

Article

The Role of Standards-Related Capacity Building on the Sustainable Development of Developing Countries: Focusing on the Korea's Standards-Related AfT Case in Bolivia

Seungyeon Moon  and Heesang Lee * 

Graduate School of Management of Technology, Sungkyunkwan University, Suwon 16419, Korea; symoon@skku.edu

* Correspondence: leehee@skku.edu

Received: 26 March 2020; Accepted: 23 June 2020; Published: 25 June 2020



Abstract: Many countries provide standards-related aid for trade (AfT) to developing countries in association with the United Nations Sustainable Development Goals (SDGs), such as sharing their experiences and providing training or infrastructure. Regarding the influence of standards-related AfT on the sustainable development of developing countries, we studied Korea's standards-related AfT program to examine the role and features of standards-related AfT in terms of standards-related capacity building. In this study, we conducted a single case study with a focus on Korea's standards-related AfT in Bolivia using qualitative descriptive analysis. The result indicated that Korea's standards-related AfT is associated with three pillars of sustainable development in terms of standards-related capacity, namely standardization, conformity assessment, and metrology, and can be summarized with two key tasks: building testing infrastructure and improving Technical Barriers to Trade (TBT) capacity. However, several limitations were found in Korea's standards-related capacity building activities, such as limited scope, limited target of the program, and the lack of activities for building institutional foundations for standards-related capacity.

Keywords: standardization; standards; conformity assessment; ODA; SDG; aid for trade

1. Introduction

In terms of aid and development activities that are provided to developing countries, the value of beneficiaries' access to the necessities of food, clean water, good education, and healthcare is emphasized [1]. To achieve this goal, it is necessary to build a basic infrastructure which can support sustainable development. Regarding basic infrastructure, both hard infrastructure and soft infrastructure, such as the standards-related capacity of developing countries, play a central role in constructing a basis for facilitating their sustainable development [2,3]. Sustainable development can be described as a process of steering improvement based on the agreed sustainability among society members [4]. The concept of sustainable development was first introduced in the 1960s and 1970s with a focus on the environmental movement in association with environmental problems [4]. Sustainable development consists of three pillars: social, economic, and environmental (or ecological) [5–9]. The social pillar considers meeting human needs and social well-being, whereas the economic pillar focuses on the efficient use of resources and enhancing profits and market share [5]. The environmental pillar is concerned with conducting human activities within the capacity of the ecosystem and the quality of human life [4,5]. In addition, another concept for sustainable development from a different angle exists that is based on the combination of two pillars, namely inclusive growth, which combines

economic with social aspects, and inclusive development, which combines social and ecological aspects [8].

Currently, sustainable development is a topic of popular discussion in the field of international development, evidenced by the UN's Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs) [8]. In terms of international development, sustainable development is often discussed, together with international trade as one of the dimensions of sustainable development [10]. The trade capacity of developing countries cannot be discussed without mentioning standards-related capacity because the standards-related capacity constitutes a foothold for trade facilitation and increased accessibility to global markets [11,12]. Specifically, the importance of standards and standardization for developing countries has been highlighted by several studies in terms of the quality signaling role of standards for the export market, trade facilitation, and industry development [11–15].

In consideration of the influence of standards on trade, many developed and semi-developed countries share their experiences and knowledge with developing countries through the form of aid for trade (AfT), with the goal of increasing the participation of developing countries in global trade and helping them benefit from that trade through, for example, increased export and economic growth [4]. According to the World Trade Organization (WTO) [16], AfT includes activities for helping developing countries build standardization systems and the introduction of international standards to their country. The WTO outlines five categories of AfT: activities related to trade policies and regulations, trade and development, trade infrastructure, production capacity building, and adjustment activities related to trade [17]. AfT is usually conducted as a part of Official Development Assistance (ODA), which is conducted by various institutions, such as the United States Agency for International Development (USAID, Washington, DC, USA), the Directorate-General for International Cooperation and Development (DG DEVCO, European Union), and the Korea International Cooperation Agency (KOICA, Seongnam, Korea). AfT activities are distinguished from general ODA since they focus on practical improvements in the recipient country's industry by, for example, building testing and certification infrastructure and supporting the developing country's participation in international organizations. AfT is closely related to the standards and standardization activities of developing countries since AfT involves activities such as establishing national standardization foundations and global trade capacity building. According to Lammersen and Hynes [18] and Gnanngnon [19], standards-related AfT, as a helpful tool, supports and boosts developing countries' efforts in national development. However, the importance of AfT has received relatively little attention from scholars in standards-related research [20]. Studies focusing on technology standards and AfT have not paid much attention to the role of standards and their contribution to developing countries in terms of facilitating sustainable development and accomplishing SDGs, although donor countries increasingly conduct standards-related AfT activities in recipient countries using various methods [20,21]. Considering the close connection between standards and the UN SDGs, standards and standardization are inextricable from the sustainable development of developing countries because standards improve the quality of life through economic growth, which is leveraged by reduced international market entry costs and trade competitiveness [22,23].

Based on the notion that standards and the standards-related capacity of developing countries are closely integrated with sustainable development, some articles have highlighted three pillars of sustainable development in terms of standards-related capacity aspects: standardization, conformity assessment, and metrology [1,3,24]. The first pillar, standardization, can be divided into product, service, and management system standards [1]. Standards contribute to the basic infrastructure of society and facilitate trade through increasing competitiveness and providing a chance of technology transfer to developing countries [1,2,24]. The second pillar, conformity assessment, plays a critical role in building a basis for sustainable development in terms of trade [24]. Conformity assessment systems enable assessments of goods and services against mandatory or voluntary requirements that sometimes act as trade barriers to developing countries [24]. However, developing countries can reduce the influence of trade barriers by leveraging international standards and mutual recognition

agreements [1,24]. The third pillar, metrology, acts as an integral component in standards-related infrastructure via testing, technical regulations, and calibration services [24]. Moreover, metrology supports sustainable development by guaranteeing the accurate measurement of chemicals, weight or volume of products, and even limits of pollutants [1,24].

