elders and wealthier people left Yanbian and purchased new houses in Panzhihua City and in the provincial capital—Chengdu. Since the construction of the factory at the bank of Yalong River, many activists got involved in collecting evidences such as images and data, many people found out that the phosphorous factory not only released pollution during the day, but also multiplied the qualities of released emissions at late night. However, short-term profits and so-called political achievement-oriented prefectural authorities turned a blind eye to these serious issues despite the health disaster it might bring to the people of Yanbian.

On July 2, 2002, the sudden collapse of the sealed phosphorus containers led tons of phosphorus to fall into the nearby Yalong River and caused tremendous air pollution, fully covering the Yanbian town and many parts of the downtown of Panzhihua City. People rushed out from Yanbian town urgently with the shortage of public transportation. This left Yanbian a totally empty town. After this severe incident, many group events took place near the venue of the factory. The public showed their anger against the factory by throwing stones into the factory. This incident led the factory to come up with the idea to pay 30 yuan (less than 5 dollars) to ease the anger of the Yanbian residents. This is a small amount of money to ease the tensions existing between the triangle of the people, the phosphorus factory, and the local government.

However, the people in Yanbian never stopped fighting against the twisted interest networks of the phosphorus factory and the government officials. On July 11, 2002, the CTEC's phosphorus factory in Panzhihua was labeled as one of the 55 most polluted not fully documented factories in China by the State Environmental Protection Administration of the PRC at the time.[6] On July 16, the thick smog from the river shore again covered Yanbian town, causing hundreds of people to lay siege to the county governmental building. In May 2003, 16 deputies to the Yanbian County's NPC (National People's Congress) visited the venue of the factory; the manager Zhang Mingtai argued that the factory was owned by the province, and it is natural to sacrifice the interest of Yanbian. In 2004, Zhang Mingtai was sentenced to life imprisonment for corruption.

Luo Xingquan, an environment protection activist, worked for this issue for more than 8 years since 1999. By the end of 2005, he brought a letter which was signed jointly by more than 4000 people from Yanbian to the Panzhihua intermediate court, but the court has not given any feedback ever since. Facing the GDP-oriented policies around the country, the Panzhihua government could not avoid increasing the GDP by sacrificing the fine environment. However, despite the

[6]Xu (2008).

progress of the economy, the country had to deal with the deteriorating national natural environments widely. In 2004, the idea of Green GDP was raised by the Chinese Central Government. A representative from the National Department of the Environment Protection was sent to Panzhihua to investigate the level of pollution. Due to the hard work of many people for a long period, in October 2007, the yellow phosphorus factory was finally closed down and relocated from Yanbian town, releasing the tensions of the people in Yanbian. The American-based *Grist* magazine reported that more than 5000 environmental demonstrations broke out in China in 2012.[7] Today Yanbian has turned back into a charming little town, still facing some environmental issues, but it has found alternative ways to develop through fruit plantations and tourism. The case of Yanbian on the one hand showed the expansion of severe pollution problems from the main cities in the East to the marginalized towns in the West and on the other hand also depicted that many people in China are fed up with the pollution, concerned about the natural environment and health, that has became trendy all around China.

In recent years, when the idea of Green GDP partially failed in Chinese towns, because it led to the slowing down of GDP growth, there was a rebound of different types of pollution, especially the more pronounced air pollution. The fast development of the Chinese economy amazed people all around the world; at the same time, the mass pollution was also gradually dug out by the Chinese people and international communities. In 2011, after the US government released the PM 2.5 index on the Web site as the starting point, the index of PM 2.5 became popular throughout the country, ignoring the dislike of the Chinese government. On February 28, 2015, CCTV's famous journalist Ms. Chai Jing bravely made and released, with the help of many media personnel domestically and internationally, a documentary film called 'Under the Dome' which attracted more than 200 million people who watched it within and outside China. The journalists at first gained the appreciation of many high-level officials and the propaganda institutions of the country. However, when the documentary gained a huge amount of popularity, the authorities of the communist party's ministry of propaganda finally disagreed with the big influence the documentary had and banned the documentary national wide. As a result at the moment this documentary can be only viewed on *Youtube* overseas. The air pollution continued, and by the end of 2013, the world was shocked at the PM 2.5 disaster that spread to almost every province in the eastern coastal regions for two weeks. Most of the schools in the region closed and advised the students to go home for a few days to protect themselves from the health effects of poor air qualities. Masks and indoor air cleaners sold like hot potatoes in the markets; the purchasing rate of the masks for the first time surpassed that of condoms. Interestingly, due to strict restrictions on cars and polluting factories in Beijing, Tianjin, and Hebei, the air quality in Beijing during the 2014 APEC

[7]Upton (2013).

summit reached the best level ever for many years. People began to use 'APEC blue' as a term to describe a beautiful thing which has a short existence.

The reactions of the national level governmental and communist party authorities blocked this meaningful documentary, but it did not stop peoples' passion to seek for more information on the realities about the worsening environment. A group of university students from Beijing continued documenting the air qualities of Beijing for the whole year in 2013, and some university students who majored in Meteorology measured the change of air qualities in Chengdu. Though the PM 2.5 Crisis in China was talked about on many international occasions and the images of China are often linked with the air pollution in recent years, many beautiful locations still exist. Even in India, a parallel fast-developing country, the image of China's pollution is well known despite India itself also facing severe environmental problems. When the author was in a yoga training course at Nasik, India, the teacher once discussed about the environmental pollution in China among the students from all over the world. This environmental issue is no longer a merely domestic issue of a single country since the whole world is simply part of the same planet. From November 30, 2015 to December 12, 2015, the United Nations Climate Change Conference (COP21) was held in Paris, in search of a universal goal to stop the quickening global climate change as well as to reduce the climate affecting emissions around the world. Not only China which is at the forefront of the environmental crisis but also the other countries especially the Western industrialized countries who intend to relocate the polluting industries in their own countries to the developing countries need to rethink about the environment while criticizing the environmental embarrassment in China. It is noted by the WHO (World Health Organization) that 80% of the cities on the planet are facing air pollution-related problems. Mr Flavia Bustreo, who is in charge of family and community health affairs, demonstrated that many marginalized social groups such as the infants and the elders are exposed to the polluted air, especially in some fast-developing countries such as India and China, making these groups prone to risks of respiration system disorders and even different types of cancers. The world needs to think more about the sustainability of the generations in future, so does China as the country still cannot find a right solution to the overdue resource consumption and pollution resolution.

No matter whatever the kind of political system in China and the type of policies the Chinese government applies to the civil society, China is an indispensable member of the international community. While the economy of China became essential worldwide, the Chinese people were also exposed to the age of information despite the blocking of many important international information channels like *Facebook*, *Youtube,* and *Google*. Many Chinese people were able to travel overseas and gain exposure to international communication channels. Many people including some analysts in China and overseas argue that China has performed very well for the past few decades in terms of economic development when compared with India and many other developing countries. Rightly China has made more efforts on infrastructural progress and the authoritarian central government of China always took strong action to push the fostering of big projects, but the civil rights of

Chinese should not be forgotten. Economic progress should not ignore people's voices, and the authorities should listen to more from the people, especially in the case of the PM 2.5 Crisis and environmental restoration. Dr. Sun Yat-sen was eager to establish a real people-oriented regime more than 100 years ago, but 100 years have passed with China still struggling on the way to find its own way of a people-oriented government, not only with the titles 'People's Government,' 'People's Hospital,' 'People's Court,' and so on. The awareness of the Chinese people is gradually increasing, while listening to the propaganda of the government many of the civilians and grassroot organizations instead search for the information of many issues by themselves and take risks to share them with the others who have the similar sense of responsibilities on Chinese social networks of *WeChat* and *Weibo*. Since the public media are strictly controlled by the different levels of authorities, the information and news presentation normally reflect only one voice that of the China's National People's Congress in Beijing's the Great Hall of the People. Reporters from media institutions who attempt to cover environmental issues against the interest of the stakeholders may face the wrath of government authorities. In September 2014 and May 2013, Chen Yongzhou from *Xin Kuai Bao* (The New Express) newspaper office exposed the environmental violation by a Hunan Province-based huge company called ZOOMLION (Zoomlion Heavy Industry Science and Technology Development Co., Ltd), causing the policy authorities from Hunan Province to arrest Chen Yongzhou in Guangdong Province. The cross-provincial reactions of the Hunan police authorities attracted attention both domestically and internationally.[8]

In 2010, China was regarded as the second largest economy in the world right after the USA; the whole country was under the atmosphere of excitement. The *Wall Street Journal* investigated and found out in 2007 that the cost of the total environmental sacrifice in China accounts more than 3% of the total GDP, while a survey from the World Bank showed that the environmental loss of China is more than 5.7% of the whole GDP. In addition, the Greenpeace argued that data from a big country like China is often been calculated at a lower level, the real loss in terms of environment when compared with the growth of the economic development.[9] In this case, the real environmental friendly economic growth of China is rather much lower than what is projected by the Chinese authorities. In 2016, facing the world financial low ebbs, the economic growth of China also slowed down, under the realities of the worsening environment, the pressures from industrial transformation, and the possibilities of falling into the middle-income trap. Many people started to rethink about the path of the country. How China will pass this test is unclear yet. However, the future transformation of China fully depends on the rise of the Chinese peoples' awareness on environmental issues and economic development. Let us wait and witness.

[8]Ren (2013).

[9]Oster (2007).

10.3 The Possible Resolution of China's PM 2.5 Crisis

Creative Chinese people coined new terms such as 'APEC blue' when the air quality in Beijing was only clean and clear for a few days during the APEC summit in Beijing in November 2014. Likewise, after Chen Yongzhou was arrested, *Xin Kuai Bao* (The New Express) said in its newspaper that 'We are a small newspaper, but we have the backbone no matter how poor we are'; soon this statement spread all over China. However, these terms were always interpreted as self-mockery when under the realities in China the ordinary Chinese express helpless feelings.

In recent years, many incidents took place at different places with different time dimensions. The 2008 Chinese milk scandal and long-lasting gutter oil issue brought the worrisome food safety realities in China, the devastated schools. The death of thousands of school students in the 2008 Sichuan earthquake struck area proved the low-quality construction of school buildings. The reported death of a young university student called Wei Zexi on April 12, 2016, and the death of a scholar from People's University of China named Leiyang on May 7, 2016, again challenged Chinese peoples' already sensitive nerves on personal safety.

Many enthusiasts who were concerned about the truth behind many issues were murdered. One such journalist called Li Xiang was murdered after he reported the truth of gutter oil, or like Tan Zuoren who was sentenced for five years with the excuse of inciting subversion of state power due to his concern about the tofu dreg project in various Sichuan schools. After many such attacks by the authorities, Chinese people are afraid of expressing their real opinion, fearing the threats that can befall them. The courage and uprightness of the ethnic Chinese in mainland were planed away by the authorities and stakeholders for the past decades.

