Socio-Technical Imaginaries of Cultural Transformation Toward Sustainable Development

Socio-technical imaginaries of cultural transformation toward sustainable development

Abstract

It is becoming evident that an important aspect of internationalization of business is conducting activities that address issues related to the Sustainable Development Goals in developing markets. Conducting such activities international businesses often partner with local stakeholders for developing solutions and managing such multi-stakeholders for achieving sustainability goals. Effective partnering and management of multi-stakeholder networks call for a collective visioning process that captures the communities' expectations and imaginaries for a shared understanding of technological and related social changes accompanying the implementation of development projects. The objective of this research is to shed light on how multi-stakeholder networks with diverse cultural moorings could be mobilized through socio-technical imaginaries for orchestrating activities required for implementing developmental projects. This study uses an empirical setting to showcase specifics of culture shaping socio-technical imaginaries of technologies for sustainability and their role in influencing cultural practices of local communities. The contribution of this research highlights the agential role of infrastructure in transforming culture through associated imaginaries. The imaginaries in this case are materialized through the design, construction, and operation of the water supply infrastructure which embodies certain morals, values, and norms. In revealing certain cultural practices that hinder ideas of well-being, the infrastructure triggers their transformation.

Keywords: Multi-stakeholder network, sustainable development, Sustainable Development Goals, socio-technical imaginaries, cultural schemas, developing countries, Nepal

1. INTRODUCTION

The United Nations actively promotes sustainable development in all spheres of life and regions of the world through the sustainability framework Agenda 2030 that includes the Sustainable Development Goals (SDG) (SDG, 2015). Conventionally, sustainability is grounded on three pillars - social, economic, and environmental – balance among which is supposed to lead to the harmony between societal development and the natural environment (Purvis et al., 2019). To achieve this balance, the SDG 17 'Partnership for the goals' emphasizes a need for collaboration and partnership among various interest groups, including international business stakeholders, to facilitate changes leading to more sustainable practices. Thus, an efficient shift to sustainability requires mobilizing of multiple stakeholders especially in the context of developing countries as they are most affected by different social and environmental issues (Nonet et al., 2022). In keeping with Freeman`s (2010, p.8) statement "no stakeholder stands alone in the process of value creation", multiple stakeholders need to join the effort that include civil society, governmental institutions, and businesses for the common contribution to world`s sustainable development (De Bakker et al., 2019). The challenge of global cultural transformation towards sustainable development is related both to the number of stakeholders involved in this transformation and to the multifacetedness and complexity of stakeholders view on the issue across countries. For instance, developing countries may be especially challenging for stakeholders from developed countries for implementing sustainability-related projects due to managerial complexity and context specific issues of the communities related to political systems, and dominant culture practices (e.g., Beamish & Lupton, 2016; Dziubaniuk et al., 2021; Ivanova-Gongne et al., 2022a; Ramirez, 2021; Roy & Goll, 2014). This chapter investigates further challenges of sustainability-related project implementation under the joint effort of developing and developed countries

stakeholders. This study takes a stance of international business (IB) academic field and highlights the role of multinational companies, their managerial practices and influences on the cultural practices for the SDG implementation in the developing regions.

Multinational enterprises (MNEs) play an important role in the partnering for the Goals processes since they make significant negative and positive impacts on sustainability with their business activities (Kolk et al., 2017). The impact of MNEs businesses on poverty, inequality, climate change, and peace are often approached in the IB literature (ibid, 2017). As a proactive step, MNEs make attempts to contribute to sustainability-related causes in developing regions e.g., by promoting inclusive education (SDG 4 'Quality education'), mitigating regulatory weaknesses regarding environmental issues, supporting welfare of the communities (SDG 11 'Sustainable cities and communities') or increasing economic viability of the regions (SDG 8 'Decent work and economic growth') (Becker-Ritterspach et al., 2019; Castillo & Chiatchoua, 2022; Eweje, 2006; Lashitew & van Tulder, 2019). However, entering and operating in developing regions is frequently associated with numerous risks for international MNEs, which requires them to network with local business organizations and with non-market actors such as non-governmental (NGO) and governmental organizations (Doh & Lucea, 2013; Kolk et al., 2017). Among the potential risks when entering and operating in developing markets are institutional voids (inefficient institutional regulations and norms) (Lashitew & van Tulder, 2019), political instability (Okafor et al., 2022), or corruption (Stevens & Newenham-Kahindi, 2021). Networking of MNEs with the local stakeholders aims to mitigate these challenges and helps to facilitate sustainability-related programs. The multi-stakeholder networking is initiated among the interest groups such as governmental institutions, businesses, society, international institutions to develop specific solutions that are challenging to implement without collaboration and partnership (Roloff, 2008a;

Nonet et al., 2022). Management of the multi-stakeholder networks is especially important for achieving the SDGs (Eweje et al., 2021; Schneider & Buser, 2018).

In addition to the most common issues, international companies may face socio-cultural challenges in developing regions if they fail to appropriately adapt their initiatives to local realities. This adaptation may require exploration of specific cultures and involvement of the local communities of the developing regions in the decision-making concerning sustainability projects (Abugre, 2018; Sinkovics et al., 2016). Neglecting the local socio-cultural context may lead to mistrust of the communities and failure of the project implementation even when companies attempt to improve welfare of the population (Sovacool & Griffiths, 2020). The way of how local communities and other stakeholders in developing countries make sense of sustainability could differ from that of managers of international companies (Dögl & Behnam, 2015; Dziubaniuk et al., 2021; Ivanova-Gongne et al., 2022b) including understanding the intended changes in their daily behavior and practices. Socio-cultural barriers to implementing sustainability may be reflected in, for instance, prevention of low-carbon technologies implementation due to biases or misuse of technology (Sovacool & Griffiths, 2020); failure of renewable energy technologies implementation in the rural areas due to miscommunication about the innovation and lack of understanding of the community needs (Urmee & Md, 2016); or resistance to adopt sustainable construction materials due to preestablished culture of the regional construction industry (Mousa, 2015).