In this study, we examined the role of standards-related capacity building in terms of sustainable development of developing countries based on Korea's standards-related AfT case in Bolivia. We conducted analysis based on two research objectives: first, to capture a unique feature of the standards-related AfT of Korea. Second, to discuss the role of standards-related capacity building in terms of the sustainable development of developing countries.

The remainder of this paper is structured as follows. Section 2 summarizes previous discussions on standards-related AfT with a focus on its close connection with UN SDGs, and Section 3 explains our research data and analysis methodology. The analysis result based on qualitative descriptive analysis is provided in Section 4, and conclusions and limitations of our study are outlined in Section 5.

2. Promoting Sustainable Development of Developing Countries through Standards-Related Capacity Building

The most frequently used definition of sustainable development is “the development that meets the needs of the present without compromising the ability of future generations to meet their own needs” [25]. In a broad sense, the concept of sustainable development can be interpreted as meeting human needs with an emphasis on the harmonization of enhancing current and future potential to meet human needs [25]. Since standardization and standards are closely related to the technological and trade capacity of manufacturers, standardization and standards influence the sustainable development of developing countries in terms of the economic and social pillars [13–15,26]. Previous studies have focused on two aspects of standards in terms of standards' influence on developing countries: the role of quality signaling in global trade and mitigation of the influence of trade barriers [14,15,27]. First, standards signal a product's quality to consumers through a certification based on a conformity assessment. Several studies, including that by Goedhuys and Sleuwaegen [13], indicated the positive influences of standards in developing countries [14,15,26]. Second, standards lower trade barriers to export markets, thereby facilitating the market entrance of developing countries' products. Goedhuys and Sleuwaegen [14] suggested that certification positively influences the exports of developing countries, and Maertens and Swinnen [15] highlighted the positive influence of standards on trade based on an empirical analysis result. According to Lee and Oh [7], many developing countries participate in standardization to reflect their interests.

Considering the positive influence of standards on developing countries, standardization and standards have drawn attention from a number of studies as they are closely associated with the sustainable development of developing countries [28–31]. Various countries and organizations, such as the WTO, conducted and participated in AfT following this global movement [14,30–34]. The WTO launched the AfT initiative in 2005 at the WTO's Hong Kong Ministerial Conference to promote the trade of developing countries [19,32,33]. The AfT initiative aims to help developing countries that are building trade-related capacity and infrastructure to ensure that they benefit from trade agreements through increased participation in global trade [19,33]. According to Lee et al. [32], standards and standardization are an important part of six policy areas of the AfT initiative, namely trade policy and regulations, trade development, trade infrastructure, building productive capacity, trade-related adjustment, and other trade-related needs.

AfT consists of activities related to the trade capacity building of developing countries, but are not limited to trade infrastructure, such as an electronic system for trade [34]. Standards-related capacity building, such as testing skills, is also included [34]. Examples include donor country provision of infrastructure, such as test laboratories for product testing and electronic systems for trade; training for human resources in testing and calibration fields; or training for governmental authorities in charge of the implementation of the WTO Technical Barriers to Trade (TBT) agreement [29]. Trade capacity

and standards-related capacity are closely associated with each other, as trade capacity is preceded by standards-related capacity building, since standards-related capacities, such as certification, conformity assessment, and TBT, are key to entering the target export market [31]. Brunsson et al. [26] supported the strong connection between standards-related capacity and trade by suggesting that the conformity assessment system has a crucial influence on the trade performance of countries, as it is associated with national trade capacity, such as the operation of a national standardization system and human resources for testing and certification. The acquisition of a certification based on international or national standards of the target market improves the competitiveness of the products of developing countries [28,30]. Hence, Blind et al. [30] stated that a focus of AfT on standards-related capacities, such as testing, certification, calibration, and metrology, is needed for the sustainable development of developing countries.

Among the three pillars of sustainable development, previous studies on the influence of AfT have appeared to focus on two pillars, namely the economic and social aspects. In terms of economic aspects of sustainable development, some studies have investigated whether AfT facilitates the trade of developing countries and affects their long-term growth [30,34–37]. Helble et al. [35] examined whether a difference exists between ODA and AfT in terms of their trade facilitating effects based on empirical analysis. According to their study, if a donor country conducts AfT with a focus on the export of a recipient country, AfT will positively influence those exports. Notably, they verified and provided empirical evidence on the circumstances under which AfT positively influences the global trade flow. The result indicated that it is important to establish an AfT implementation strategy focusing on the facilitation of the exports of a recipient country. Based on this, we analogize that customized AfT with a focus on exports depending on the industrial environment of the recipient country can increase the effectiveness of AfT. Similar to Helble et al. [35], Naito [34] discussed the influence of AfT on the long-term growth potential of developing countries under the assumption of a hypothetical country. As a result, however, it is difficult to generalize the result of Naito's study [34] to the real world.

In terms of the social aspects of sustainable development, AfT contributes to the well-being of a recipient country through the improvement of its infrastructure, such as transport, logistics, communications, and energy, that helps alleviate inequality [34,36]. According to Shim and Lee [24], a donor country's aid in the development of the infrastructure of a recipient country positively influences its economic development, which leads to an enhanced standard of living. Blind et al. [30] highlighted the importance of investing in "quality infrastructure" for increased income and ensuring products to meet predefined technological requirements, such as safety, performance, and efficiency. Regarding the effectiveness of AfT, Hühne et al. [38] reported that the donor country's aid in trade policy and regulations appear to be particularly effective for the recipient country's trade. In particular, the study of Hühne et al. [38] is directly connected to our research topic since trade policy and regulations play a large part in the standards-related AfT.