'The water can carry a ship but also can turn it over', mentioned by Emperor Tang Taizong, was often used to warn those people who have political power, the power over the will of people. Even though this saying was mentioned by the emperor around 1500 years ago, this idea still prevails today. People are always the pushing power of the world's trend; the *Social Contract* mentioned by Jean-Jacques Rousseau heavily influenced the formation of the world's civil rights development; his theory was often mentioned in the early era of the twentieth century in China; he was considered by many Chinese scholars as one of the most influential Western thinkers.[10] The future of China especially in terms of the PM 2.5 Crisis needs to be understood in this context. The Chinese people must fight for their basic rights of living, a qualified living, and furthermore, different levels of governmental officials and business investors must think seriously about the well-being of the Chinese people while the GNH (gross national happiness) is being more frequently mentioned all the over the world instead of GDP.

It is commonly known that the more developed countries often transfer their backward less productive processes to those countries which are less developed. The Western and far eastern developed economies already did this in China and

[10]Sheng and Zong (2005).

implanted the first seed of pollution. When the cost of labor in China kept increasing, many foreign investors started to relocate their factories from China to countries like Vietnam and Bangladesh. However, in terms of overseas investment, most of the foreign investors focus only on material interest but ignore the local people of the investment destination. When the author was visiting a Bangladeshi friend in Munshiganji, Dhaka Division, Bangladesh, he has shared the information with me that 20 years ago his village was full of natural beauty and friendly happiness, and now what we can find around is only endless pollution, causing the death of innocent laborers and marginalized groups.

Over the years, China undoubtedly has attained the scientific and technological capabilities to deal with pollution. If the authorities are determined to tackle the environment crisis, situations such as PM 2.5 index will be improved at a much faster pace. The restricted policies on car purchasing, as well as the transformation from coal burning to clean energy usage will provide China a wider platform to sort out the PM 2.5 Crisis. China has become the largest clean energy producer in the world already. How to promote and spread the influence of effective environmental protection education and regulation, how to balance the GDP growth and check the deterioration of nature, and how to upgrade the energy consumption habit of the country need more wisdom and determination from the Chinese people as well as Chinese authorities and academia.

10.4 Conclusion

Napoleon once said: 'China is a sleeping lion, and when China wakes up, the world will shake.' Xi Jinping, the current president and the communist leader of China, also has mentioned on March 29, 2014 that 'today, the lion has woken up. But it is peaceful, pleasant and civilized.'[11]

As we can see, China has indeed awakened from its humiliating and weak past and has achieved tremendous economic and political progress, playing an essential role in the international community. The G2 (Group of Two) was frequently mentioned since 2005, when the Obama-Xi Summit was held in 2013 in the USA, attracting both expectations and concerns. If China is really intending to awaken in a peaceful, pleasant, and civilized way as Xi Jinping depicted, then international performance counts, and so do domestic issues such as the PM 2.5 Crisis. It has become one of the main environmental issues, which has made people feel helpless. If the complicated domestic issues could be solved smoothly and strategically, no doubt China will earn credit not only internationally but also from its own people.

The PM 2.5 Crisis has demonstrated the situation of many developing countries' hardship in sustaining both the environment and economic development.

[11]Sridharan (2014).

It is connected to many reasons domestically and internationally which require better international understanding and cooperation.

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Author Biography

Yifan Zhang has a master's degree in Southeast Asian Studies at Chulalongkorn University, Thailand. He is a serious cultural learner, a traveler, a yoga and meditation teacher, and a naturopathy therapist. Yifan was born in Panzhihua, southernmost part of Sichuan Province, China, which borders Yunnan Province in China and Aksu, Xinjiang, China. The mountains and rivers in Sichuan, and the dessert in Xinjiang, implanted the image of a diverse world in his brain, so do the southern Sichuan's Lolo Shamanic culture and Xinjiang's Uighur Islamic culture. He has travelled around the region, trekked the Himalayas and cycled from Chengdu to Kathmandu, meditated at Goenka's Vipassana Center, learnt Thai and Sinhalese languages, learnt the art of traditional massage and Thai boxing in Thailand, and practiced Yoga in India. When he was in his bachelor's degree, he was moved by Mother Teresa and chose Social Work as his major; after the Ya'an earthquake in 2013, he was determined to help the rural victims. He is greatly interested in religions, social issues, contemporary social change, climate change, and the role of media in China.

Chapter 11
Shifts and Challenges of Communication for Sustainable Development in Indonesia

Gilang Desti Parahita

11.1 Introduction

Generally, Indonesia's development continues to lag behind other countries in Southeast Asia (UNDP, 2013).[1] Especially in the context of sustainable development, Indonesia does not have satisfactory progress of environmental protection coined in the Millennium Development Goals. Food insecurity is one of the symptoms of Indonesia's unsustainable development.[2] From the authoritarian New Order until democratic *Reformasi* today, the rate of food import of Indonesia is still high, not to mention how the unsustainable agricultural development for the early 20 years of the New Order had caused deforestation, excessive fertilizer usage, deteriorated soils, and even led to landslides (Wood, 2005; Konnick, 1979) and environmental damages that have not been resolved in *Reformasi* (McMahon, 2000).

In Indonesia, the idea of sustainable development emerged as "eco-development" during the National Seminar on Environmental Management and National Development in Bandung, 15–18 May 1972, which was organized by Padjajaran University and the Ministry of National Development Planning (Hendarti, 2012). Regulations Number 4 Year 1982 on Principle of Natural Development

[1]Compared to the HDIs of some other Asian, South America, and African countries, the HDI of Indonesia is only higher than of Vietnam (UNDP, 2013). In addition, World Bank (2014) reports that from 1999 to 2012, poverty was cut by half: from 24 to 12%. However, the economic growth is threatened to not being inclusive enough. In 2012, about 65 million people hovered between the national poverty line and 50% above the latter (World Bank, 2014). It means that the poorest families benefit only a tiny increase in real income, compared to those more opulent.

[2]Indonesia achieved self-sufficiency in food in 1984, but this only lasted a year. In 1985, Indonesia was the biggest importer of rice.

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Management has arranged the management of natural environment which includes responsibilities and sanctions of any stakeholders related to natural environment. Though formally there were some policies and regulations regarding environmental sustainability, the New Order considered environmental issues secondary or tertiary to the more fundamental economic challenges.[3] Since the beginning of the Suharto administration in 1966, renewable and non-renewable resources have persistently become the pivot sector in the development of Indonesia (Budianta, 2010; World Bank, 2014; Wood, 2005). High reliance on natural resources degraded the environment quality and harmed the sustainability of development in the end (Rifai-Hasan, 2009; Mulyana & Djajadiningrat, 2013; Yaylaci, 2005; Wood, 2005).[4] The development focus in economic productivity by exploiting natural resources was not accompanied by political will from the government to support environmental sustainability until in the 1980s when global warming was recognized by other nations worldwide (Wood, 2005). The Suharto administration treated technological change as essential stimulant to and symbol of development; thus, agricultural development was oriented to enable farmers employing new technology and receiving subsidized fertilizers (Sadono, 2008). The paternalistic culture of Suharto administration also managed its population as the "client" of the state who must be "helped" and obedient to the state.[5]

Since *Reformasi*, Indonesia's development has normatively adopted the principles of sustainable development. It is seen, at least, through a development paradigm, regulations, and laws that protect the natural environment from over-exploitation and negative effects of production and consumption activities (Budiarto, 2011; Hendarti, 2012; PASPI, 2014). The term "sustainable development" appeared in decision Number IV/MPR/1999 on the General Outline of State Policies (GBHN—Garis Besar Haluan Negara) for the period 1999–2004. This document stated that sustainable development has been set as a state policy. State Law No. 23/1997 on Environmental Protection and Management revised in Law No. 32/2009 defines that "sustainable development is a conscious and planned effort that blends environmental, social and economic aspects into development strategies to ensure the environmental integrity and safety, welfare, and quality of life of the present and future generation" [Article 1 (3) of the Law]. The government through

[3]It was only coincidence that family planning program—sucessful social program of the New Order—took some pressure off the natural resources (Wood, 2005).

[4]Mining and quarrying industries, for example, dominate the non-oil natural resources state revenue. They also employ 18 times more labor productivity compared to agriculture in 2009–2012 (World Bank, 2014).

[5]This cultural value was called "kinship" (*kekeluargaan*). Suharto called himself as the Father of Government (*Bapak Pembangunan*). Thus, the people were his children. The paternalism gave the state benefit in terms of making the people obedient to the state. However, this value was ineffective when related to loans for the masses. The paying off of agricultural loans was jammed because "the children" did not feel obliged to pay off their father. Indonesian culture is usually weak in keeping kinship, primordiality, emotional relations apart from professional causes.

the Ministry of Natural Environment has initiated "National Agreement and Action Plan on Sustainable Development" since January 2004.

Even though sustainable development has been clearly defined, the quality of sustainable development of *Reformasi* has not much changed. Economic crisis, decentralization, bad governance, and weak law enforcement have remained the obstacles for improving sustainable development (World Bank, 2014; CIFOR, 2012; GEF; Li, 1999; Absori, 2006). Similar to the economic crisis in 1967, the economic crisis of 1997—which then led to the toppling of Suharto in 1998 and birth of *Reformasi*—triggered deforestation through many local policies. Just as in the New Order, *Reformasi* governments turned to forests and other natural resources to generate capital for economic recovery (CIFOR, 2012: 40–42). At the same time, political chaos resulted in abandoning important aspects of the agreement related to sustainability. The management of decentralization also lacks effective coordination mechanism across government, vertically and horizontally.[6] Nonalignment among national and local regulations regarding environment sustainability hinders the protection of the environment (PASI, 2014; CIFOR, 2012). Law and regulation enforcing sustainability of development are further abandoned (CIFOR, 2012). Although laws regulating natural exploitation are in place, the government cannot fully enforce them.

Sustainability of development—a concept that emerged since the Brundtland Commission of UN in 1987 and Earth Summit in Rio de Janeiro in 1992—considers that development has to meet the needs of the present and preserve the rights and abilities of future generations to meet their own needs (Elliot, 2006; Redclift, 2005; Giddings, Mellor, & O'Brien, 2005). This concept is built by an intersection between environment protection, social justice, and the economy as separate but also connected entities. Environment is an integral part of development because the economy and society can only operate by and within the environment. The economy itself is highly dependent both on the society and the environment; therefore, development cannot neglect the well-being of the society and environment (Giddings, Hopwood, & O'Brien, 2002).