Since cultural practices and schemas (shared perspectives and morals applied to the meanings of certain societal concepts, challenges, or events) influence societal behavior and attitude to sustainability (Roy & Goll, 2014; Ivanova-Gongne et al., 2022a, 2022b), and sustainability projects in rural areas are frequently associated with the introduction of innovations for sustainability, it is significant to understand how communities regard sustainability from within

their cultural schemas. The communities' expectations and imaginaries related to technologies geared towards sustainability might differ from those of the international businesses implementing them. The concept of *socio-technical imaginaries* is relevant for understanding such a context. This concept embraces the shared understanding of technological and related social changes through collectively adopted discourses on social practices (Jasanoff, 2015; Pfotenhauer & Jasanoff, 2017). This conceptual framework offers the ability to identify how collective understanding emerges during the implementation of sustainability innovations. In this study, the introduction of water supply infrastructure in the rural areas of a developing country brings with it associated imaginaries resulting in changes of perspectives on cultural mores. Therefore, this research aims to explore *how specifics of culture shape socio-technical imaginaries of sustainability-related technologies and their implementation, and how these technologies can influence cultural practices of the local communities.* To the authors knowledge, research through the lenses of social-technological imaginaries is rarely considered when taking a cultural view for investigating discourses on publicly performed visions of desirable outcomes of sustainable technologies in international business.

This research empirically draws on the socio-cultural practices of the rural communities of western Nepal involving an engagement process with a Finnish consulting company involved in the implementation of a water supply and sanitation project implementation in 2013-2019. The project has contributed towards the achievement of the SDG 6 'Clean Water and Sanitation' by establishing sustainable fresh water supply to the households located in the mountain terrains. The inclusivity inherent in universal access to water access has allowed the communities to improve hygiene practices, health, and overall social wellbeing. In addition to establishing water supply technologies, this project has triggered other important processes that affected socio-cultural order

and processes of the communities. To approach the research objectives, this study explores empirical data of the interviews collected from the four key company's managers who directly participated in the project's facilitation. Additionally, secondary data in the form of publicly available documents, websites and articles related to this project are also analyzed.

This study contributes to the scarce IB literature on the role of international companies from developed countries involved in sustainable development and achievement of SDGs in developing countries (van Zanten & van Tulder, 2018; Van Tulder et al., 2021). This study also addresses a call for further research on involvement of international companies in various developing regions as the key stakeholders to advance sustainability (Kolk et al., 2017). By extending the understanding of socio-technical imaginaries (Jasanoff & Kim, 2015) shaped in the socio-cultural context, it makes an interdisciplinary contribution. Furthermore, this study adds to the multi-stakeholder networking theory applied in the context of developing countries by framing managerial practices involving multiple stakeholders aiming to implement sustainability-related projects (Eweje et al., 2021).

The research findings enhance the understanding of specific socio-cultural aspects of the rural regions of Nepal that may have managerial implications for MNEs related to the specific cultural and social structures that should be considered when entering developing or least developing markets or facilitating sustainability initiatives. This study highlights the culture-specific managerial challenges that international businesses may face in developing regions and different meanings of sustainability and sustainable innovations for the local communities. This study makes contributions to the research on challenges of SDG implementation, particularly addressing SDG 3 'Good health and well-being', SDG 4 'Quality education', SDG 5 'Gender

Equality', SDG 6 'Clean water and sanitation', SDG 11 'Sustainable cities and communities', SDG 13 'Climate action', and SDG 17 'Partnership for the Goals'.

This chapter is structured as follows. First, we provide theoretical background on sustainability in developing countries and involvement of MNEs in these contexts. We also provide an overview of the concept of socio-technical imaginaries in relation to a cultural perspective. Second, we describe the methods applied in order to collect and analyse the research data for our case. Third, we conclude with findings from the case and discuss it in light of the focal research question. Finally, we provide several theoretical contributions, managerial implications and avenues for further research.

2. THEORETICAL FRAMEWORK

2.1. Sustainability in developing countries and MNEs

Complexity inherent in the implementation of SDGs undoubtably require engagement of multiple stakeholders in the cross-sector partnerships, where business organizations may contribute as facilitators of systematic changes toward sustainability (Nonet et al., 2022). Projects or initiatives aimed at implementing sustainability unite business organizations, governmental institutions, non-profit organizations and civil society that co-create value in social, economic, environmental as well as ethical and educational spheres of life (Lacoste, 2016; Ramirez, 2021). This value co-creation demands close international collaboration and stakeholders networking that also promoted via SDGs (van Zanten & van Tulder, 2018; Eweje et al., 2021). *Multi-stakeholder* approach is considered a suitable conceptual framework for studying collaborations for sustainability since it embraces a form of stakeholder management where various actors jointly solve some issues affecting them that are too complex to address without collaboration (Roloff, 2008b; Clarke &

MacDonald, 2019). Multi-stakeholder networking adopts a dialogue style of interaction among the engaged parties that may possess unique experience and understanding of the context (ibid, 2008b).

Due to specific aims and complexity of the multi-stakeholder interaction, the context within which such interactions occur becomes an important factor to consider, as it may be influenced by politics, structure of the economic system, level of societal and technological development of the region, etc. (Bäckstrand, 2006; Roloff, 2008a; Eweje et al., 2021). Sustainability initiatives and projects addressing SDGs in developing regions may experience contextual factors and uncertainty (e.g., Dentoni et al., 2018). Developing regions are often characterized by institutional voids i.e., inefficient institutional norms and regulations that may complicate international networking (Doh et al., 2017; Koch, 2020), corruption and exclusion of local stakeholders in the decision-making process (Ramirez, 2021; Stevens & Newenham-Kahindi, 2021). Interaction with multiple stakeholders and especially with the local project beneficiaries can help in tackling these challenges, bring knowledge, expertise about the local issues and enable efficient adaptation to local conditions (Romestant, 2020). Specific adaptation may be needed also for cross-cultural communication and understanding local cultural and social needs of the community (Abugre, 2018; Sinkovics et al., 2016) especially if the case concerns sustainable technologies implementation (Sovacool & Griffiths, 2020).

While sustainability is a long-established concept in developed countries (Du Pisani, 2006), developing countries have only recently started to look more closely into issues related to sustainability (Dögl & Benham, 2015). Similarly, research on sustainability and sustainable development in developing countries is an underdeveloped but growing field (e.g., Muller & Kolk, 2009; Kolk et al., 2017). Some researchers criticize the current view on sustainable development

of being too “universal” and not considering, amongst others, the specifics of developing countries' institutional, economic, and social contexts (Bali Swain & Yang-Wallentin, 2020). For instance, Bali Swain and Yang-Wallentin (2020) conclude that developing countries should focus their resources in the short-run on social and economic sustainability, whereas the focus on environmental and social sustainability may be more prioritized be developed countries. This study shows similar findings as Dziubaniuk et al. (2021), where the priority of sustainability in the rural Nepal regions are associated with economic and social wellbeing, whereas environmental concerns are more typical to the western countries. Such results are linked to the core challenge in developing countries of achieving basic standards of living (Bali Swain & Yang-Wallentin, 2020), which should be the focus of western companies operating in those countries and aiming to promote sustainability.