When explaining the importance of building the trade capacity of the least developed countries (LDCs), Adhikari [37] discussed which of the UN SDGs that AfT is committed to. According to Adhikari [37], AfT is closely related to SDG 17 (strengthen the means of implementation and revitalize the global partnership for sustainable development) and, more specifically, Target 17.11 (significantly increase the exports of developing countries, in particular with a view to doubling the LDCs' share of global exports by 2020) and Target 17.12 (realize timely implementation of duty-free and quota-free market access on a lasting basis for all LDCs, consistent with World Trade Organization decisions, including by ensuring that preferential rules of origin applicable to imports from LDCs are transparent and simple, and contribute to facilitating market access). Accordingly, Lammersen and Hynes [18] stated that AfT is part of SDG 8 (promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all) and helps developing countries build capacities for constructing a sustainable national environment. Due to AfT contributions to trade capacity, such as trade infrastructure and skill development, AfT contributes to SDGs by developing

countries' general trade capacity building by helping them to increase the quality of products and improving access to the market [29,30,37].

As discussed earlier, considering the influence of standards-related capacity and trade capacity on global trade, the worldwide commitment to achieving SDGs, and the interest from academia on the relationship between AfT and sustainable development, many countries implement AfT in developing countries as a social contribution [27,38,39]. Donor countries, mostly developed countries, provide AfT to developing countries using various methods such as regulatory system improvement, trade policy improvement, and trade infrastructure building [18,37,39]. According to extant studies, we identified that one of the aims of several countries providing AfT, such as those in the European Union (EU), the United States of America, Japan, and Korea, was trade-related capacity building, especially standards and standardization capacity, in the recipient countries [21,22]. The Query Wizard for the International Development Statistics (QWIDS) database [40] provides AfT statistics on donor countries, recipient countries, and aid categories based on the aid flows reported to the Creditor Reporting System (CRS) database. According to QWIDS [40], members of the Development Assistance Committee (DAC) of the Organization for Economic Cooperation and Development (OECD) showed active participation in AfT. The EU and its member states are the most prominent donors. Countries in the EU, with regards their AfT toward developing countries and the LDCs, stood out as being more recipient-country-friendly than other donor countries [41]. Particularly, the EU provides AfT to developing countries in Africa the most and Asia, LDCs, Europe, America, and Oceania, respectively [40]. The major beneficiaries are China, Afghanistan, India, Nigeria, and Morocco among the recipient countries [40]. The EU provides tailored approaches to recipient countries based on factors such as the degree of fragility, income level, and their relationship with the EU [41]. The EU implements twinning projects for neighboring countries such as Tunisia and Egypt [21]. The twinning project was first introduced in 1998 as an initiative of the European Commission, aiming to enhance administrative cooperation between the EU and the member countries or countries preparing for EU membership [20,21]. The twinning project has a vast scope, including public administration and regulatory systems, through a concrete partnership between a partner country and a recipient country [20]. As can be assumed from its name "twinning", the twinning project helps recipient countries, mostly new EU member states, implement EU directives and regulations through sharing the best practices of the older EU member states [20,42]. According to Del Sarto [42], the twinning project also serves as an instrument of the European Neighborhood Policy (ENP) that diffuses the EU's regulations to neighboring countries.

Korea has also conducted AfT as a donor country since 1977, and now actively contributes to recipient countries through various activities as a part of ODA [36]. Korea provides AfT to developing countries in Asia the most and LDCs, Africa, America, Oceania, and Europe, respectively [40]. The major beneficiaries are Vietnam, Cambodia, Mongolia, Indonesia, and Myanmar among the recipient countries [40]. Before providing AfT to other countries, Korea had been a recipient of AfT from a large number of donor countries. Korea was assisted in the transition from one of the poorest countries in the 1950s to a donor country in 1977, providing aid to developing countries in the form of technical cooperation [27,43]. As one of the latecomer donor countries, Korea also showed growth in standards-related capacity by achieving success in the IT industry by narrowing the technological gap between leading countries and participating in international standardization activities [44]. In comparison with other countries, Korea's foreign aid policy is supervised by two different ministries: the Ministry of Foreign Affairs and the Ministry of Finance and Planning [45]. Korea's aid activities are implemented by two implementing agencies, namely the Economic Development and Cooperation Fund (EDCF) and KOICA [46].

Several studies have depicted the typical feature of Korean AfT as the sharing of Korea's national development experience as a beneficiary of aid in the past with recipient countries [27,43,46–49]. This was partly due to Korea's keynote aid policy, which emphasizes reflecting Korea's past development experience as a former beneficiary country when providing aid to other countries [44]. Regarding

Korea's development experiences, there are a number of articles, which verify scholars' interests on Korea's development experience discussing issues related to economic development and catch-up strategies [50,51]. Korea's economic development efforts before the 1990s epitomize a catch-up economy, namely state-led development, which can be characterized with a strong leadership of the state [51]. Korea promoted industrialization through the "big push" approach where the state mobilizes financial resources to nurture conglomerates such as Samsung and Hyundai [51]. According to Wang [51], major conglomerates in Korea accounted for almost 41% of the total manufacturing sales in 1989 and were composed of more than 50% of the total exports of Korea. This is supported by Mathews [50], who discussed that catch-up can be more effective when supported by the state or state agencies.

In terms of Korea's aid approach, Watson [48] highlighted that a state-led aid strategy, namely private–public partnerships (PPPs), typifies Korea's aid approach. Kim [49] argued that Korea's aid reflects their own interpretation of the past economic development experiences and Korea styles itself as a Korean-style development approach. Similar to the EU, Korea also provides standards-related capacity building program to various developing countries. This program is supervised by the Korea Agency for Technology and Standards (KATS), which governs national standardization policies and operates the WTO TBT enquiry point [52]. Korea's standards-related capacity building program involves the participation of relevant experts in standards and standardization, such as recognized testing laboratories, certification bodies, and academia [22]. The unique feature of Korea's standards-related capacity building program is introducing the TBT consortium system to recipient countries, which was introduced to WTO members during the WTO TBT Committee in November, 2016 as a part of a session on good regulatory practices (GRP) [22]. According to Lee and Moon [22], Korea maximizes the effect of knowledge transfer to recipient countries through close cooperation with experts in the relevant fields and a customized master plan based on a consideration of the recipient country's environment.