Relating to the concept of sustainable development, communication plays an important role in the social process of development. Communication fosters transparency which is prerequisite for equity and justice in sustainable development. Servaes (2009) highlighted that communication improves governance in developing countries as it can promote a free and balanced flow of information to an engaged and active civil society (Servaes, 2009). Mefalopulous (2005: 253) underlined that communication for sustainable development is an integrated and holistic approach "to facilitate a social process meant to compare, contrast, and construct different perspectives and perceptions, before even attempting to define the objectives of a project."

[6]"The weak coordination leads to poor delivery of services by government institutions, inconsistent policy settings accross sectors, and a lack of responsiveness of the administration to the priorities of the government and citizens" (World Bank, 2014: 76).

Basically, discussion on communication for sustainable development is about what kind of communication approach is needed to achieve sustainable development. Communication for sustainable development is oriented to ensure that the stakeholders of development build trust with each other, create mutual understanding, and preserve environmental sustainability. Therefore, what kind of communication will be suitable for sustainable development? According to Mefalopulous (2005), there are at least three categories of communication approaches for development, and meanwhile Servaes (2009) divides two kinds of communication approaches for development. All of them are presented in Table 11.1. Mefalopulous (2005) suggested that communication for sustainable development has to foster environmental preservation while also set goals in development through dialogues among stakeholders. Communication for sustainable development has to attract civil participation and enable empowerment. To refer to the same idea, Servaes and Malikhao (2008) coined the term "organic communication".

Communication for sustainable development has moved from "communication" and "messages" to "constructing realities" and "intersubjective meanings." Communication for sustainable development is about understanding, contrasting, and sharing the realities of different stakeholders, before even thinking about communication messages (Mefalopulous, 2005: 253). Unlike communication for development which is operated as a transmission of message, communication for sustainable development underlines that the social process is the most important thing in creating developmental objectives and planning. It is where the people can participate and be empowered by the process itself. The objectives and planning of development depend on the dialogue among the stakeholders in the social process. It is not something injected from the government into the communities. Communication is then the pivotal component in ensuring meaningful participation

Table 11.1 Communication approaches for development, summarized from Mefalopulous and Servaes

No.	Categories	Functions	Goals
1	Consultative	Exchange information and build consensus around specific issues	To inform and/or consult relevant stakeholders about key issues
2	Persuasive/ Mechanistic	Support the achievement of projects objectives	To help to achieve predetermined objectives; to persuade people to change their behavior
3	Constructive/ Organic	Assist in identifying and defining projects' objectives Facilitate dialogue and assess situation in participatory manner	To build trust, share knowledge, and experiences; to identify and investigating problems, needs and opportunities; to define priorities and solutions

Source Servaes (2009), Mefalopulous (2005)

and creating knowledge and perceptions exchange needed to successfully define problems and plan solutions in development.

This chapter seeks to map the shifts of communication approaches in sustainability of development in two political eras of Indonesia using the concept of mechanistic and organic approaches coined by Mefalopulous (2005) and Servaes (2009). This chapter fills the gap in how far "development support communication" being practiced following the 1997–98 Asian financial crisis that toppled Suharto is still unclear (Wong, 2004: 26). International publications concerning developmental communication of *Reformasi* Indonesia that is noteworthy are by Pintak and Setiyono (2011) reporting the values of developmental journalism among the journalists of *Reformasi*.[7] This chapter also identifies the obstacles of communication for sustainable development in *Reformasi.*

Communication approaches for sustainable development in the New Order and *Reformasi* are characteristically different. Employing the categorization of communication approaches by Servaes and Malikhao (2008), communication for sustainable development in the New Order was mostly mechanistic, while in *Reformasi* it tends to be more "organic." The New Order regime mostly applied extension service in the agricultural sector (*penyuluhan pertanian*). "Participation" in the New Order's development was interpreted in governmental terms. The New Order frequently used the term "mobilization" or "socialization" to claim citizen participation in development. In fact, "socialization" was more like a dissemination of information rather than participation (Situmeang, 2014). Meanwhile, communication for sustainable development in *Reformasi* has adopted participatory aspect in the communication approaches, employed information and communication technology (ICT), and revived traditional communication to enhance the reach of the message. The integral relation between communication and environment appears in the existence of the Division of Environment Communication and Community Empowerment in the Ministry of Natural Environment. To some extent, the communication approach for sustainable development of *Reformasi* has been improving than in the previous era but there are challenges and obstacles that still need to be overcome.

11.2 Failing Mechanistic Approach: The New Order

How the state defines development affects how the state applies communication for development. As mentioned earlier, the New Order in Indonesia did not pay sufficient attention to sustainability of development. Development in the New Order was oriented to change the behavior of the people in order to enable them to comply with predetermined development goals. During this authoritarian era, the

[7]The echo can be seen in the top priorities of Indonesian journalists, in which "environment" was at number five among eleven top priorities (Pintak & Setiyono, 2011: 195).

sustainability of development was hardly existing. Therefore, "developmentalism" or "modernization" in the New Order had positioned communication as only a complementary part of development. Mechanistic approach of communication appeared to be the main method in the New Order's development. Although to some extent the approach could reach the short-term target, it could not retain its success in the long term.

As other developing countries, Indonesia saw the "welfare state" of the North Atlantic nations as the ultimate goal of development. The "developmentalism" of New Order was achieving economic growth and productivity. It was reached by relying on renewable and non-renewable natural resources, putting agricultural commercialization as the cornerstone, conducting technological transfer to, and stimulating behavioral change of the people, and the developmental plan was predetermined by governmental agencies (Braun & Kennedy, 1994; Suprapto, 1990; Hadiyanto, 2007; Wardhani, 2002; Ogan, 1980). The developmental paradigm was mirrored through the Trilogy of Development which contained "continuing economic growth, achieving equal distribution of development benefits, and promoting political stabilization." As "modernization" was the dominating feature of the paradigm of development, sustainability of development was unlikely to appear in the early years of the New Order.

This economic-oriented development of the New Order had placed communication as merely an equipment to diffuse new values and technology. In the context of agricultural development, this mechanistic communication approach tried to achieve technological changes in agriculture, increase the productivity of agriculture, and change farmer's behaviors (Tanjung, 2009; Taryoto; 2014). The New Order largely applied "development support communication" in agriculture sector (Hadiyanto, 2007). The paradigm was marked by the implementation of extension model, mass mobilization, and mass media education. Communication was seen as a complementary element in Indonesia's agricultural development program instead of an integral part of the program.

Diffusion-Innovation model

The agricultural sector was envisioned to be more commercialized. Extension service named Bimas (Mass Guidance/*Bimbingan Massal*)—and its similar predecessors—was actually a diffusion-innovation model carrying out technological innovation in agricultural sector throughout *Repelita I-Repelita V* (Five Year Development Plan 1969–1994) besides other promotional means (Rieffel, 1969; Sadono, 2008). Bimas delivered three programs: diffusing "ideology" of modern rice farming, giving credit to purchase a "package" of modern inputs, and conducting intensive guidance to farmers (Rieffel, 1969). Better farming, better business, and better community were the philosophy of extension during the New Order (Taryoto, 2014).

This "green revolutionist" extension service successfully allowed the farmers to adopt modern agricultural technology and made Indonesia to be self-sufficient in rice in 1984 (Tanjung, 2009; Hafsah & Sudaryanto, 2004; Sjah, Russel, & Cameron, 2003). However, the self-sufficiency in rice lasted only until 1993 (Hafsah & Sudaryanto, 2004). Though the method was able to make the beneficiaries familiar with the new technology, the beneficiaries were only employing new technology whenever they got incentives and loans; it was frequently reported that farmers did not pay off their loans. During the 1970s, the repayment of credit only reached 80% (Sjah et al., 2003).

Agricultural extension design and practice during the New Order were usually based on the assumption that technological innovation in agriculture needs to be extended by experts to "users" (Röling & de Fliert, 1994; Hadiyanto, 2007). This assumption shaped communication development in agriculture during *Repelita I-IV* as a tool to "educate famers and their family to conduct better farming, better business, better living, and better community" (Taryoto, 2014).[8]

This assumption became the pillar of one-way communication of extension service: from central government to "beneficiaries." Even the message of face-to-face communication was already planned, standardized, and created by the government centrally. It did not consider local knowledge and creativity, self-confidence of farmers, and social energy as important sources of change (Röling & de Fliert, 1994). It negated information from and about farmers as a condition for anticipating utilization. Farmers and breeders were seen as the object of development, not the subject of development (Hadiyanto, 2007). In other words, agricultural communication of the New Order had introduced the beneficiaries to technological innovations, but better farming, better business, and better community were not formed because the extension service did not work with two-way communication.

Mass media education model

Agricultural extension was also accompanied by agricultural broadcasting on government-controlled state broadcasting institutions (TVRI & RRI) (Tobing, 1991). Rural broadcasting (*siaran pedesaan*) was popular during the New Order's Indonesia. They disseminated controlled information on agricultural development to the masses. The government produced a book *Pedoman Siaran Pedesaan* (Principles of Rural Broadcasting) (http://pusluh.kkp.go.id/arsip/c/2520/?category_id=1). Televisi Republik Indonesia (TVRI) broadcast *Kelompencapir* (groups of agricultural listeners, readers, and watchers) quiz program, while Radio Republik Indonesia (RRI) broadcast its *Siaran Pedesaan* program. TVRI had more development news than non-development news (Tobing, 1991).

[8]The agricultural sector became the pivot of Indonesia's development. Considering the importance of increasing agricultural production, New Order government worked hard to make farmers employing new agricultural technology on their lands. New Order government at that time was culturally familiar with agricultural extension which had been practiced since Dutch colonialization through Extension Service/*Dinas Pertanian* (*Landbouw Voorlichting Dients*) (Sadono, 2008).

The "educational function" of media to support development was also applied to private media. Developmental communication of Indonesia's New Order positioned the press as the government's partner in nation building (Romano, 2009; Steele, 2005). Indonesia's media possess "freedom" to support development rather than "freedom from" political or other external influences. "Press freedom" in the New Order means freedom to help the state in carrying out programs for social and economic development (Steele, 2005: 94). The information of Ministry of New Order carried out the developmental communication and control "press freedom." Journalists became the lapdog of the regime (Pintak & Setiyono, 2011).

Participatory mode

Though the extension model dominated the communication method for development, it is not to say that the New Order government did not realize the pivotal role of people's participation in development. The regime had realized it in the late 1990s especially when self-sufficiency in rice was failing. Still, how the people should participate in development was centrally defined and the evaluation was based on quantity, neither the quality of the programs (Hadiyanto, 2007) nor how the beneficiaries perceived the change. One of the agricultural programs which revealed the human resources aspect and employed "participatory" communication was Farmer Field School (FFS/*Sekolah Lapangan*).