Despite many attempts made to reach SDGs and sustainability initiatives in developing regions, poverty was among the main causes hindering the goals implementation according to Leal Filho et al. (2021). This study also indicates that SDG 3 ‘Good Health and Well-being’, SDG 2 ‘Zero Hunger’, SDG 4 ‘Quality Education’, and SDG 6 ‘Clean Water and Sanitation’ were rated as the goals most affected negatively by poverty due to inefficient governance, lack of financial resources, educational and training programs, and regulatory policies (ibid, 2021). Poverty also places a burden on environmental ecosystems since developing regions experience the effects of climate change and natural disasters (Unpei, 2023). Thus, poverty in developing countries is seen as one of the barriers towards implementing sustainability enhancing innovations in those countries due to negatively self-reinforcing economic, political, or social behaviors that hinder changes (Khavul & Bruton, 2013).

Previous research on MNE in developing countries has focused both on negative and unethical acts related to multinationals (Burritt et al., 2020), as well as on the positive outcomes (Brandl et al., 2022). Among positive factors are influences on socio-cultural development of the regions when companies support educational programs and inclusive governance practices (Lashitew & van Tulder, 2019), filling institutional voids by influencing the institutional structures toward more democratic principles (Becker-Ritterspach et al., 2019) or implementing projects aimed at enhancing wellbeing of the communities (e.g., Schneider & Buser, 2018). Among the negative factors, research highlights the human right abuses linked to MNEs operations (Giuliani & Macchi, 2014), opportunism (Oetzel & Doh, 2009), corruption (Cooke et al., 2022), as well as negative ecological impact by reducing local communities' ownership of the natural resources and ability to manage them (Brandl et al., 2022). While natural-resource-seeking purposes of MNEs arguably "*increase rural poverty through the degradation of community strength in the rural areas*" (Brandl et al., 2022, p.1139), foreign companies and organizations in general also bring along new social and cultural knowledge, as well as technologies fostering sustainability, which with the correct approach can benefit the local communities. However, some technologies may be difficult to introduce specifically due low understanding of cultural specifics. The study of Sovacool & Griffiths (2020) highlights examples of such cultural barriers in developing regions toward low-carbon energy producing technologies such as solar panels or stoves. For instance, in Papua New Guinea solar panels could not be installed only in one village since the neighboring villagers may damage them because sharing resources is rooted in the tribal system. In Nepal, some households would cover the panels with the leaves to make them a part of the nature or use them as laundry drying racks. Modern cooking stoves designed to reduce emission from traditional fuels were rejected in some rural Indian communities as they were unable to cook traditional bread that goes

against the local culture. Similar issues were faced in East Timor where women, who are traditionally responsible for cooking, refused to use improved stoves as they believed that new stoves make the taste of food inferior. In Zimbabwe, solar cookers were rejected in some regions as sunlight has a spiritual significance, therefore, capturing this light can be considered as stealing from Heaven. These examples show that more research is required on how foreign companies can potentially initiate cultural change in local communities towards more sustainable behavior by listening and adapting their actions to the needs of those communities. Such cultural change would require co-constructed socio-technical imaginaries developed through interaction between local communities and foreign companies, which is discussed in the following section of this chapter.

2.2.Socio-technical imaginaries and a cultural perspective

All technologies, complex or simple, are enmeshed in society through components of social order in the form of roles, institutions, and practices (Jasanoff & Kim, 2015). For instance, automobiles take shape in the work of scientists, engineers, designers, through patents and trademarks, stabilized for the market by workers and firms, regulators, dealers, distributors, marketing and advertising professionals, and users who help create the imaginaries of the future, in terms of use, appeal, and meaning (ibid, 2015). Jasanoff (2015) refers to *socio-technical imaginaries* as to collective and institutionally legitimized vision of desirable future that is shaped by the common understanding of the structure and forms of social life supported and influenced by technological advancement. Socio-technical imaginaries inform the creation of socio-technical futures through debates related to the promises of technologies as well as the factors like governance mechanisms leading to the processes of socialization. In that socio-technical futures combine potentialities of

new technologies with the envisaged societal change reflected in new social arrangements (Konrad & Böhle, 2019).

Since the case outlined in the chapter involves the introduction of technologies that offer fresh water supply to the rural communities, the process of introduction embedded in the narratives of actors involved, could be framed within socio-technical imaginaries. These imaginaries through knowledge objects (artifacts that encapsulate the meaning and social relations of particular communities), scenarios, roadmaps, and narratives, enable the creation of socio-technical futures that present possibilities of progress and change in cultural practices.

Local cultural practices and understandings in developing countries may affect the shaping and the original meaning of socio-technical imaginaries that actors from developed countries attempt to introduce in those countries. Culture, however, is never static and interaction between MNEs and local actors may allow shaping the socio-technical imaginaries in a way that they are adapted successfully in the local communities considering the local cultural specifics. Transformation in general, as well as towards sustainability can be seen both as "physical and/or qualitative changes in form, structure or meaning-making" and "as a psycho-social process, involving the unleashing of human potential to commit, care and effect change for a better life" (O'Brien, 2012, p.670). Interaction between local communities and MNEs implementing the sustainability enhancing technology is vital for changing the persistent local cultural schemas of sustainability, which in turn affect communities' behavior and practices. *Cultural schemas* constitute shared knowledge, lenses, templates used for ascribing meanings to certain concepts, events, problems and stimuli (Ivanova-Gongne, 2015; Leung & Morris, 2015), as well as to understand societal environments (Ivanova-Gongne et al., 2022b). Pre-existing cultural schemas and as a consequence of a cultural practice may bias and shape the local communities' understanding of socio-technical imaginaries

being introduced by foreign companies. At the same time, applicability, i.e., fit to a certain situation (Leung & Morris, 2015), of the new and/or changed cultural schemas and practices related to the introduced socio-technical imaginaries may affect its integration into the local community and co-construction/adaptation.