As previously noted, extant studies on AfT have identified a number of countries globally that have shown an interest in building and strengthening standards-related national capacity. These studies have mainly focused on examining the influence of AfT on trade and the determinants of aid allocation [19,29,32,35,46,47]. Despite the importance of standards and standardization for countries, investigations on how standards contribute to the sustainable development of developing countries through standards-related AfT are still limited. Considering this, studies examining the current status of standards-related AfT are necessary to understand how standards can contribute to increasing the sustainable development of developing countries and to suggest methods of developing standards-related AfT to maximize its effectiveness.

3. Data and Methodology

In this research, we examined Korea's standards-related AfT in Bolivia using a case study. We applied qualitative descriptive analysis to analyze Korea's AfT case in Bolivia. Based on Korea's AfT program report, we examined unique features of its standards-related AfT in connection with three pillars of sustainable development in terms of standards-related capacity and SDGs. A case study is usually defined as "an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context" [53]. The case study is used to investigate how a specific event happened and why it matters to us by interpreting qualitative data through a certain process of qualitative content analysis [54]. According to Yin [53], a case study that is constituted of a single case is appropriate when it meets certain conditions: critical case, extreme case, representative case, revelatory case, and longitudinal case. As Korea is an emerging donor that was once a recipient country and then became a donor, we regard Korea's standards-related AfT program in Bolivia as a representative case. Thus, it is worth examining how Korea, which was once a recipient country, has contributed to developing countries with respect to standards-related AfT as a donor country.

According to Mariotto et al. [55], a single case study can increase construct validity using thick description, which was highlighted by Geertz [56] and is a notable feature of qualitative descriptive analysis that extracts meanings from actions or activities considering the context [57,58]. Based on

thick description, we paid attention to contextual details in interpreting the meaning of the social phenomenon. We used qualitative descriptive analysis to analyze Korea's standards-related AfT program based on data that we collected from the organization in charge of the program. According to Holly [59], qualitative descriptive analysis can be defined as a combination of qualitative research and descriptive research. While qualitative research investigates meanings, experiences, and perceptions, descriptive research focuses on a summary of the research subject [60,61]. These two types of research can be combined as qualitative descriptive analysis, which aims to provide a direct summary of phenomena based on the terms used by the subject [59]. Therefore, the primary goal of qualitative descriptive analysis is to provide an accurate description of an event and the beginning of the understanding on a topic [59,62]. Qualitative descriptive analysis generally involves descriptive research questions such as "what kind or varieties does the phenomenon appear in?" and "what aspects does it have?" [58,63,64].

In this study, we conducted qualitative descriptive analysis through five steps: data collection, finding an overall organizing structure for qualitative data, qualitative coding, abstracting the main findings, and interpretation of the result [54,64]. First, we collected Korea's AfT program report from the Korea Testing Certification (KTC), which was in charge of the program. Second, we carried out pre-research through the first reading of the report to determine an overall organizing structure of the data before we began qualitative coding. Third, we conducted qualitative coding to analyze the qualitative data [54]. To facilitate the qualitative content analysis, we used ATLAS.ti, which is a part of computer-assisted qualitative data analysis software (CAQDAS) for analyzing qualitative data. Codes can be a simple word or a sentence that can represent the underlying meaning of the descriptive context and they can be allocated to words, phrases, and even paragraphs [65]. In this study, we conducted two steps of qualitative coding, descriptive coding and axial coding, referring to Saldaña [65]. According to Saldaña [65], descriptive coding is also called topic coding and summarizes the qualitative data in a word or short phrase. After descriptive coding, we conducted axial coding using CAQDAS to classify codes depending on categories [66]. According to Saldaña [65], axial coding helps researchers to reassemble codes under corresponding categories and enables them to draw meaning from the qualitative data. As Basit [63] mentioned in her study, qualitative coding helps researchers gain a deeper understanding of a certain topic and refine their interpretation through a repetitive process of qualitative coding during analysis. Through two steps of qualitative coding, we abstracted main findings from the result and interpreted their implications in terms of the role of standards-related capacity building in the sustainable development of developing countries.

4. Korea's Standards-Related Capacity Building Activities in Bolivia

In this section, we delineate features of Korea's standards-related capacity building activities, specifically related to the case of Korea's AfT in Bolivia. First, we examine the overall structure of Korea's standards-related AfT in Bolivia and then we describe details of the program. According to the KTC [67], Korea's AfT program in Bolivia was conducted for the Ministerio de Desarrollo Productivo y Economía Plural (MDPyEP) and the Instituto Boliviano de Metrología (IBMETRO) in La Paz, Bolivia, from December 2015 to January 2018. The total budget of the program was approximately USD 2.9 million. As a long-term program, a number of experts who have experience in TBT, testing, and standardization participated in this program to share their knowledge with Bolivia [67].

As shown in Figure 1, Korea's standards-related AfT in Bolivia is structured with two key tasks and six main activities under the objective of the program, which aims to improve the standards-related capacity of Bolivia through these specific tasks and activities [67]. According to Figure 1, Korea's standards-related AfT consists of two key tasks: building testing infrastructure and improving TBT capacity. Each key task is supported by main activities, namely building laboratory facilities, providing metrology equipment, improving measuring capacity through training, consulting on the operation of testing laboratories, establishing a TBT master plan, and training and consulting on the operation of a national TBT enquiry point. Considering Figure 1, Korea's standards-related AfT fulfills the aims

of WTO's AfT initiative, which includes building trade-related capacity and infrastructure to ensure that developing countries benefit from trade agreements through increased participation in global trade [19,33]. In terms of six policy areas of the AfT initiative, Korea's standards-related AfT focuses on three areas: trade policy and regulations, trade development, and trade infrastructure [32]. Korea's standards-related AfT in Bolivia involved both material and nonmaterial support to Bolivia; however, the first key task, building testing infrastructure, is more closely connected with material support, such as testing equipment and testing facilities. Korea not only funded all expenses for the training sessions, equipment, and facilities for building the standards-related infrastructure, it also entirely funded charges relating to the general operation of the program, such as managing all of the activities related to building standards-related infrastructure, including purchases, shipment expenses, and customs clearance of equipment for Bolivia, dispatching experts, and developing training materials [67].