FFS was applied in the National Integrated Program of Pest Control (NIPPC/*Program Nasional Pengendalian Hama Terpadu*) which was started in 1990 (Dilts, in Sadono, 2008). FFS was basically an agricultural training for farmers and fishermen conducted in their area of practices. This "participatory extension" connects beneficiaries and facilitators as partners. Farmers and fishermen learned agricultural technology through direct experience and shared their experiences with their peers and facilitators. According to Sadono's research report in 1999 (Sadono, 2008), FFS improved the implementation of agricultural business among the beneficiaries, increased the involvement of farmers in discussions and field practices, stimulated farmers to initiate other technologies in controlling pests, and empowered female farmers. Though it seems more successful in involving the beneficiaries, all forms of FFS appeared very late in the New Order. Thus, it was unclear how the government collected and managed the messages, responses, and opinions that emerged in the forums and from all the stakeholders.

The mechanistic approach of communication for sustainable development during the New Order had failed to address the real expectations of the communities toward sustainable development. At its foremost, this might have been caused by the fact that the fundamental ideas of sustainable development itself had not been well adopted in the development programs and policies. As sustainability had not become the concern of the regime, organic approach of communications was hardly endorsed. Even for its type of employed development, mechanistic communication could not help to change people's behaviors not to mention sustain them in the long term.

11.3 "Organic Approach" and Its Challenges: The *Reformasi*

Popular participation has been part of democratisation since *Reformasi* (reformation). Since 1998, Indonesia has transitioned to democracy after the three decades of authoritarian rule under Suharto. Echoed through the *Reformasi* is decentralization. The decentralization framework which began in 1999 is actually a transformation of governmental structure from centralized to democratic regime in order to transfer power, resources, and responsibilities from the central to the sub-national levels of government, creating a horizontal relationship among a multitude of actors (Widodo, 2012).

The expected outcome of decentralization is to create participatory government for citizens and improved delivery of the public services (Widodo, 2012). Since the *Reformasi,* community-driven development programs have been launched such as Kecamatan Development Project (KDP) (now National Program of Community Empowerment/PNPM Rural) and Urban Poverty Program (now PNPM Urban). Additionally, environmental awareness development programs have been held, for example, Prima Tani, PUAP (Rural Agrobusiness Development Program), SIMANTRI (integrated farming system) in Bali Province, PROPER (self assessment on environment of business institution), Blue Sky Program (air quality control), RPIJM Minapolitan Area (investment planning in marine city development), Family Planning program.

Following the carriage of participation spirit of transitional democracy, the *Reformasi* governments have realized the importance of organic communication as part of sustainable development. It is seen at least in the regulations, procedures of development, structures of government bodies, and some policies related to communication for sustainable development programs. Despite the governance providing space for the growth of organic communication through many avenues of implementation, the policy itself does not clearly assign related bodies with main tasks, functions, and guidance in fully implementing organic communication for sustainable development. Thus, there is no mechanism for evaluating the perceptions of beneficiaries of the programs. Channels of evaluation coming from the beneficiaries are limited. How the community accesses government's reactions to community's feedback is barely understood. The mass media are ill-equipped on how to professionally report sustainability of development in many sectors.

At the level of regulations, Indonesia has taken some ideas of organic communication which respects the local communication system and supports participation of the people in development. The Law No. 32/2009 about Natural Environmental Protection and Management mentions that private groups must conduct "risk communication" involving stakeholders at the site of business in order to complete environmental risk analysis.[9] The stakeholders of risk

[9]"Risk communication" is defined by the law as "interactive process of information and opinion exchange among individuals, groups, and institutions related to the environmental risk."

communication also include "adat law communities" surrounding the business site who might be affected by the private activities. Law No 16/2006 about Extension System of Agriculture, Fishery, and Forestry adopts the idea that extension services related to development within those three sectors must be based on some fundamentals as contained in sustainability development such as engaging the people from the planning stage of the program ("participatory"), gaining inputs from all the stakeholders ("democracy"), strengthening social justice ("rights and access to resources") and preserving environment and mainstreaming gender equality ("balance").

The government has laid down the development planning procedure that acknowledges the importance of popular participation at all stages of development while also upholding environmental and sustainability principles as stated in the Law No. 4 Year 2004 about the National Development Planning System. The planning which is named *Musrenbang* (Development Planning "Discussion") actually combines bottom-up and top-down methods of communication for sustainable development.[10] *Musrenbang* tries to meet up the aspirations from the grassroot level of the local community with the national long-term planning of development and coordinates all stakeholders at local and national levels.[11]

The awareness that communication is important for sustainable development can also be gauged through environment-related governmental bodies specializing in communication activities. The existence of Division of Environmental Communication and Social Empowerment of the Ministry of Natural Environment and Forestry implies the idea of sustainability which is communication and social empowerment are required in managing environment. Participatory extension services for agriculture, fishery, and forestry are also coordinated by a special body which is Coordinating Agency for Agriculture, Fishery and Forestry (*Bakorluh Pertanian, Perikanan & Kehutanan*) formed at each provincial level in Indonesia. The Ministry of Natural Environment and Forestry also manages extension and human resources development under its agency BP2SDM (*Badan Penyuluhan dan Pengembangan Sumber Daya Manusia*).

The existing regulations, procedure, and structures of Indonesia's governance have become the living ground for which organic communication might be growing. At the level of policy, there are sustainable development programs employing organic communication. For example, the Ministry of Agriculture has

[10]"Discussion" here might be not fully correct word to translate the "musyawarah" term of *Musrenbang*. "*Musyawarah*" is ruled by consensus. Part of the process of Musrenbang is a continuation of Inpres Desa Tertinggal (IDT, the program for left-behind villages), which launched by the Suharto government in the mid-1990s to reduce poverty.

[11]Formally, *Musrenbang* provides the citizens forums at community, neighborhood (*kelurahan*), and sub-district (*desa, kampung*) to communicate their aspirations and ideas in terms of development planning and budgeting of development funds. The proposals are then compiled by Bappeda who will conduct district-level Musrenbang for the preparation of the annual regional development (RPKD) based on communities' proposals along with proposal from the technical departments.

produced, designed and conducted Field School of Integrated Crop Management (FSICM/*SLPTT*) since 2009. A glance on the intention of the program shows that it is to increase the production rate of rice; FSCIM seems not different from extension programs during the New Order. However, FSCIM eventually employs bottom-up approach and participatory communication among the farmers. In some areas, the participation of farmers in FSCIM was reportedly high (Muchtar, Purnaningsih, & Susanto, 2014).

Despite all the formal progress of *Reformasi* government in putting communication as the integral part of Indonesia's sustainable development, it is difficult to say that the communication approach for sustainable development in *Reformasi* has been fundamentally organic. The fundamental reason is that the government does not use a communication perspective since the beginning of programs formation until its evaluation. The "organic communication" is like a coincidence and is adopted in the policies and programs in sustainable development since the spirit of participatory democracy is "already there" and it just needs to be adopted in the programs.

On the other hand, organic communication does not only consist of "procedural participation" of the people. Organic/participatory communication is about building trust among the stakeholders, understanding the culture of local communities, identifying unique communication system within the communities, two-way process of communication among stakeholders, and creating social relationships (Mefalopulous, 2005; Servaes & Malikhao, 2008). When the communication perspective is overlooked in the preparation of the development planning, conflicts that are inherent between stakeholders are frequently missed, failed to be identified and overcome. The past experience and cultural diversity can be the sources of the conflicts between stakeholders in development (Asmorowati, 2013).

In the praxis of development planning, "organic communication" lacks the "empowerment" pillar as the "participation" pillar is limited only to the elites. The community members are not empowered to actively participate in provided channels. The hierarchy of social system in the village and bureaucratic culture lead to the domination of local elites, politicians, and bureaucrats in *Musrenbang* (Sindre, 2012; Gibson & Woolcock, 2008). There are dialogues and debates but only between the elites, while the attending publics are passive. In addition, the starting point of community members attending *Musrenbang*—in terms of information and knowledge—is not equal (Hendri, Purnaningsih, & Saleh, 2014). The participants are not exposed to sufficient information as Indonesia's public service institutions have been accused of a lack of transparency, efficiency, and accountability (World Bank, 2014). Therefore, deliberation and discussion are not created. Instead of becoming a forum for communicating aspirations, *Musrenbang* merely ensures the formal decree of openness. At the end, "participatory" aspect of *Musrenbang* is weak as *Musrenbang* itself is lacking initial popular base (Sindre, 2012).

Organic communication reveals the perceptions and evaluations of the beneficiaries toward change as an important process. This can give a signal to government about the quality of achievement of sustainable development programs which is different from economic achievement. However, there are no official documents in

any sustainable development sectors adequately reporting on how the program and change are perceived and evaluated by the beneficiaries. There is only evaluation on the implementation of Law No. 25/2004 reported by BAPPENAS (Agency of National Development Planning) (2013) showing that feedback was absent after the evaluation of *Musrenbang*.

The weakness of "organic communication" of *Reformasi* is also related to "extension service" as it remains a major method in developmental programs especially in agriculture, fisheries, and forestry. Agribusiness Development Program (locally known as Program *Pengembangan Usaha Agribisnis*/PUAP) is an example of how diffusion of innovation approach is still being practiced in Post-Suharto Indonesia.[12] A survey research conducted in Ciampea, West Java, shows that PUAP employed vertical, one-way, top-down communication between agricultural disseminators and the farmers (Situmeang, 2014; Zainal, Lubis, & Rangkuti, 2014). Most respondents who were farmers did not understand the message and rarely communicated with the disseminators and supervisors (Situmeang, 2014).

Ritual and traditional communications have not received sufficient attention from the government in sustainable development projects. Though several studies suggest ritual communication of local communities must be comprehended by extension officials, the implementation is not only limited in numbers but also in understanding of indigenous communication for sustainable development. The traditional communication is merely understood as the use of local dialects to communicate about development (Syarifuddin, 2014) or a local community space to diffuse developmental values (Maifanti, Sarwoprasodjo, & Susanto, 2014) without studying holistically the system of values and beliefs of the local communities regarding their existence and relations with the environment and other living things. Apart from Family Planning Program which successfully utilizes traditional media and communication in decreasing the mortality rates in Indonesia, the Indonesian government has yet to integrate traditional communication perspective in sustainable development programs. Frequently, it happens that the government cannot understand the meaning of development in indigenous communities because the officials are neglecting traditional communication if then leads to misunderstanding of system of values of the communities. One example of how local voices are neglected by the government is the conflict between farmer communities of Kendeng, Central Java, with cement manufacturers and local government (http://omahkendeng.org/).