Socializing technologies involve the circulation of socio-technical futures among various stakeholders and through a process of deliberative and reflective future-making they are integrated into policy and innovation processes (Konrad & Böhle, 2019). Future-making is performative and deals with anticipatory practices such as foresight and scenario-building as governance mechanisms (Konrad & Böhle, 2019) and here, engagement with local cultures become relevant. The following section discusses specifics of Nepal culture and related practices to the water treatment that is a major an empirical case of this study.

2.3. Socio-cultural context of Nepal

Nepal is rich in culture but one of the poorest countries that, however, takes many steps to improve its socio-economic situation. According to the Multidimensional poverty index (MPI, 2021) report, that estimates country's health, education and living standards, Nepal has reduced poverty index from 30,1% in 2014 to 17,4% in year 2019, but the COVID-19 pandemic slowed the country's development (MPI, 2021). It was predicted that Nepal will graduate from the least developed country category in 2021 but the pandemic slowed down the process and is now expected to attain this goal by 2026 (International Trade Centre, 2022). The main reason for lagging is rooted in a military conflict the country experienced in 1990. It, however, brought changes with the establishment of pro-democratic government (conventionally, monarchy) but faced new challenges of political rivalry. Despite turbulent times during 1990-2000s and several politically

motivated armed conflicts, the country has abolished monarchy and switched to the status of democratic republic only in 2008 (Wells & Sharma, 1998; Doty, 2016). Modern economic development of Nepal is focused on agriculture, tourism (in the rural areas tourist infrastructure is predominantly facilitated by small family-owned businesses) and manufacturing oriented primarily towards neighboring markets of China and India, both of which exert significant that are the neighboring countries and impose influence on politics and culture of Nepal (Paudel & Billon, 2018; NDU, 2019).

Currently, Nepal is a home to approximately 120 ethnic groups and 100 languages (Doty, 2016). This cultural diversity embodies levels of social exclusion of certain groups of minorities in addition to issues of gender inequalities (UNDP, 2021). Society in Nepal remains mostly patriarchal especially in the rural areas which means that women can be restricted in the community decision-making and other opportunities due to cultural norms, values, and religious beliefs and traditions (Becken et al., 2013). Women of Nepal are traditionally responsible for the households but may experience inequalities in terms of access to education, health care services and participation in politics (Shrestha, 2018; Shrestha & Clement, 2019). Similar limitations concern a silent caste system representing hierarchy of power that prevents ethnic minorities from participation in the discussion of a community development (Dziubaniuk et al., 2020). The UN together with the government of Nepal and international NGOs constantly attempt to improve social inclusion focusing on empowering women by promoting micro-entrepreneurship, implementing social inclusion policy and inclusive local governance systems (UNDP, 2021).

In addition to social issues, rural and mountain areas of Nepal experience devastating effects of climate change that are reflected in heavy rains and consequently landslides, poor crop productivity, extinction of plans and animal species, loss of drinking water resources that causes

forced relocation of villages, etc. (Bocchiola et al., 2019; Haapala & White, 2018; Paudel et al., 2021). Drinking water supply especially in the rural areas used to be a challenge and remains among current priorities in Nepal (Shrestha & Clement, 2019). Government of Nepal has signed "The UN Human right to water and sanitation" resolution in 2010 that recognizes the right for safe and clean drinking water and sanitation as a human right (UN, 2010). This offers direction for developing sustainable solutions in the sphere of water supply, access, and treatment. However, cultural practices related to water usage and adoption of technologies or new cultural schemas are important to consider for changes as noted by Rainey & Harding (2005). Their study offers an example of a cultural barrier in adopting a simple method of water purification since water in Nepali culture is associated with pureness rather than contamination. Taste and color of water are valued over whether it is safe to drink. Nevertheless, according to MPI report (2021), access to drinking water has gradually improved with international projects and collaboration. Additionally, the UN reports indicate improvement in sanitation in the rural areas that used to have problems with open defecation and low standards of hygiene such as a lack of handwashing. Governmental campaigns aimed at disseminating information on the importance of sanitation and hygiene were instrumental in affecting change in using toilets and traditional behavior despite the often-expressed view that such practices were "against our longstanding culture" (UN News, 2019).

3. METHODOLOGY

This study focuses on Rural Water Supply and Sanitation Project in Western Nepal Phase II (RWSSP-WN) that was among those international collaboration projects that contributed to the water supply facilitation in the rural Nepal areas. Through the installation of water supply, the project had influenced changes in the cultural practices, social wellbeing and contributed towards

building a shared vision along with local communities towards sustainability and future sustainable development of the regions.

3.1. Data collection and analysis

This study regards RWSSP-WN phase II executed in collaboration between the Finnish and Nepalese governments involving local Nepalese municipalities, communities and village development committees, and the Finnish technical assistance consultant that is the focal company of this study. The project has lasted from 2013 till 2019. RWSSP-WN is a water supply, sanitation and hygiene project which aims at "improved health and fulfilment of the equal right to water and sanitation for the inhabitants of the project area" (RWSSP-WN Completion report, p.1). The project has aimed to ensure rights for "the poorest and excluded households' to access safe and sustainable domestic water, good health and hygiene ensured through a decentralized governance system with improved effectiveness of rural water supply and sanitation services" (ibid, p.1). Thus, besides managing construction of the water supply in the rural areas, the focal company had to ensure that gender equality and social inclusion would result in the fair water access and sanitation. Currently, phase II of the project is successfully completed by achieving all the established goals.

This study is of qualitative character and the data consists of interviews, publicly available project reports, a doctoral thesis, and research papers drawn upon the project data and published in academic journals (see Table 1 for details). The interviewees are representatives of the Finnish company that facilitated and managed the project on site. The company technical advisers have provided technical expertise and assistance in construction processes performed by the small local firms and individuals and arranged training programs on water schemes usage to the local communities. During their interaction with the local stakeholders, the managers have faced some

socio-cultural challenges that needed attention to ensure that water supply is inclusively accessible and treated in a proper way. Three interviews were collected in total. Despite the limited number of interviews, the interviewees` insights into the challenges faced during the project offers a significant input for this research as they directly participated and managed the processes of the project implementation. The interviews have covered the following key themes: 1) major project goals and methods of its implementation; 2) roles of the involved stakeholders facilitating the project; 3) socio-cultural challenges or cultural specifics that interviewees faced during the project execution; 4) the meaning of sustainability in the context of Nepal; 5) how the project and interaction with the local community stakeholders have influenced the latter's understanding of sustainability and future vision of the community development, and 6) how these influences were reflected in the socio-cultural practices. Each interview lasted around 45-60 min and have been collected during March-May of 2020. Since only the Finnish representatives of the focal company were interviewed, this study adopts "western" perspective on the case. While participation of Nepal-native stakeholders in this study would deepen the understanding of the cultural specifics and changes that are shaping socio-technical imaginaries, we attempt to illustrate an "outsider" perspective on the local challenges as they may notice the changes in the local cultural schemas that could remain overlooked by the locals.