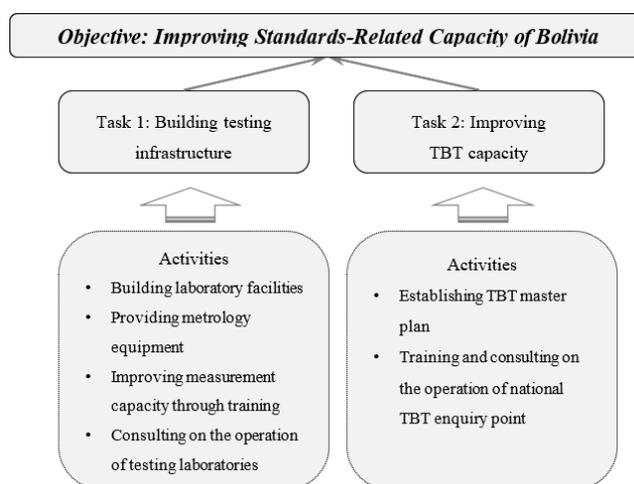


Figure 1. A structure of Korea's standards-related aid for trade (AfT) program for Bolivia.

In this section, we discuss Korea's standards-related capacity building activities based on the AfT program that was conducted in Bolivia. Table 1 lists codes according to categories and sub-categories and each code's related aspects depending on the three pillars of sustainable development in terms of standards-related capacity and the UN SDGs. According to standards-related capacity, we coded the three pillars of sustainable development as "S" for standardization, "C" for conformity assessment, and "M" for metrology. Table 1 provides details of Korea's standards-related AfT with four points: AfT implementation background, Bolivia's standards-related environment, the major activities of Korea's AfT in Bolivia, and the main contributions of Korea's AfT in Bolivia.

Regarding the AfT implementation background, Table 1 shows the necessity of standards-related AfT to build standards-related capacity for global trade considering the importance of testing and calibration. As indicated in Table 1, Korea considered two issues with respect to the standards-related environment of Bolivia for providing AfT: standards-related system in Bolivia and identification of Bolivia's needs. Considering the situation at the time in Bolivia, Korea tried to provide tailored aid to Bolivia for building standards-related capacity.

As shown in Table 1, standards-related AfT shows a close connection with the technical barriers faced by developing countries because AfT is related to the global trade environment, such as through certification systems in developing countries and how well they implement the WTO TBT agreement. According to Table 1, Korea's standards-related AfT was conducted based on Bolivia's identified AfT needs, such as establishing a national standards-related system including testing, calibration, and standardization systems, and technical documents for the operation of testing bodies. The five major activities of Korea's AfT were: consultation on the national system related to standards and trade; sharing the standards-related experiences of Korea; improving Bolivia's national TBT system; training for TBT; and improving the testing and certification environment.

Table 1. Summary of the qualitative coding result of the Korea's AfT program report.

Category	Sub-Category	Three Pillars	UN SDGs	Codes
AFT implementation background	Necessity of standards-related capacity for Bolivia	S, C	SDG8	Bolivia's needs related to TBT
		C, M	SDG8	Importance of testing and calibration bodies in global trade
Bolivia's standards-related environment	Standards-related system in Bolivia	M	-	National metrology organization in Bolivia
		C	-	National accreditation organization in Bolivia
		S	-	National standardization organization in Bolivia
		M	-	Present status of metrology, measurement and calibration activities in Bolivia
	S	SDG8, SDG9	Need for establishment of a standardization system in Bolivia	
Identification of Bolivia's needs	C, M	SDG8, SDG9	Need for establishment of national testing and a calibration system	
	C	SDG9	Necessity of technical documents for the operation of testing bodies	
Major activities of Korea's AfT in Bolivia	Consultation on a national system related to standards and trade	S	-	Bolivia's national development policy
		S, C	-	Laws and regulations related to the TBT agreement
		C	-	Bolivia's implementation of the TBT agreement
		S	SDG17	Advice on Bolivia's national system
	S	SDG17	Consultation on the legal system improvement	
	Sharing standards-related experiences of Korea	C, M	SDG9, SDG17	Sharing the Korean government's experiences in testing, metrology, and measurement
		S, C	SDG17	Sharing the Korean government's experiences related to TBT
	Improving Bolivia's national TBT system	S, C	SDG17	Korean government's implementation of the TBT agreement
		S, C	SDG17	Construction and roles of TBT consortium
		S, C, M	SDG17	Transferring the Korean standardization-related system to Bolivia
S, C, M		SDG17	Introduction of the Korean standardization related system	
S, C		SDG17	TBT consortium of Korea	
S, C, M		SDG17	Korean government's cooperation with other members	
Training for TBT	Improving testing and certification environment	S, C	SDG9	WTO TBT enquiry point of Bolivia
		S, C	SDG9	Bolivia's effort related to the national TBT system enhancement
		S, C	SDG17	TBT master plan for Bolivia
		S, C	SDG17	Operation manual for TBT consortium
		C	SDG8	Types of technical barriers
		S, C	SDG8	Activities related to the response to technical barriers
		S, C	SDG8	Preparation and notification procedures of the TBT notification of Bolivia
		S, C	SDG8	Necessity of TBT notification analysis
		S, C	SDG8	Features of the TBT notification system
		S, C	SDG8	TBT notification analysis procedures
S, C	SDG8, SDG9	TBT committee		
S, C	SDG8, SDG9	Specific Trade Concerns (STC) issues		
Main contributions of Korea's AfT in Bolivia	Standards-related capacity	C, M	SDG8, SDG9	Establishment of testing and measurement infrastructure in Bolivia
		C, M	SDG8, SDG9	Training testing and calibration skills
		C, M	SDG8, SDG9	Improving the testing laboratory operation environment
	Trade capacity	S, C	SDG8, SDG9	Standards and conformity assessment in terms of TBT
		S	SDG9	Establishment of a standardization system
		M	SDG8, SDG9	Metrology skills
		M	SDG8, SDG9	Measurement skills
	Knowledge acquisition	S, C	SDG8, SDG9	Establishment of a TBT enquiry point
		S, C	SDG8, SDG9	Responding to non-tariff barriers
		S, C, M	SDG17	Acquisition of Korea's knowhow in the field of technology standards
S, C, M	SDG17	Technical assistance		