At the other spectrum, information and communication technology (ICT) which has been utilized in urban areas of Indonesia is not developed into an integrated platform in sustainable development programs. It merely serves as providing information to complement the role of extension officials, not enhancing

[12]PUAP gives rolling capital (*dana bergulir*) to farmers by transferring the money to the bank account of Gapoktan (Association of Farmers Group). Agricultural disseminator (*penyuluh petani*) and Supervisor-Partner of Farmer (*Penyelia Mitra Tani*) assist and supervise the fund management in the level of Gapoktan activists.

communication between stakeholders or stimulating knowledge, capital, and products exchange. ICT provision by government itself has not been widely integrated to sustainable development projects. It is only Telecenter of UPIPK (Agricultural Information Service Unit of District) which has been developed to support farmers in four districts of four provinces with information in agriculture. Other ICT-based development programs are generally focused on decreasing Indonesia's digital divide.[13] However, the lack of sense of belonging among the citizens and local officials and the low-skilled site managers render ICT equipment useless in many regions of Indonesia (Rusadi, 2014). The unsustainable ICT adoption in remote and rural areas shows there are no sufficient studies on the local society on what kind of ICT they need and how they will use them. The Ministry of Communication and Informatics which should have better understood organic communication ironically neglects the grassroots' voices.

11.4 Conclusion

The New Order in Indonesia used communication to send messages, inform people, and persuade people's behavior through mechanistic and one-way (top-down) communication approach such as diffusion of innovation and media campaigns. Although the term "social mobilization" for development programs was quite popular in the era, it referred to making the people follow actions that were predetermined by the government. Participatory communication for communication appeared in the late 1990s. The domination of mechanistic approach of communication was mainly caused by the lack of political will of the regime to support and enforce sustainable development.

The *Reformasi* Indonesia has relatively brought about major change in communication policies regarding sustainable development. As government's awareness to sustainability of the development has grown rapidly which is seen through many regulations and policies, it still needs to increase of participation and empowerment of the people in sustainable development. Some mechanisms of development have adopted sustainable development principles. However, communication remains to be complementary to the programs. This is due to the partial implementation of organic communication. The communication process is still bureaucracy-oriented (the time boundness of programs, quantitative results, administrative procedures), not society and community-oriented (the social process, building trust, consensus). Communication for sustainable development of *Reformasi* Indonesia has not given full attention to the performing "organic" aspect especially the empowerment potential of dialogues and participation of the people

[13]The Ministry of Communication and Informatics (Kemenkominfo) has developed several projects such as Community Access Point (CAP), Mobile CAP, District Internet Service Center (PLIK) and MPLIK since 2008.

that are already facilitated through several programs. It should also be noted that ICT-based communication for sustainable development might be not appropriate for all areas and all sectors of Indonesia's development due to the varying level of ICT skills and the system of values of communities are vastly diverse.

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Chapter 12
Communication of Inclusive Innovation for Sustainable Development in India

Kiran Prasad

12.1 Introduction

India has the world's largest rural population (857 million) and is home to the largest rural-urban disparities leading to skewed development. The United Nations Human Development Report (UNDP, 2010) has calculated that South Asia is home to half of the world's multidimensionally poor population of 844 million people. Eight States of India are home to 421 million multidimensionally poor people which is more than 410 million in the 26 poorest African countries. It is estimated that India will be among the least urbanized countries in 2050 and will account for a quarter of the world's rural population in 2050, as it does now (UN, 2014).

The urban-rural gap is also marked by a gender gap with the vast majority of rural women at the periphery of development of India. In India, women constitute a population of 586.5 million with 405.2 million (48.6%) in the rural areas and 181.2 million in the urban areas (Census, 2011). The states with a high population of rural women (over 20 million) include Bihar, Uttar Pradesh, Madhya Pradesh, Andhra Pradesh, West Bengal and Maharashtra followed by Rajasthan, Tamil Nadu, Karnataka, Gujarat, Orissa, Kerala, Assam and Jharkhand with a population of over 10 million rural women. Bringing rural women into the mainstream of development is a major concern for the Government of India through several flagship programmes and new initiatives such as Digital India, Make in India and Start-up India.

The Government of India in its National Policy for Empowerment of Women in 2001 sought to bring about the advancement, development and empowerment of women. These goals are also regarded as one of the important Sustainable Development Goals (SDGs) for the decade commencing in 2016. The very slow gains in maternal health, women's empowerment, nutrition, education and poverty

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alleviation over the last decade suggests that India is passing through an era of growth with widening inequalities and development gaps (WEF, 2014).

In such a scenario, the national innovation ecosystem has attempted to draw on the experiences of the rural poor and female population but there is a persistent urban-rural divide and gender gap in innovation. What can one learn about indigenous innovation for building an ecosystem of inclusive innovation in India? What kinds of media can effectively provide access to excluded populations on information of grass root innovations in developing countries like India?

The National Innovation Foundation of India (NIF) was set up by the Department of Science and Technology in 2000 to serve the poor by documenting, adding value, protecting the intellectual property rights of the contemporary unaided technological innovators, as well as of outstanding traditional knowledge holders and disseminating them on a commercial basis as well as open-source technologies. The bottom-up communication approach to indigenous innovation will be an important complement to India's inclusive national innovation system. The Grassroots to Global (G2G) model propagated by NIF is a potential communication model for other developing nations interested in an inclusive framework to bring innovative solutions to sustainable development.

12.2 Research Questions

1. What is the role of national institutions in providing dedicated support to grassroots innovators to deepen and expand their innovation capacity?
2. Are the communication approaches designed within an inclusive framework for a wider uptake of innovation in the rural areas?
3. Do the grassroots innovations serve to build skills in local communities and entrepreneurship for sustainable development?

12.3 Inclusive Innovation for Sustainable Development

India's current landscape for inclusive innovation can be studied through a case study of the Grassroots to Global (G2G) communication model propagated by NIF. Through the collaborations with various Research and Development and academic institutions, Agricultural and Veterinary Universities and others, NIF has helped in getting thousands of grassroots technologies validated and/or value added. The NIF has also tie-ups with local bodies and voluntary agencies for promoting entrepreneurship for greater sustainable alternatives by using local resources frugally. These efforts to render a more inclusive innovation ecosystem for sustainable development must be viewed in the light of India's micro, small and medium enterprises (MSMEs) sector which recorded more than 10% growth in recent years and has contributed nearly eight per cent to the national Gross Domestic Product

(GDP). MSMEs have employed over eighty million people in nearly forty million manufacturing and service enterprises. It has also accounted for 45% of the manufactured output and 40% of exports from India.

The up-scaling of innovations will lead inclusive economic growth of local communities through open-source technologies. Inclusive innovation systems can modernize and upgrade skill sets; integrate communities through creation of e-Networks; create awareness of ICT tools and usage; generate locally relevant content; and generate direct employment opportunities. India's experience in inclusive innovation initiatives has demonstrated significant success in generating sustainable livelihoods, cutting down costs, being eco-friendly and promoting economic welfare by reaching out to un-served communities. The NIF has received over six hundred product inquiries from around fifty-five countries for various technologies and has succeeded in commercializing products across countries in six continents apart from being successful in materializing eighty-nine cases of technology licensing (www.nifindia.org). The chapter will also analyze some innovative uses of ICTs and media networks that serve specific needs of communities and outline some policy options for developing an inclusive innovation ecosystem in India.

12.4 ICT Innovation and Inclusion

The nature of innovation in Information and Communication Technologies (ICTs) in developing countries, specifically India, has largely been based on technologically deterministic patterns and policies that operate within the framework of the dominant paradigm (Prasad, 2004). The ICT sector in India is marked by a paradoxical situation. Though India is still perceived as an agrarian developing country with 70% of its workforce in the agricultural sector, India scripted one of the early success stories of the digital revolution by becoming a global powerhouse for software development and information services (Basu, 2016). It has highly skilled IT professionals and the third highest scientific manpower in the world. It is estimated that around 10% of its workforce employed in the service and information sectors account for a whopping 45% of the country's Gross National Product (GNP). Its share of GDP rose from 3.4% in 2000/01 to 5.9% in 2007/08. The Indian ICT sector has grown consistently at over 30% annually during that period (Malik and Mundhe, 2011). The IT sector in India is the primary supplier of software requirements to about 300 Fortune 500 companies. In recent times, e-commerce, cloud computing and online retailing have emerged as the key growth drivers in the Indian ICT sector. According to the report released by International Data Corporation, the overall market size of ICT in India was projected at US$40 billion by year 2014 (www.oifc.in). Currently, India is home to over 250 solely dedicated ITeS centres and offshore offices of reputed multinational companies across the world.

However, India failed to digitally transform its economy despite its remarkable achievement in being the largest exporters of information technology services and skilled manpower among developing countries (Prasad, 2004; Basu, 2016). In stark contrast is the reality that over 25% of the adult population in the country is illiterate (Census, 2011). The uptake of ICT innovation within the country is also hampered due to the persisting digital divide in terms of ICT access and affordability. The Telecom Regulatory Authority of India (TRAI) pegged the number of Internet subscribers in India at 314 million by 2015, with seven out of eight accessing the Internet from their mobile phones (www.trai.com). India's Web user base is largely driven by increased Internet use on mobile phones. Access to new media is largely concentrated in the urban and semi-urban areas. There are 900 million mobile users and 46 million of them used smart phones in 2013. But over 37,000 villages are without mobile telephony. India has the world's third largest internet users after China and the USA with three-fourths of its online population under the age of thirty-five. While 37% of women are online, 41% of men access the internet. Women who access the internet largely work in the IT sector and educational institutions. One would think the number would be much higher, given the country's fairly advanced capabilities in the software field but this is typical of India's political economy paradox, large swathes of backwardness amidst high economic growth rates (Ram, 2011). The development report on Digital Dividends released by the World Bank in 2016 points out that India has the largest offline population in the world with nearly almost a billion Indians still unable to tap the benefits of a digital economy (World Bank, 2016).

ICT innovations in the developing countries have been framed by technological determinism for modernizing the economy through the diffusion of Internet-based services, connecting communities to technologies that will lead to use and as well as to the direct provision of improved services impacting the quality of their lives. Academic and popular writing on ICTs and new media are marked by the dominance of dualistic thinking whether new media technologies are 'good' or 'bad' (Flew, 2005). *Advocates* of the new media point to a new age of increased personal freedom, reduced social hierarchy, enhanced possibilities for leisure and a greater quality of social interaction. *Critics* of new media technologies express concern about growing economic inequalities, loss of jobs, new forms of state and corporate surveillance, and a surfeit of information that is unable to be effectively assimilated by the users because it is devoid of meaning and context (Keniston, 2004). Debates have highlighted both the positive and negative potential and actual implications of new media technologies, suggesting that some of the early work into new media studies was guilty of technological determinism—whereby the effects of media were determined by the technology themselves, rather than through tracing the complex social networks which governed the development, funding, implementation and future development of any technology (Hughes, 1991; Sinha, 2005).