The collected interviews may give only limited information of the issue in focus, thereby the data obtained from the informants was supported by an analysis of project completion reports that, beside technical specification of the water schemes construction, also include some reflection on how cultural practices of local communities were affected. Academic articles and a doctoral thesis add trustworthiness to the data analysis by covering different aspects of the project implementation

and providing a more holistic picture. The empirical data collected and analyzed for this book chapter is summarized in Table 1.

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Additionally, this study is supported with academic literature sources covering research on cultural specifics, water treatment and challenges of technologies adaptation in Nepal. Thus, the empirical results of this study are complemented with the previous literature to support discussion and to improve understanding of the socio-cultural and environmental issues predominant in the local communities. The key literature sources used for this study are summarized in Table 2.

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Interviews and other textual artefacts were examined through content analysis (Duriau et al., 2007; Zhang & Wildemuth, 2009). Qualitative content analysis is a useful method for interpreting the meaning conveyed in the interviews and other textual data (Elo et al., 2014) and underlying themes in the text being analyzed (Kohlbacher, 2006). The steps in our analysis were the following: First, the interviews were recorded with the respondents` permission and re-written into a textual format. Second, the interviews were read through in order to understand their content, and the most relevant parts of the interviews describing the socio-cultural challenges were underlined. Third, similar expressions on the cultural practices from the three interviews were collected in order to reach saturation of data. Forth, the key expressions were summarized and coded according to the relevant themes of this research: predominant socio-cultural practices in the communities, challenges in changing the cultural schemas, technical and social adaptation of the project goals to the local communities' specifics, results of the project implementation in the communities` daily life, and evidence on shaping socio-technical imaginaries of sustainability in the region. Evidence

from the interviews were compared with the information from the projects reports and related articles that allowed to improve and support the research findings.

4. RESULTS

4.1. Specifics of project implementation

Implementation of the project and establishment of the water supply schemas required close involvement of the Finnish company technical advisers in the field. All the interviewed experts have urged that a personal involvement and monitoring of the process is extremely important for the project implementation. Practicalities such as access to the villages, language translation and communication were supported by the Nepalese government agencies. Significant support was made available at the local municipalities and communities as they are the main beneficiaries of the project. Local project facilitators were employed directly by the focal company to ensure their expertise, since personal networking in developing countries is still common and relatives or friends may be promoted to positions despite not being competent for the job.

The water supply technologies used in the construction of water schemes were quite standard, but they had to be adapted to the difficult local terrains. For instance, according to the respondent 1, water pumps in the mountain area, that previously were difficult to reach, have been powered with solar panels to pump the water to the disadvantage areas. Training of the local communities to operate and secure the water supply schemes was especially important due to frequent natural disasters such as landslides, earthquakes, and heavy rains. Natural disasters have become more common as a consequence of climate change (Haapala & White, 2018; Paudel et al., 2021). Therefore, it was important to develop a functioning sustainable water supply system. For this purpose, a Water Users` Committee was created in each community that was responsible for

keeping the water schemes running. Involvement of the communities in project planning and facilitation from the start was crucial since locals are not only the main users but also are contributors to the construction process with their labor, time, and money and, therefore, sustainability of their communities. This goes in line with, for instance, Sinkovics et al. (2016) research who emphasize that community members need to participate in the decision-making about their community development. The local committee members in Nepal also were taught to plan and construct water schemes where they might need them in the future.

Since the project beneficiaries actively participated in the construction work, they were highly motivated and completed the project tasks in record time. The construction materials were provided by the local small companies and entrepreneurs which enabled them to build capacities for continuing to supply materials for any future constructions. Conventionally, Nepalese small businesses are not interested in sustainability and, due to harsh economic conditions, they usually pursue only short-term benefits (Shrestha & Gnyawali, 2013). As the respondent 2 points out, economic and social sustainability are more on the people's mind in Nepal. Additionally, as noted by the respondent 3, the businesses in Nepal are concentrated in touristic places or capital area leaving the rural areas underserved. However, construction of the water supply allows entrepreneurs or small firms to participate in such development projects further. Moreover, according to the respondent 2, with easier water access, women, who are traditionally responsible for carrying water to the households from far distances (White & Haapala, 2019; Shrestha & Clement, 2019), have more free time to educate themselves and even engage in some entrepreneurial activities.

The study respondents emphasized the importance of personal qualities for managing multiple stakeholders` networks. Once the representatives of a foreign company arrive at an unfamiliar

country-context, it is important to be patient and respect local culture. Nepal remains a least developed country despite some progress during recent years (International Trade Centre, 2022; MPI, 2021), and it still experiences institutional voids reflected in the lack of regulations. Thus, informal interaction with local stakeholders may be needed to compensate regulatory inefficiency and to develop trust with locals in order to understand their needs and to help them develop sustainable solutions. Foreign managers need to adopt a holistic approach in order to understand power relations, local social context, different world views, etc. that will help in managing business relationships with locals efficiently (Haapala & White, 2018). Personal involvement in field work was also important in order to develop trust of the villagers and to understand better the contextual specifics of their needs.