Korea provides consultation on the national standards-related system in Bolivia, such as on Bolivia's national development policy; laws, and regulations related to the TBT agreement; implementation of the TBT agreement; and methods of legal system improvement. For sharing standards-related experiences, Korea, as a donor country, shares its experiences in national standardization systems with Bolivia. The Korean government's experiences include eight items: introduction of Korean standardization-related system; sharing the Korean government's experiences in testing, metrology, and measurement; sharing the Korean government's experiences related to TBT; the TBT consortium of Korea; the construction and roles of the TBT consortium; the Korean government's implementation of the TBT agreement; the Korean government's cooperation with other members; and transferring the

Korean standardization-related system to Bolivia. For building TBT capacity, Korea provides assistance with improving Bolivia's national TBT system and training sessions for TBT.

According to Table 1, Korea provided a TBT master plan and the operation manual for a TBT consortium to Bolivia and helped to enhance the current operation of Bolivia's WTO TBT enquiry point. As one of latecomers in the global markets, Korea responds to non-tariff measures of other WTO member countries by operating the TBT consortium [67]. The TBT consortium is Korea's unique approach to dealing with non-tariff measures which may hinder exports of domestic companies [22,67]. The TBT consortium is consisted of various stakeholders, including a government, national certification bodies, and industry associations, which act as a channel to share TBT-related issues by distributing TBT information to manufacturing companies who bear the brunt of the technical regulations [22,67]. The TBT consortium not only just distributes TBT notifications from WTO members, but they publish analysis reports that contain a brief summary of TBT notifications, relevant information related to the notification in terms of certification system, and possible impacts caused by a non-tariff measure from the TBT notification [67]. According to KATS [52], analysis reports are distributed to corresponding industries for collecting public opinions with the help of industry associations. With the help of industry associations, the TBT consortium can reach various stakeholders of such non-tariff measures, including small and medium-sized enterprises (SMEs) and leading conglomerates, such as LG and Samsung. If difficulties are received from industries, the TBT consortium conveys comments to corresponding countries' WTO TBT enquiry point to express concerns or to deliver inquiries related to TBT notifications [67]. Further, the TBT consortium provides a forum for communicating with stakeholders from relevant industries and exploring opportunities for collaborative work [52,67]. The TBT consortium helps companies of all kinds and sizes to effectively respond to technical measures from other countries, since the TBT consortium takes action at the governmental level via the national WTO TBT enquiry point. As implied from the general roles of the TBT consortium, the TBT consortium focuses on how to effectively respond to technical barriers of other countries. Considering the focus of the TBT consortium, Korea introduces the TBT consortium system to Bolivia through the TBT master plan in order to facilitate Bolivia's participation in global trade by improving standards-related capacity.

The TBT master plan is a customized institutional framework for the implementation of the WTO TBT agreement and a national standardization policy that passes on the essence of Korea's experience with the implementation of the WTO TBT agreement. In association, Korea provided comprehensive training for TBT capacity building, which is needed for an effective implementation of the TBT consortium based on the TBT master plan. The training includes technical barriers, activities related to the response to technical barriers, the preparation and notification procedures of a TBT notification, TBT notification analysis, features of a TBT notification system, TBT notification analysis procedures, a TBT committee, and specific trade concern (STC) issues. TBT capacity building focuses on the training and settlement of a tailored national TBT response system in Bolivia in connection with fulfilling member duties of the WTO TBT agreement. Considering testing and certification capacity building, Korea contributed to Bolivia through three activities: the establishment of a testing and measurement infrastructure in Bolivia, training testing and calibration skills, and improving the testing laboratory operation environment. Testing and certification capacity building places an emphasis on practical skills, whereas TBT capacity building focuses on institutional aspects. Improving the testing and certification environment consists of two aspects: standards-related infrastructure development (establishment of testing and measurement infrastructure in Bolivia and improving the testing laboratory operation environment) and training (training testing and calibration skills). In terms of infrastructure for testing and certification, Korea provided equipment for Bolivia's national testing laboratory. Korea also dispatched testing experts to Bolivia to provide a demonstration on how to use testing equipment and how to analyze the test results.

As indicated in Table 1, the main contributions of Korea's AfT program can be summarized with three aspects: standards-related capacity, trade capacity, and knowledge acquisition. Standards-related capacity building through Korea's AfT involves standards and a conformity assessment in terms of

TBT, the establishment of a standardization system, metrology, and measurement. For trade capacity, Korea's AfT particularly contributes to Bolivia for the establishment of a TBT enquiry point and how to respond to non-tariff barriers. Korea provided their knowhow in the field of technology standards to Bolivia in the form of AfT by sharing experiences and providing technical assistance. When we look at the three pillars of sustainable development in terms of standards-related capacity, Korea's standards-related AfT focuses most on the conformity assessment aspect of the three pillars. Almost 43.2% of the sub-categories are associated with the conformity assessment, 38.3% for standardization, and 18.5% for metrology. Among the three main contributions of Korea's AfT, standards-related capacity and knowledge acquisition harmoniously concentrate on the three pillars, while trade capacity puts emphasis on standardization and the conformity assessment. In terms of the UN SDGs, Korea's standards-related AfT is associated with SDG8 (promote sustained, inclusive, and sustainable economic growth, full and productive employment, and decent work for all), SDG9 (build resilient infrastructure, promote inclusive and sustainable industrialization, and foster innovation), and SDG17 (strengthen the means of implementation and revitalize the global partnership for sustainable development). According to Table 1, activities that can improve Bolivia's competitiveness in global trade, such as training for TBT capacity building, testing and certification capacity building, standards-related capacity, and trade capacity, were associated with SDG8. SDG9 was connected with activities that enhance Bolivia's national systems related to standards and trade. Activities that were focused on general capacity building, such as improving Bolivia's standards and TBT policy, sharing the Korean government's experiences, and technical assistance, were associated with SDG17.