The debates on new media have led to two competing ideas in the use of ICTs for development which focuses on the relationship between technological change and social change. The first—technological determinism—argues that technology drives social change. According to this view, when technologies change, society

will change too. Critics accuse advocates of new media of technological determinism or the belief that the development of new technologies is preordained by progress, science and modernity. They believe that they demand that societies adapt to new technologies while avoiding complex questions about who controls such technologies, their social and cultural impact. There is also the tendency to downplay the political economy of communications, while neglecting the social and historical contexts that shaped contemporary Internet culture (Flew, 2005; Prasad, 2012). Media are owned by dominant interests who promote certain dominant ideologies; questions of ownership, issues of access and use of media are often downplayed. These issues become sharper with the Internet for the reason that the lines between producer/distributor and consumer/user of media are far less clear-cut in the Internet environment than they have been with the broadcast media (Flew, 2005).

The main criticism of the idea of technological determinism is that it is too simple and too focused on technology, not people. In the first case, technological determinism is said to be too simple because it assumes that there is only one major force that drives change in society (in this case, that force is technology). In other words, it leaves out the possibility that there is a range of competing and contesting forces in society, and technology is only one of these forces (Prasad, 2008). According to Arul Aram (2004) "there is more to e-governance than introduction of computers and software. E-governance could reduce the cost of providing good administration and pass on cost reductions to people. People expect effective governance. They do not bother if the relevant messages are delivered through e-mail or a leaflet, provided they are accessible and comprehensible. E-governance projects have their own requirements. ICT vendors do not make enough efforts to offer the features in demand for e-governance" (p. 365).

Technological determinism is said to be too focused on technology, not people because it plays down any idea that changes in society are the result of choices that people make (Hughes, 1991). Of course, some people have much more power to make choices that affect society than others, and this is usually seen to be necessary for good government. But, in arguing that technology drives social change, technological determinism plays down those people and their power. Change cannot take place 'away' from society (or people). This is the opposite of technological determinism, where people are seen to have very little role. There is a social role of technology. The socially deterministic model places technology within its historical, cultural, economic and social contexts to explain the use of technology by communities (Prasad, 2012).

Technologies are often viewed as creating better ways of better education, better media, better ways of communication and forms of entertainment and greater efficiency in industry. The second view—social determinism—argues that technologies are only introduced when people can see that there is a need for them (Prasad, 2007). According to this view, people have to want a technology and see a use for it before they will adopt it. Servaes points out that sufficient attention to the design of ICT programs has been lacking in the rush to 'wire' developing countries:

> There needs to be a focus on the needs of the communities and the benefits of the new technologies rather than the quantity of technologies available. Local content and languages are critical to enable the poor to have access to the benefits of the information revolution (Servaes, 2013: 214).

The centralized technology driven deterministic models of ICT innovation ecosystems, usually driven by needs of the IT sector, are gradually moving to alternative socially deterministic models that place technology within its historical, cultural, economic and social contexts of technology usage to promote a more inclusive innovation ecosystem. The role of the NIF is important in facilitating the growth of a collaborative and inclusive ecosystem that takes into community-centred appropriations of communication technologies for development, in ways that render people, including children and women, as those endowed with creative knowledge and active producers of content and innovative ideas.

12.5 Discussion and Findings

What is the role of national institutions in providing dedicated support to grass-roots innovators to deepen and expand their innovation capacity?

The NIF has six primary functions: (a) Scouting and documentation, (b) Value addition and research and development, (c) Business development and Micro Venture support, (d) Intellectual Property Rights protection, (e) Dissemination and (f) Database development and IT applications. The NIF is also entrusted with the responsibility of building a National Register of Grassroots Innovations and Traditional Knowledge. It is not enough to document or disseminate the innovations or outstanding traditional knowledge. Value addition is very important for harnessing the full potential of the idea. NIF has entered into MOU with Council of Scientific and Industrial Research (CSIR) and Indian Council of Medical Research (ICMR) besides other organizations. CSIR has allocated funds to support research on grassroots innovations in CSIR laboratories. Similarly, ICMR supports research on such herbal healing knowledge, which has not been documented in the classical texts and formal institutional literature besides creating repository of herbarium specimens. NIF helps in generating a very large pool of open-source/public domain technologies also. A small number of innovations are also protected by patents and other IPRs. List of all the projects funded, or invested in, or patents filed in the name of innovators are given at NIF website (www.nifindia.org).

An inclusive innovation ecosystem must support innovators to attracting capital for converting innovations into enterprise which is often difficult in a rural context. Rural and female innovators neither can offer much collateral nor are they able to develop business plan or deal with formal R&D system. This has led to the creation of a Micro Venture Innovation Fund (MVIF) with the help of Small Industries Development Bank of India (SIDBI) to provide risk capital for technologies at different stages of incubation. This process reposes trust in the innovators and

investments are made to help them commercialize their innovations. The NIF assists innovators to license their technologies to third party entrepreneurs (www.nifindia.org.in). Most of the licenses have been given to small entrepreneurs and in a few cases, to medium enterprises. This is a significant step in economically empowering rural and marginalized communities to set up micro-businesses and contributing to growth in employment.

India's MSMEs sector recorded more than 10% growth in recent years, and it has contributed nearly eight per cent to the national Gross Domestic Product (GDP). MSMEs have employed over eight crore people in nearly four crore manufacturing and service enterprises. It has also accounted for 45% of the manufactured output and 40% of exports from India. The Make in India and Start-up India policy of the government to step up their potential to create employment and provide economic growth envisages the inclusion of rural women in e-commerce who have traditional skills in food products, textile, arts and crafts manufacture and design.

The emergence of new business models in the ICT industry such as micro-work has led to the outsourcing of innovative activities and tasks to individuals in the developing countries. Micro-work requires a company which breaks downs activities into very small tasks that can be performed by individuals and delivered through the internet, or other media against payment (World Bank, 2011). India's share in micro-work is expected to surge from more than one-third the share of such freelancers globally with the Digital India programme. The Digital India project initiated in 2015 with an investment of Rs. 1.13 lakh crore ($2.1 billion) will provide the necessary ICT infrastructure which include—broadband highways, everywhere mobile connectivity, Public Internet Access Programme, e-Governance, e-Kranti (which aims to give electronic delivery of services), information for all, electronics manufacturing, IT for Jobs and early harvest programmes (http://digitalindiaproject.com/).

An elaborate benefit sharing system has been developed, governed by the Prior Informed Consent (PIC) of the knowledge providers. Attempt is made to share benefits not only with the innovators but also with their communities and for nature conservation. In addition, a small part is kept for contingency support to needy innovators, for R&D stakeholders, promoting women's innovations and meeting overhead costs. It is remarkable that grassroots innovations are generating global demand, as evident from inquiries from around sixty-two countries for various technologies, NIF has succeeded in commercializing products across countries in five continents apart from being successful in materializing sixty-five cases of technology licensing with the help of partner agencies.

The NIF has been able to build up a database of over 1,60,000 ideas, innovations and traditional knowledge practices (not all of them unique or distinctive) from over 545 districts of the country with the support of the Honey Bee Network. The NIF has filed over 500 patents in the name of the grassroots innovators in India and seven in USA and one PCT. Out of these, 35 patents have been granted to grassroots innovations in India and four in USA. NIF has funded 174 projects under MVIF to the extent of over half a million dollars (www.nifindia.org.in). Hundreds of technologies have diffused through farmer-to-farmer social networks. NIF has

proved that grassroots innovators can match anyone in the world when it comes to solving problems creatively by generating more affordable sustainable solutions using local resources frugally. The poor are not just the consumers; they can be the providers also. The NIF has demonstrated that national institutions can indeed support to grassroots innovators and provide a inclusive innovation ecosystem that may often be out of the purview of large business corporations.

Are the communication approaches designed within an inclusive framework for a wider uptake of innovation in the rural areas?

Radio broadcasting has been the primary medium for entertainment, information and education amongst the masses in the developing countries owing mainly to the affordability and terminal portability of radio receivers. Infrastructure wise, All India Radio (AIR), the public broadcaster, has a network comprising 237 stations and around 400 transmitters (149 MW, 48 SW and around 200 FM), which provide radio coverage to 99.14% of the population and reach 91.79% area of the country. The FM Radio coverage is about 40% of the territory of India. As on date, 242 private FM radio stations are in operation in 86 cities of the country and there are 120 community radio stations (TRAI, 2013).

In India, corporate houses could buy FM frequencies but communities could not own and operate their own stations and were left with no other choice but to buy airtime from existing AIR stations. International advocacy groups such as World Association of Community Radio Broadcasters (AMARC), other civil society organizations across India like the Community Radio Forum and international development organizations including UNESCO and United Nations Development Programme (UNDP) have held several consultative meetings with the Ministry of I&B to expand the eligibility criteria to include community based organizations. This discriminatory broadcast policy ended with the new policy of October 2006 that allows civil society organizations, Non-Governmental Organizations (NGOs) and self-help groups of women to apply for community radio licenses. Since the tension between the profit motive of the media corporations and the social role that the media are expected to play (Prasad, 2008: 61) has led to some innovative new media types by overcoming existing regulations to favour local communities such as a unique cell phone-based networking system called CGNet Swara in the northern State of Chhattisgarh that helps the Adivasi Gonds, a tribal community, to share local news and air (Acharya, 2013; Choudhary, 2013).

While the mainstream media have been critiqued as commercial and not effectively serving local community issues and interests the public service media owned by the government also do not focus on realities of communities facing specific problems such as those who live in remote, drought-prone, tribal areas. The community radio has enabled greater media access to the marginalized and illiterate communities speaking in various dialects. The *Radio Ujjas* of Kutch Mahila Vikas Sangathan in earthquake-ravaged Bhuj of Gujarat; *Chala Ho Gaon Mein* of Alternative for India Development, Bihar, in the Palamau tribal district of Jharkhand; *Namma Dhwani*, the VOICES initiative in Budikote, Karnataka;

SEWA's *Rudi no Radio* in Gujarat and Agragamee's *Ujjala* in Jeypore, Orissa, have programmes designed and produced by the rural people focusing on remote villages that remain untouched by the public service and private media (Prasad, 2006).