4.2. Project influence on socio-cultural changes

The implementation of the water and sanitation project has changed the local culture and social relations in terms of decision making and inclusivity. For instance, the project has led to changes in the roles of women and lower caste representatives who obtained an opportunity to participate in decision-making about water schemes construction (Doty, 2016). Caste system reflects hierarchy of power among population groups and may cause restriction of certain human rights (White & Haapala, 2018). However, gender equality and social inclusion were among the key project goals (RWSSP-WN Completion report). Therefore, the company`s technical advisers suggested that representatives of all ethnic groups, minorities and women participate in the Water Users' Committees and related decision-making activities about construction and usage of the water schemas. Considering the dominant masculinity of Nepalese society, which is rooted in its culture (Becken et al., 2013; Shrestha, 2018; Shrestha & Clement, 2019), local women have been

empowered by participation in the committees that allowed to enhance their self-esteem and confidence (White & Haapala, 2019). Participation of women in the committee had also a rational reason: they provided their expert insight and knowledge to understand local needs of the water supply as they are responsible for the households and water delivery. Carrying heavy water vessels have negative health impacts that, as pointed by one of the respondents, could be seen in the postures of elderly women who have been carrying water their whole lives. Such inclusive planning and management of construction activities had partially addressed the issue of institutional voids by improving regulatory processes and decision-making. Therefore, bringing water sources to the villages have solved several problems at once: provided drinking water, allowed to improve health and social well-being. Established water supply has improved hygiene and sanitation practices that, however, required a specific approach.

Lack of toilets, open defecation and washing hands are recognized issues in Nepal that are gradually being solved with the help of governmental educational campaigns and investment (UN News, 2019). Accessible water supply has contributed to solving these issues in the rural areas but, since absence of toilets was also a part of the cultural schema (ibid, 2019), the cultural attitudes and beliefs toward hygiene still needed change. Thus, educational events were organized along with other knowledge dissemination strategies in order to promote hygiene practices. Some examples of such knowledge dissemination strategies were, for instance: using colorful posters with comprehensive visuals (due to low literacy of the local population) and familiar elements of the local cultures and languages, educational movies, wall paintings about toilets usage, etc. (RWSSP-WN II, PSU, 2017). These activities indeed led to positive changes in the hygiene practices of the communities. Another central cultural issue was related to women`s hygiene. As respondent 1 explained this, according to some local cultures, women must be isolated during the

menstruation periods, that also prevents girls and even female teachers from attending schools. Respondent 3 adds that menstruation is a cultural taboo and that during menstruation women are not allowed to touch a water tap. Such practices are detrimental in terms of hygiene and sanitation, are associated with human rights violation and go against the UN Right to Water and Sanitation (UN, 2010). These challenges were addressed with the water projects, where accessibility to water became "a tangible" change and people became interested in accepting new cultural schemas and improve their community. The project leaders created an environment where all members of the communities had access to water supply despite their religion, ethnicity and gender, whether menstruating or not. Additionally, workshops and campaigns dedicated to women`s hygiene were organized by introducing sanitations pads, explaining the importance of hygiene for healthcare, and most importantly starting to discuss menstruation, breaking through the beliefs and taboos. One of the project reports indicated that more communication about hygiene made it easier to talk about harmful cultural practices and easier to change them (RWSSP-WN BRIEF, 2018).

To summarize cultural transformations catalyzed by the project implementation, first, there can be highlighted changes in attitude to hygiene and sanitation. Constructed water schemes and educational programs has improved practices such as hands washing, construction of toilets and changed cultural prejudice about women`s hygiene. Specific impact of improvement sanitation and healthcare for women was a big step in discussion and approaching unfavorable for hygiene cultural practices. Second, establishment of the Water Users` Committee in the communities has influenced inclusivity of their members participation in the decision-making by overcoming caste system and giving a voice to women. Empowerment of women had several effects contrasting with masculine cultural schemas such as participation in the community development and decision making about water usage, enhanced their confidence and allowed to engage in micro

entrepreneurship. Finally, the project has illustrated the interconnection between social, economic and environmental sustainability that has shown the communities a direction for development. Locals have become interested to implement cultural changes favorable for their wellbeing that regards social relations and technologies adaptation.

4.3. Developing holistic imaginary of sustainability

The introduction of infrastructural and socio-cultural changes through the project also have changed the communities' vision of sustainability. Conventionally, understanding of sustainability in developed countries concerns the environmental dimension that is interconnected with social and economic wellbeing (Du Pisani, 2006; Matschoss et al., 2019). In developing countries including Nepal, sustainability acquires a different meaning, where satisfaction of basic needs and surviving poverty and natural disasters resonate more (Dögl & Behnam, 2015; Dziubaniuk et al., 2021). As it is emphasized by respondent 1, sustainability in Nepal is about people's survival. The water project helped local people to look at sustainability from a more holistic perspective. The ability to construct, support and rebuild water schemes illustrated that long-term development is achievable and depends on the input and skills of the communities. The locals will be able to sustain their well-being even after experiencing natural disasters since now they have the knowledge and skills to address these water supply challenges. They have also learned about proper treatment of the water sources which are affected by devastating impacts of the climate change. Respondent 2 explained that they tried to introduce the concept of environmental sustainability to attract communities' attention to drying up of water sources by surveying the sources and presenting the evidence. Challenge of decreasing water resources highlighted concerns about fairness of water usage when there is not enough water for everyone. Additionally,

drinking water was prioritized over e.g., agricultural usage. Respondent 3 explained that the villagers began to take actions after obtaining knowledge about climate change effects, capacity building, risks of disasters management, etc. For instance, beside preserving water sources, they started to cultivate different types of crops resistant to climate change or to grow new non-traditional food like mushrooms. All those actions contributed to the understanding of environmental sustainability and how it should be approached in the future.

Improved hygiene and sanitation have affected general well-being of the community and contributed towards solving many health issues. However, as respondent 1 mentioned, the water project has supported and influenced other areas of peoples` lives such as food security, waste management, more convenient and healthier lifestyle. Thus, a new imaginary of the communities related to sustainability was created, namely a longer and healthier life that opens up new possibilities and opportunities for sustainable development. Improved community well-being gave a start for a change in cultural schemas that made the community members revise their understanding of the roles of women, as well as ethnic and religion minorities for the community development. However, respondent 2 stressed, that influencing the culture of deeply rooted hierarchy of power predominant in Nepal will take more time. Nevertheless, the initial steps have shown results, for instance, in the empowerment of women and minorities, and encouraging them to participate in local political life. Their fair representation in the Water Users' Committees has improved the issue of inclusion and changed cultural schemas in relation to that (Doty, 2016). Therefore, introduction of water schemes had an impact on the social and economic sustainability of the communities. These changes have opened new perspectives to the future development of the communities as they have changed their understanding of sustainable development including cultural practices previously hindering this development.