In this section, we identified major activities of standards-related AfT based on Korea's AfT program report. Analyzing Korea's standards-related AfT program helped examine how Korea provides an opportunity to a recipient country in terms of standards-related capacity building. According to the main activities of Korea's AfT in Bolivia, Korea conducted standards-related AfT in two ways: standards-related infrastructure building and training for standards-related capacity [67]. These are associated with two key tasks in Figure 1: the former is associated with the first key task (building testing infrastructure) and the latter is associated with several activities of two key tasks such as improving measuring capacity through training; and training and consulting on the operation of the national TBT enquiry point. Standards-related infrastructure building was focused on the improvement of Bolivia's testing environment, including its testing and measurement equipment, such as a mass comparator and gas chromatograph; essential equipment for the operation of a testing laboratory, including a pickup truck and air conditioning system; and the testing capacity of working-level staff [67]. Training involved three approaches: a basic theoretical course in Korea, on-site training in Bolivia with a focus on testing skills and the operation of the national WTO TBT enquiry point, and a field trip in Korea, including visiting Korea's WTO TBT enquiry point office and major testing laboratories [67].

There were several limitations found in Korea's standards-related AfT, such as the limited scope of the program, limited target of the program, and deficiency of activities for building institutional foundations. These three limitations overlap slightly because they all depict a lack of focus on the fundamentals of standards-related capacity building. First, Korea's standards-related AfT focused too much on the areas related to technical barriers, such as the WTO TBT enquiry point and TBT master plan. Effectively implementing the WTO TBT agreement is one of important issues in terms of standards-related capacity, however, Korea's standards-related AfT is biased towards the conformity assessment and standardization. For this reason, a well-balanced approach toward standards-related AfT is needed that can encompass various aspects including a national standardization system, harmonization with international standards, and standards-related education programs for exporting companies. Second, the target of the AfT program was mostly working-level staff in Bolivia with a focus on practical affairs in standards-related fields, such as the operation of the national WTO TBT enquiry point, providing a TBT master plan, preparation for participating in WTO TBT committee meetings, and testing knowledge. Not only working-level staff but top-level officials need to be considered as

the target of the program when considering their influence on standardization policy. To build the standards-related capacity of developing countries, the first step is to create an environment that can embrace and facilitate changes, such as an appropriate legal system and an institutional base. However, Korea only provided well-organized practical knowledge to Bolivia in the form of a TBT master plan. For this reason, Korea's standards-related AfT ended at the first step of showing how standards-related capacity can be achieved rather than paving the way for standards-related capacity building. Third, Korea's standards-related AfT failed to provide activities for facilitating an institutional change in Bolivia in terms of the standardization system, such as the reorganization of an institutional framework for the effective implementation of national standards-related activities. Activities that were provided by Korea covered only a part of the standards-related capacity because Korea's standards-related AfT exclusively concentrated on the operational aspect of standards-related infrastructure, such as testing laboratories and the national TBT response system.

5. Conclusions and Limitations

In this study, we discussed the general features of Korea's standards-related AfT and the role of standards-related AfT in terms of the sustainable development of developing countries and UN SDGs. We analyzed Korea's AfT program based on the AfT program report. According to the analysis result in Section 4, Korea focused on developing the standards-related capacity of the recipient country with two tracks: managing TBT issues and the national competence with respect to testing and certification. As discussed in Section 4, Korea provided solutions to Bolivia's current standards-related capacity deficiency, such as equipment for testing laboratories; training for working-level staff members regarding testing, measurement, and metrology activities; and the master plan for the operation of the national WTO TBT enquiry point.

The unique feature of Korea's AfT is transferring their development experiences on standardization, particularly the TBT consortium based on private–public partnerships, to the recipient country. The TBT consortium is the core of Korea's experiences on standardization, which pursues an effective response to TBT issues based on Korea's state-led aid policy with a focus on facilitating private–public partnerships among the government, certification bodies, industry associations, and manufacturing companies. By showing how Korea responds to standards-related issues as a latecomer in the global markets, Korea's AfT provides an example for the recipient country that can guide them developing their own approach to standards-related issues. Korea's standards-related AfT consisted of various activities related to the three pillars of sustainable development in terms of standards-related capacity and, in particular, conformity assessment and standardization. These two pillars support developing countries in terms of the level of accessibility to the global market through building trade capacities, such as testing, certification, and TBT. These are closely related to the signaling quality to consumers through verifying that products conform to corresponding national or international standards.

Korea's standards-related AfT showed some limitations, such as the limited scope, limited target of the program, and the lack of support for building institutional foundations of standards-related capacity. Regarding the scope of the AfT program, Korea's AfT in Bolivia showed bias toward the standardization and conformity assessment aspects. In terms of the limited target of the program, Korea's AfT in Bolivia was focused on working-level staff of the relevant institutions. Building practical skills is important for standards-capacity building, however, creating an environment that can support sustainable development, such as standardization policy, is also important. For this reason, not only working-level staff but also high-level officials need to be considered as the target of the AfT program. The lack of support for building institutional foundations reflects the inherent weakness of Korea's standards-related AfT, in which Korea overlooks the importance of building institutional foundations for standards-related capacity. Since standards-related capacity cannot be built in a short period of time, standards-related capacity building requires not only practical aspects but a concrete foundation, such as a reorganization of the institutional framework, to support it. Therefore, we suggest to design AfT for standards-related capacity building with three things considered: organizing an

institutional framework for standardization, building standards-related infrastructure, and training for relevant skills.