"*Ek kahani meri bhi*" ("I too have a story"), is a programme on Community Radio Bundelkhand that reveals the stories and histories of women in the community, particularly illiterate rural women, to be heard on their own terms and experiences (Prasad, 2008). The Pastapur initiative of the Deccan Development Society of AP is managed entirely by Dalit women who are illiterate, poor and belong to the most socially disadvantaged section of society. Namma Dhwani in Budikote, Karnataka, cablecasts programmes made by the community members and community broadcasting by the Shree Ramana Maharishi Academy for Blind at Kanakpura in Karnataka caters to the needs of the visually challenged. Community radio has enabled local people to debate and decide on issues which are relevant to them. Youth associations, women's and other groups mix discussions on day-to-day problems and success stories of individuals with recordings of local skits, songs and music in the local dialect aiding their comprehension of the information imparted.

Despite the availability of diverse national, regional and local media, the main challenges to media pluralism are the inclusion of the poor (260 million) and women. The tribes of Chhattisgarh who are among the poorest are among the latest to enter the media sphere. Most of the news sources are in Hindi, a language alien to them. Journalists from the tribes are scarce and very few among the urban media are trained in the tribal language. Radio is the only medium suited to such an illiterate population. But unfortunately All India Radio that has programmes in 146 dialects (http://air.kode.net) has no news service in the tribal languages. This offers scope for expansion of radio to cater to the information needs of the vast population who speak nearly 700 dialects in the country (Prasad, 2015).

Community radio operation is also hampered due to difficulties in obtaining licenses. Community radio must also grapple with how focusing on reaching the poor may be commercially unsustainable, while commercial success may deflect the media from their stated social objectives. Community radio stations are bound to find it difficult to sustain themselves following the Ministry of Telecommunication's decision in 2012 to introduce a steep hike in spectrum fee for radio operations. Even though the Government of India maintains a policy of encouraging more community radio stations in the rural and backward regions of the country, this steep hike in spectrum fee can hit community radio operations which do not have any commercial interests and are engaged in empowerment of rural and marginalised communities. It can also prove to a dampener to those who are new applicants for establishing community radio stations.

In such a scenario, the innovative 'tech-tonic' of the mobile phone which is readily available has been used to cater to their media needs through CGNet Swara (Acharya, 2013; Choudhary, 2013). In 2000, CGNet Swara was started by Shubhranshu Choudhary as a voice-based portal, based on Audio WiKi software developed by MIT, which is freely accessible via mobile phone and it shares local news with both the citizen journalists and the tribes living in remote areas (Acharya,

2013; Choudhary, 2013). Choudhary has trained more than 100 citizen journalists to produce audio news reports. CGNet Swara receives on an average 200 calls a day from local people for accessing those reports. Stories are also posted on a website to reach a wider audience. This service thus overcame the ban on private radio news and reached people who never before had access to local news.

Many of the estimated 80 million members of India's tribal communities lack access to any mainstream media outlets. This often poses serious barriers to their socio-economic development, as their grievances about government neglect and economic exploitation remain unvoiced. In addition, certain factions (such as internal conflict by the Maoist insurgency) can exploit their frustration and isolation to violent ends. To address this important problem, Choudhary built and deployed CGNet Swara: a voice portal that enables ordinary citizens to report and discuss issues of local interest. To use it, they call a phone number using any mobile (or fixed line) phone. Callers are prompted to press "1" to record a new message, and "2" to listen to messages that have already been recorded. Once a message has been recorded from the field, professionally trained journalists access the system using a Web-based interface, review and verify the report. Approved reports are then made available for playback over the phone. The reports also can be accessed on the CGNet Swara website. CGNet Swara was launched as part of the Knight International Journalism Fellowships, a program of the International Center for Journalists. The software underlying CGNet Swara is open-source and freely available from an online repository. The system was originally developed as a project at the Massachusetts Institute of Technology and is currently maintained with the support of Janastu, Microsoft Research India and several volunteers.

According to Choudhary (2013), while the technology for building interactive voice services (IVR) has been around for a long time, what distinguishes CGNet Swara is the ability for callers to contribute information to the system. Most IVR platforms are designed for callers to listen to messages, but on CGNet Swara, they can also record their own messages for others to hear. The platform also includes a moderator's interface that enables privileged users to review the recordings, and optionally annotate or edit them, prior to making them public. In Barwani district of Madhya Pradesh, Choudhary discovered that over 80% of the students had Bluetooth in their mobile phones which they used actively to share audio and video files which they tribal children refer to as 'Bultoo' (Choudhary, 2016).

On the other end of Central India lies Balrampur district on the border of Chhatisgarh and Jharkhand with a large population of Oraon tribes who speak the Kuduk language. While eighty per cent of Balrampur's gram panchayats (local administrative bodies) are connected by optical fibre cables under the Digital India project, there is broadband access but no content in the Kuduk language (Choudhary, 2016). Innovative communication media must also focus on the creation of content in the local languages of the communities. The CGNet Swara server can be easily replicated in many regions of India using languages of the tribes where no other mass media has been able to make the presence. Innovative media such as CGNet Swara using communication convergence can be designed

within an inclusive framework for a wider uptake of innovations promoted by NIF in the rural and backward regions.

Do the grassroots innovations serve to build skills in local communities and entrepreneurship for sustainable development?

Grassroots innovations have the important goal of building skills in local communities and create assets through entrepreneurship for local development. One such example is Kashmir Box, a social e-commerce marketplace and an eSparks, 2013 winner that takes Kashmiri products to the globe by linking artisans, craftsmen and entrepreneurs via cybercafés (Rao, 2013). Similarly, *India Shop* is an e-commerce website designed specifically to sell products made by rural women's cooperatives and NGOs in Tamil Nadu. The site helps them obtain higher prices and thus earn larger profit margins by selling their products online. Manchaben, a designer from Gujarat, with the help of India's National Institute of Technology put her designs on a website. An international tie store spotted them and placed an order for 5000 ties. She could afford to build herself a house and has plans for a village school.

Local communities are also using ICTs innovatively to solve problems such as getting clean drinking water where the groundwater was saline. In Orakkadu village located 30 km from Chennai, women swipe an ATM card at a Reverse Osmosis plant and recharge the card to get drinking water round the clock. This facility has enabled families to save on buying expensive packaged water and women are especially benefitted as they can plan their day around the water supply time and also be relieved from the burden of long walks (even up to 3–5 km) to fetch water. This innovative effort has been lauded as one of the best low-cost solutions to provide safe drinking water to the rural communities (Lakshmi, 2015).

Even more challenging are the Tech Girls of Dharavi, which houses the largest urban slum in Asia. The Dharavi Diary programme founded by Navneet Ranjan in 2014 started with a small group of 15 girls and now has more 200 children who build apps that are designed to solve problems faced by the slum community. The Tech Girls initiative is noteworthy for its inclusion of girls and children living in slums whose problems are hardly a part of elite ICT applications. The Tech Girls have used the open-source developing tool, MIT app inventor to develop several mobile apps to tackle everyday problems in their neighbourhood (Sriram, 2016).

The mobile app called Women Fight Back developed by Ansuja Madiwal a 15-year-old student of class 12 is to help women in distress. The app which offers features like SMS alerts, location mapping, distress alarms and emergency phone calls has already over a 100 downloads on Google Play Store. Coding their way to the future, the *Paani hai Jeevan* app (water is life) developed by 14-year-old Fauzia Aslam Ansari organises water collection for each household by setting up an online queue that alerts people when it is their turn to fill water. This avoids unnecessary fights for water among families who often jump the queue for water. Girls are the main water providers for families can also save time rather than waiting at queues to fill water. Girls spend their time thus saved on finishing their homework or studies. A similar app allows users to report instances of child labour, a problem that widely affects girls of slum communities. The Tech Girls of dharavi have also developed an

app for undertaking cleanliness drives in their neighbourhoods (Clean and Green app) and learning of basic Hindi, English and maths for those who have no formal schooling through the *Padhai* (study) app (Sriram, 2016). The above examples of grassroots innovations not only serve to build skills and entrepreneurship in local communities but also help to creatively address the goal of sustainable development.

12.6 Conclusions and Recommendations

An inclusive innovation ecosystem must create opportunities for all segments of the population to contribute new ideas and practices and distribute the benefits of increased prosperity fairly across society. Such an ecosystem must recognize the poor and marginalized particularly women as not only consumers but as those who can actively participate in innovation activities.

Innovators in an inclusive ecosystem must be facilitated to scale up their innovations to micro-enterprises which can be stepped up to small and medium enterprises using local resources and providing local employment opportunities. The NIF in convergence with the ICT sector can contribute to the Make in India, Digital India and Start-up India programmes to enable an inclusive innovation ecosystem.

The challenges to an inclusive ecosystem lie in access to knowledge and expertise to fine-tune innovations to make them market worthy, integrated information and media to take innovations to people who need them most in their local languages, and have specific policies that support innovations that address sustainable development issues that plague the developing world. There should greater linkage of government institutions, educational institutions, banking sector, media and information sector, NGOs with grassroots innovators to achieve a transfer of knowledge to benefit communities in need of specific innovation. Future research projects can study various innovations to determine their inclusiveness possibilities to promote greater well being among communities and frame suitable policies for digital inclusion of people of developing countries in South Asia and Africa to participate in innovation. Nevertheless, financing affordable Internet access and ICT competence—including investment and training to create, maintain and expand computer networks—may challenge the sustainability of ICTs in developing countries like India as they continue to grapple with the many complexities of development (Prasad, 2012).

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Part V
Conclusion

Chapter 13
Future Directions in Communication and Culture for Sustainable Development

Kiran Prasad

13.1 Introduction

The countries in South Asia and South East Asia have a strong foundation of religious and cultural values that are embedded in their worldview of the universe and indigenous knowledge systems. Countries in Asia also share such cultural values with communities of the First Nations in Canada, native tribes of the Americas and several indigenous communities across the world. But these indigenous knowledge systems have either run into conflict with modernisation or have in some cases seen a synthesis of the traditional and modern paradigms of development by the adaptive nature of communities who seek to minimise or mitigate the effects of environmental degradation and climate change.

In South Asia, India is an interesting theatre of how culture and communication are deeply linked to the environment regarded as integral to sustainable development. India with its sheer subcontinental size faces a range of environmental challenges that are shared by its neighbours including Pakistan, Bangladesh, Nepal, Bhutan and Sri Lanka. All these countries are affected by glacial melt, large-scale floods, sea-level rise, tidal surges, top soil denudation, increasing frequency of cyclones, drought, extreme temperatures and climate change which will push the impoverished communities in this region to seek sustainable solutions to the challenges to development. These countries have also to contend with the twin challenge of development conflicts which can have adverse effects on the poor vulnerable communities and the aspirations of a rising economic class that have an increasing share in the global carbon footprint.