5. DISCUSSION

Implementation of sustainability projects in developing and least developed countries is a complex process and contributing to the SDG 17 'Partnership for the Goals', requires networking of multiple stakeholders who may directly or indirectly influence the local socio-cultural context (Nonet et al., 2022; van Zanten & van Tulder, 2018). Socio-cultural specifics of the regions have to be considered by international companies implementing sustainable initiatives since interaction with local communities with strong culturally rooted practices, institutional voids, and social inequalities may require adaptation to the local realities (Dentoni et al., 2018; Koch, 2020; Romestant, 2020; Sinkovics et al., 2016). Therefore, communication in a form of dialogue is needed between international and local stakeholders to develop understanding of the local needs and developing specific solutions (Roloff, 2008b; Romestant, 2020). Projects addressing sustainability issues may also cause indirect positive changes in the socio-cultural context of the communities. While respecting local culture is important, certain associated practices could be influenced as part of the communities' objective of achieving development that is sustainable. Introducing technologies for the purpose of increasing community well-being can be a part of sustainable development of the regions. These technologies have associated meanings embodied in the design, construction, and operation. However, the cultural specifics and social structure of the population in developing countries need to be considered to avoid technologies misuse or rejection of technological advances (Sovacool & Griffiths, 2020).

The findings of this research indicate that even in the implementation of simple technologies such as water supply schemes in developing countries could trigger the development of socio-technical imaginaries within communities and help shape a vision of future sustainable development through

changes in cultural schemas and practices. Since socio-technical imaginaries reflect a desirable future influenced by perception of technological advancement (Jasanoff, 2015), employing the full potential of technologies may require societal changes (Konrad & Böhle, 2019). However, some unfavorable social practices or structures (e.g., hierarchy of power) may originate in established cultural schemas and may hinder social and technological development. In the case of rural Nepal, implementation of the water supply schemes caused positive changes not only in the spheres of hygiene, sanitation, health, and well-being but also in social inclusion and improvement of economic conditions. Providing access to water supply and the resulting experiences of the somewhat remote and isolated village communities with the associated benefits of such access have revealed dimensions that have enriched these communities' understanding of well-being. These added dimensions have prompted new perspectives on the existing cultural practices. The water supply project has demonstrated that future development of the communities is closely interconnected with changes in cultural schemas and practices for optimum sustainability outcomes. Thus, the imaginaries of sustainable future become initially embedded in the cultural schemas that embrace shared knowledge of how people understand the social environments they live in (Ivanova-Gongne et al., 2022b). This familiarity creates a discursive space for negotiating changes required for better sustainability outcomes.

Rural communities of Nepal have a long-lasting culture and a variety of ethnical groups (Doty, 2016). It is not surprising that socio-cultural changes may be hard to implement in such environments. Among the main challenges in this case are traditional hierarchy of power among castes, patriarchal society, and discrimination of ethnic and religion minorities (Becken et al., 2013; Dziubaniuk et al., 2020; Shrestha, 2018). The water project supported by a Finnish company and its technical advisors has brought several changes into the social structure and consequently

into the local cultural schemas. Participation of women and minorities in the Water User`s Committees was encouraged not only for practical reasons to understand the local needs, but improved inclusivity in decision-making regarding communities' development by drawing attention to neglected sections of these communities and emphasizing their importance and the roles they play in building a cohesive coalition for addressing complex challenges. In providing access to safe drinking water and making inclusiveness a primary feature of such access, the project triggered other ideas for change among community members, for instance, changing their cultural schemas that ranged from menstruation to minorities rights. These steps directly contribute to the SDG 5 'Gender Equality' and 'The UN human right to water and sanitation' resolution (UN, 2010). Additionally, the project results indirectly addressed the SDG 4 'Quality education' as it freed women from carrying water and use that free time to be engaged in educational programs. Poverty remains one of the key issues plaguing these communities and is instrumental in slowing down and even preventing sustainable development of rural regions (Filho et al., 2021; Khavul & Bruton, 2013). The implementation of this project has activated imaginaries that have spurred women in these communities to became more engaged in microentrepreneurial activities or political life of municipalities. This in turn has allowed economic activities to flourish and become viable, thus enabling the creation of new visions for future socio-economic development.

A further transformation was related to hygiene and sanitation practices. In particular, culturally established schemas concerning water and toilets utilization (Rainey & Harding, 2005; UN News, 2019) had to be changed in order to achieve sustainability of the water usage. Again, these changes were necessary for the water infrastructure to function effectively. These changes, promoted with a variety of methods undertaken by the technical advisors from the Finnish company and local governmental programs adapted to cultural specifics of the regions consisted of using local dialects

in the promotional materials and colorful pictures that captured local cultural contexts. Despite cultural attitude about water prioritizing taste and look of the water over its safety and pureness (Rainey & Harding, 2005), the technological imaginaries created through the promotional materials added dimensions of hygiene and water treatment that introduced and impacted the existing cultural reference to water. These efforts indicate and showcase the improved hygiene and sanitation practices that correspond to SDG 6 'Clean water and sanitation' addressed in the project and SDG 3 'Good health and well-being'.

The water project implementation has also created awareness of environmental sustainability that is conventionally not prioritized in the developing regions (Du Pisani, 2006; Dögl & Benham, 2015) even when, ironically, it is those particular regions that experience the worst consequences of the climate change (e.g., Dziubaniuk et al., 2021; Paudel et al., 2021). The water schemes construction have illustrated that social, economic, and environmental sustainability are interconnected. Preservation of water resources and its appropriate usage may impact the community well-being, health, agricultural practices, social inclusion and even economic situation. Emphasizing significance of environmental concerns also have to be embedded in the cultural schemas. Natural resources like water or plants already have cultural meanings in Nepalese society (Rainey & Harding, 2005; Sovacool & Griffiths, 2020). However, their preservation and sustainable treatment within the current context of climate change and associated challenges, can be negotiated by accessing existing cultural schemas and weaving their relevance meaningfully through imaginaries embodied in the technological infrastructure. Understanding environmental challenges and figuring out ways of tackling them with the help of technologies or new cultural practices can shape a vision of the future development of communities living in balance with

nature. Regarding SDGs, a response to the climate change challenges contributes to the SDG 13 'Climate action' as well as to the SDG 11 'Sustainable cities and communities.'