The countries in South East Asia such as China, Indonesia, Malaysia and Thailand also share similar problems of environmental degradation which can challenge their progress for sustainable development. The book presents the

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response of countries in terms of communication strategies for sustainable development through communication of cultural, social and indigenous knowledge systems of communities that may be better placed to achieve social change and enduring action.

13.1.1 Gender Equality and Inclusive Communication

Development approaches have largely regarded rural communities as fragmented and as recipients of aid to be cared and protected for rather than giving them due importance in the process of sustainable development (Prasad, 2008). Women, rural and indigenous communities continue to be at the periphery of development plans that often neglect their perspectives, problems, knowledge and capacity for incorporating sustainability into its processes and strategies (Prasad, 2009a, 2013). They are often regarded as receivers of information and communication and targets of social change rather than active participants sharing knowledge and directing sustainable change.

A key observation made by the German Council for Sustainable Development (2017) tracking the progress of SDGs notes that the SDG Goal 5 on Gender Equality and Women's Empowerment is the least balanced of the goals as it is primarily focused on social issues and fails to address the environmental and economic dimensions. It is clearly evident in India where persistent inequality and violence against women is reflected in the gender equality survey of the World Economic Forum (2014) that places India at 114 out of 142 countries in the Global Gender Gap Index. While India ranks 126 on educational attainment, it is ranked 134 on economic participation and opportunity and the lowest at 142 on the health and survival of women. The SDGs that regard empowering women and environmental sustainability as the key to development must recognize the global contribution of rural women in protecting and sustaining the ecology and strengthen their access to resources—educational, economic, social and legal facilities. Gender equality goals must receive priority in communication strategies as women in Asia and all over the world play a significant role in coping with development crisis and regeneration of communities.

Rural women who constitute nearly three-fourths of the total female population in India have played a pivotal role in assuming leadership for achieving sustainable community development despite their limited education, freedom, exposure to communication and information and social development (Prasad, 2013). Environmental movements in India like the Narmada Bachao Andolan (NBA or Struggle to Save Narmada River) led by Medha Patkar has completed over 30 years and enabled women in the local collectives/federations to have increased contact with the bureaucracy and government offices (Prasad, 2009b). The agitation led by C.K. Janu for asserting the right of the tribal people over forest land in Muthanga, Kerala and movements launched against the unregulated drawing of groundwater by the Coca Cola and Pepsi companies in Kerala championed by the tribes led by

Mayilamma have attracted global attention when reports of the BBC and the New Delhi-based Centre for Science and Environment confirmed that Coca Cola contained more than the admissible level of harmful chemicals (Shiva, 2009). Women belonging to tribal communities have reclaimed the denuded commons and achieved a remarkable turnaround in food security and livelihoods through eco-friendly alternatives and shifting cultivation (Mohanty, 2014).

The development discourse often ignores the role of rural communities and women in evolving a sustainable development ethics by following strategies that involve preservation, mitigation, adaptation and restoration in their local communities. Their local action has a global impact in terms of learning and collaborative efforts as is evident in the work of stalwarts like Medha Patkar, founder of the Narmada Bachao and the National Alliance of People's Movements, against inequitable development (Prasad, 2013). Innovative and integrated communication approaches such as community media and folk media employed by women can result in a widening of their participation and decision-making for sustainable development (Prasad, 2006).

13.1.2 Communication of Indigenous Knowledge in Sustainable Development

Evolving alternative development paradigms around the world in which the right to life and livelihood are central must revisit the basic questions of natural resources, human rights, environment and sustainable development from the perspective of traditional knowledge systems (Prasad, 2007). There is a 'need to support and show solidarity with those in every country who are proving that the values of the SDGs —peace, solidarity, equality, non-discrimination, inclusion, participation and tolerance—are truly universal values which underlie every culture and tradition although they are expressed in many different ways' (Servaes, 2017: 6). This book provides sufficient evidence of traditional knowledge systems that respect the core values of sustainable development largely grounded in their local cultures but contribute to the development ethics through local action aimed at regional and global spheres of action.

Alternate development strategies that are grounded in sustainability have often used local arts, heritage and the traditional/folk media as forms of cultural media that are widely found in South and South East Asia. Cultural media continue to attract the imagination of communities that view them as living media rather than the distant mass media. There is a need to encourage cultural media in building social capital and community bonding and use them in promoting ideas of sustainable development (Servaes, 2009, 2013a, b).

The chapters in the volume have emphasized that economic growth measured quantitatively must also be coupled with a qualitative assessment in terms of its integration with social and environmental impact for promoting sustained, equitable

and inclusive development. The media can build public support and exert pressure for policies that favour collaboration and strengthening of sustainable development clusters in different parts of the world.

13.2 Right to Information

Many developing countries, including India, are crippled by corruption that has had a considerable impact on the provision of basic needs and services—with the most serious impact on the lives of the poor. The enactment of the Right to Information Act in 2005 marked a significant shift in the development discourse with citizens, journalists, voluntary organisations and social activists, using the legislation to seek information on issues of public interest and also to uncover corruption that is intricately tied to the costs of skewed development projects and the questions of sustainability (Prasad, 2015). The Magsaysay award winner and the guiding spirit behind the right to information campaign in India, Aruna Roy, emphasized that, 'the RTI law is a basic entitlement for the effective use of other laws and rights. Denial of the right to know underlies the denial of all rights. It is therefore a part of all campaigns and basic to any demand for democratic and civil rights' (Roy in Sen, 2001). The right to information is grounded in an ideology of the people's right to a decent living and a more humane approach to development. The demand for the right to information about all development projects through the mass media and other channels to the people will establish the right of ordinary people to protest against corruption, monitor use of funds and become part of governance (Prasad, 2011, 2015). The right to information law or freedom of information as it is referred to in several parts of the world could be the tentative beginnings of a more inclusive and just development process—what Sen (1999) describes as 'a momentous engagement with the possibilities of freedom'.

There is still a long way to go before the right to information can strike firm roots among the vulnerable and marginalized people. For the law to be truly effective, it will need the active participation of the community at large, including non-government organizations and the mass media, who will need to simplify and disseminate the possibilities under the law to citizens. The right to information or freedom of information embodies the struggles of communities for survival and justice and will be an important instrument in the journey for equitable and sustainable development.

13.3 Citizen Journalism

The mainstream newspapers and television channels that do not have reporters in many rural and remote regions of the developing countries provide their media platforms to voice public opinion and narrate stories that exploit the poor or expose

corruption through the right to information. Citizen journalist shows on television channels debate issues such as misuse of water resources (e.g., watering cricket grounds while neglecting the provision of safe drinking water in India); poor sanitation, proper roads, lighting and transport which the local administration often fails to provide but announcing plans for Smart Cities with Wi-fi hotspots and commercial business complexes in several towns of India; information on measures to control violence against women and children; information on the costs and benefits of development projects which are directly concerned with well being of the local people; and social audit of information and communication technology programs with little or no benefit that often leads to greater neglect of basic needs of poor communities. Community media and citizen journalism have grown with the rise of the social media networks and the Internet which put pressure on policy makers to reconsider unsustainable development plans.

13.3.1 International and Intercultural Communication for Sustainable Regional Development

While India has encouraged value systems that emphasize the importance of 'responsible consumption and production' one of the 17 UN. Sustainable Development Goals (SDGs) adopted by countries in 2015, many other countries also have cultural traditions have been very cautious of unsustainable consumption patterns and lifestyles and seek to encourage capacity building among people for sensitivity, individual and collective action on the environmental conservation. India's Intended Nationally Determined Contributions (INDCs) to the UN Framework Convention on Climate Change (UNFCCC) lay out the blueprint for tackling climate change, emphasized eight key goals—sustainable lifestyles, cleaner economic development, reducing emission intensity of GDP, increasing the share of non-fossil fuel-based electricity, enhancing carbon sink, adaptation and mobilizing finance, technology transfer and capacity building. These goals also seek to better adapt to climate change by enhancing investments in development programs in sectors vulnerable to climate change, particularly agriculture, water resources, Himalayan region, coastal regions, health and disaster management, and to build capacities, create domestic framework and international architecture for quick diffusion of cutting edge climate technologies.

India's progress on these goals will have a cascading positive effect on sustainable development in the region. Communication for sustainable development can be strengthened by regional cooperation through international dialogue and intercultural understanding which is facilitated by core cultural values of respect for the natural environment, conscious patterns of production and consumption, sharing and regard for all forms of life in an ecosystem. India launched the South Asia Satellite, also known as GSAT-9, on 5th May, 2017. It is a geostationary communications and meteorology satellite operated by the Indian Space Research

Organisation for the South Asian Association for Regional Cooperation (SAARC) region to enable a range of services including telecommunication, television, direct-to-home, VSATs, tele-education and telemedicine. It can also provide secure hotlines among the participating nations, which will be useful in case of management of disasters like earthquakes, cyclones, floods and tsunamis in the region.

The potential of international communication and intercultural communication in promoting dialogue for sustainable development has yet to capture the long-term interest of development scholars and researchers. The SDGs in goal 10 aims to reduce inequality within and among countries and goal 17 aims to strengthen the means of implementation and revitalize global partnerships for sustainable development. The book draws on the communication experiences of several countries to achieve inclusive and sustainable development through integrated and multidimensional approaches.

China has been singled out in the global media for its high levels of pollution and poor air quality. But according to multiple surveys in recent years by the World Health Organisation (WHO) and the Indian Institutes of Technology in Delhi, Kanpur and Mumbai, the city of Delhi is among most polluted in the world facing the PM 2.5 crisis along with China. Thirteen other Indian cities also figure among the top 20 most polluted cities (Pradhan, 2016). The residents of Delhi are exposed to an average of 153 micrograms per cubic metre of PM 2.5—the smallest and most harmful of all measurable particulate matter—which is 15 times higher than the WHO's recommended annual average. Countries like India and China which are among the top five world economies need to seriously rethink shared development issues to evolve collaborative research for sustainable development.

We hope that this volume has offered a comprehensive insight into the cultural and ecological values that influence sustainable development across Asia and are echoed by local communities across the world. The cultural, religious and philosophical moorings of development that are at work in shaping the lives of millions of people are reflected in the contributions and case studies from leading experts in Asia to highlight the debates on environmental communication and sustainable development. The positive traditions of ecological sensitivity and cultural communication that find common ground between communities for fostering sustainable development are needed to face the global challenge of climate change.

The essence for a just and humane development in which all beings in the universe are at peace can be distilled from the wisdom of the ancient hymn that still is the daily prayer of millions of people in India.

Om Sarve bhavantu sukhinah

Sarve santu niramayah/

Sarve bhadrani pasyantu

Na kaschit duhkha bhag bhavet

Om santih, santih, santih//

(May all have happiness,

May none experience unhappiness,

May all see the auspicious,

May none experience grief,

Om Peace, peace, peace!!!).

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