6. CONCLUSIONS

This chapter discusses how international companies can have meaningful impacts and practice sustainability within the context of developing regions, through collectively shaping socio-technical imaginaries while contributing towards changing cultural schemas and practices. Socio-technical imaginaries embrace common understanding of technological and associated future social changes that also may require revision of the predominant cultural schemas that attribute meanings to the surrounding environment. This study emphasizes that creation of an imaginary of the future sustainable development is embodied in technological advancements that trigger the need for creating favorable socio-cultural contexts which become significant in addressing current social, economic, and environmental challenges in developing countries. The results of this empirical research illustrate various positive impacts of the water supply schemes construction in rural Nepal. Implementation of simple but vital technologies of drinking water supply to previously underserved regions has also helped to overcome cultural bias and develop imaginaries of the future sustainable community development.

6.1.Theoretical and managerial contributions

The study contributions are as follows. First, we respond to the long-standing call in the international business research for contextualization of knowledge (Welch et al., 2022). While environmental sustainability has been the "most studied stream" in IB (Kolk, 2016, p.28),

understanding dependency of sustainability understanding on cultural schemas (see e.g., Ivanova-Gongne et al., 2022b) and local socio-cultural practices is essential in order to reach proper SDG implementation in various contexts (Dziubaniuk et al., 2021). Second, this study responds to a call for more investigation into how foreign corporations might serve as essential stakeholders for fostering sustainability in developing nations (Kolk et al., 2017). Specifically, it shows the essential role of interaction in the multi-stakeholder network involved in sustainability-related projects and creation of mutual agreement among stakeholders (de Bakker et al., 2019) and adds to literature applying multi-stakeholder network theory in the context of developing countries (Eweje et al., 2021). Finally, our study is, to our knowledge, one of the first studies in international business putting to the fore the concept of socio-technical imaginaries, which is essential for understanding how innovations introduced by MNCs may foster social change and affect sustainability in the contexts being implemented (see Konrad & Böhle, 2019).

For practitioners, first, this study's findings emphasize that MNEs entering developing countries may face unexpected challenges associated with their socio-cultural context. Therefore, ability to adapt to local realities and cultivate respect towards local culture may be important for project implementations and business operations. However, certain local cultural practices can be influenced and consequently changed by means of appropriate educational and knowledge by approaches that consider specifics of local culture. These approaches are often embedded in the innovations and technologies introduced for addressing specific challenges. This study also emphasizes the importance of selecting managers with appropriate individual qualities for assignments to the developing countries as they need to be open for adaptation, ability to develop personal networks and build trust with local stakeholders and being patient especially at the beginning of the projects. Additionally, involvement of local stakeholders at all project stages is

extremely important if the project concerns their communities` development. This inclusion may help not only to understand the local needs better but to understand specifics of adaptation of technologies, communication, managerial practices, to the socio-cultural contexts especially in the developing regions.

6.2. Study limitations and future research suggestions

This research has several limitations which also provide opportunities for the future research. Our empirical study is conducted by interviewing several individuals from a developed country company and provides an "outsider" view on the case. While it is beneficial in terms of spotting cultural changes that remain unnoticed by local communities, due to the partly unconscious level of these changes, an emic or "insider" perspective is still required for a more holistic understanding of sustainable development in these communities. This corresponds with a call for more research on sustainability from developing and least developed countries perspective (e.g., Cobbinah et al., 2015; Kolk, 2016). In particular, we concur with Cobbinah et al. (2015) in that more research is required "to explore the role of local people, communities and countries in developing countries in promoting environmental conservation, reducing poverty and managing rapid urbanisation, which are pivotal to sustainable development" (p.30). This research is also limited to exploration of one specific water supply project, whereas comparison of various sustainability-related projects in the context of Nepal would increase understanding of its development processes toward sustainability and achievement SDGs. Furthermore, this study focuses on the perspective of individuals from one focal company. Thereby, further research considering perspectives from various stakeholders is needed in order to understand how differences in views on sustainability are accounted for and how challenges related to differences in views are overcome.

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Table 1. Empirical data outline

Data type	Data outline
Interviews	Respondent 1 Chief technical adviser Respondent 2 Senior manager Respondent 3 Field specialist, sub. chief technical adviser
Project reports	RWSSP-WN Phase II Completion Reports. Available at: https://www.rwsspwn.org.np
Project-based academic articles	Haapala, J. & White, P. (2018). Development through Bricoleurs: Portraying Local Personnel's Role in Implementation of Water Resources Development in Rural Nepal. *Water Alternatives*, 11(3), 979-998. White, P. & Haapala, J. (2019). Water security and social inclusion: local governance within the newly established rural municipalities in Nepal. *New Angle: Nepal Journal of Social Science and Public Policy*, 5(2),1-29. White, P. & Haapala, J. (2018). Technical advisors as brokers: translating gender equality and human right policies and values into practice in the water sector in Nepal. *European journal of development research*, 31(3), 643-662. White P., Rautanen, S-L., & Nepal, P. (2017). Operationalising the right to water and sanitation and gender equality via appropriate technology in rural Nepal. *Human rights and technology. The 2030*. 217-240.
Academic dissertation	Doty, A. (2016). *Bringing Peace to Life? A Narrative Analysis of Finnish development Intervention in Conflict-Affected Nepal.* University of Tampere, Finland.

Table 2. Literature summary

Author(s) and year	Conceptual relation
Sovacool & Griffiths (2020)	Cultural barriers to technologies adaptation including a case of Napal
UNDP (2021)	Gender equality and social inclusion in Nepal, UN report
Dziubaniuk et al. (2020)	Challenges of water supply technologies implementation in the rural Nepal areas
Becken et al. (2013)	Cultural norms of Nepal communities
Shrestha (2018)	Human rights perspective to gender inequality in Nepal
Bocchiola et al. (2019); Paudel et al. (2021)	Effects of climate change on social-economic sustainability in Nepal

Rainey & Harding (2005); Shrestha & Clement (2019)	Cultural values and attitudes to water usage in Nepal
UN News (2019)	UN report on national hygiene and sanitation camping in Nepal

Keywords for indexing

1. Clean water and sanitation
2. Cultural schemas
3. Developing rural communities
4. Inclusion
5. International business
6. Least developing countries
7. Multinational enterprises
8. Multi-stakeholder network
9. Nepal
10. Project management
11. Socio-technical imaginaries
12. Sustainable development
13. Sustainable Development Goals
14. Technology adaptation
15. Water supply