Regarding the research process, there were some limitations found in this study, namely a lack of comparison analysis with other similar cases and data limitations. Since we focused on a single country case of Korea's standards-related AfT program, we did not perform a qualitative comparison group analysis. Regarding the limitation of data, we relied on only one document, namely Korea's standards-related AfT program report, for analyzing features of Korea's standards-related capacity building activities, since this is only available data that can be obtained from both publicly available databases and AfT implementing agencies, such as KOICA and KTC. For these reasons, a future study that analyzes the general features of various countries' standards-related capacity building activities is needed to examine whether similar features are also found in other countries' AfT. Moreover, it is necessary to explore viable data sources that can be used for future research on the general features and the influence of AfT.

Author Contributions: Conceptualization: S.M.; methodology: S.M. and H.L.; software: S.M.; data collection: S.M.; data analysis: S.M.; writing—original draft preparation: S.M. and H.L.; writing—review and editing: H.L.; supervision: H.L. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Acknowledgments: This work was partially supported by the Institute of Information and Communications Technology Promotion (IITP) grant funded by the Korean government (MSIT) (No.2020-0-01414) and the National Research Foundation Korea (NRF) grant funded by the Korean government (MSIT) (No.2018R1D1A1B07050139).

Conflicts of Interest: The authors declare there is no conflict of interest.

References

1. Brandi, H.S.; De Souza, T.L. Metrology infrastructure for sustainable development of the Americas: The role of SIM. *Accredit. Qual. Assur.* **2009**, *14*, 567–573. [[CrossRef](#)]
2. Blind, K.; Mangelsdorf, A.; Pohlisch, J. The effects of cooperation in accreditation on international trade: Empirical evidence on ISO 9000 certifications. *Int. J. Prod. Econ.* **2018**. [[CrossRef](#)]
3. Sikdar, S.K.; Sengupta, D.; Mukherjee, R. *Measuring Progress Towards Sustainability: A Treatise for Engineers*; Springer International Publishing: Cham, Switzerland, 2016; ISBN 9783319427195.
4. Axelsson, R.; Angelstam, P.; Elbakidze, M.; Stryamets, N.; Johansson, K.-E. Sustainable Development and Sustainability: Landscape Approach as a Practical Interpretation of Principles and Implementation Concepts. *J. Landsc. Ecol.* **2012**, *4*, 5–30. [[CrossRef](#)]
5. Olawumi, T.O.; Chan, D.W.M. A scientometric review of global research on sustainability and sustainable development. *J. Clean. Prod.* **2018**, *183*, 231–250. [[CrossRef](#)]
6. Bolis, I.; Morioka, S.N.; Sznclwar, L.I. When sustainable development risks losing its meaning. Delimiting the concept with a comprehensive literature review and a conceptual model. *J. Clean. Prod.* **2014**, *83*, 7–20. [[CrossRef](#)]
7. Gupta, J.; Vegelin, C. Sustainable development goals and inclusive development. *Int. Environ. Agreem. Polit. Law Econ.* **2016**, *16*, 433–448. [[CrossRef](#)]
8. Mebratu, D. Sustainability and sustainable development: Historical and conceptual review. *Environ. Impact Assess. Rev.* **1998**, *18*, 493–520. [[CrossRef](#)]
9. Helble, M.; Shepherd, B. *Win-win: How International Trade Can Help Meet the Sustainable Development Goals*; Asian Development Bank Institute: Tokyo, Japan, 2017; ISBN 9784899740810.
10. Lélé, S.M. Sustainable development: A critical review. *World Dev.* **1991**, *19*, 607–621. [[CrossRef](#)]
11. Ehrich, M.; Mangelsdorf, A. The Role of Private Standards for Manufactured Food Exports from Developing Countries. *World Dev.* **2018**, *101*, 16–27. [[CrossRef](#)]
12. Chiputwa, B.; Spielman, D.; Qaim, M. Food Standards, Certification, and Poverty among Coffee Farmers in Uganda. *World Dev.* **2015**, *66*, 400–412. [[CrossRef](#)]
13. Goedhuys, M.; Sleuwaegen, L. The Impact of International Standards Certification on the Performance of Firms in Less Developed Countries. *World Dev.* **2013**, *47*, 87–101. [[CrossRef](#)]

14. Goedhuys, M.; Sleuwaegen, L. International standards certification, institutional voids and exports from developing country firms. *Int. Bus. Rev.* **2016**, *25*, 1344–1355. [[CrossRef](#)]
15. Maertens, M.; Swinnen, J.F.M. Trade, Standards, and Poverty: Evidence from Senegal. *World Dev.* **2009**, *37*, 161–178. [[CrossRef](#)]
16. WTO. Available online: http://www.wto.org/english/tratop_e/devel_e/a4t_e/aft_factsheet_e/htm (accessed on 26 April 2019).
17. WTO. Recommendations of the Task Force on Aid for Trade(WT/AFT/1). 2006. Available online: https://www.wto.org/english/tratop_e/devel_e/a4t_e/implementing_par57_e.htm (accessed on 10 February 2020).
18. Lammersen, F.; Hynes, W. *Aid for Trade and the Sustainable Development Agenda*; OECD Publishing: Paris, France, 2016.
19. Gnangnon, S.K. Has the WTO's Aid for Trade Initiative Delivered on Its Promise of Greater Mobilization of Development Aid in Favor of the Trade Sector in Developing Countries? *Int. Trade J.* **2019**, *33*, 519–541. [[CrossRef](#)]
20. Bossuyt, F.; Panchuk, D. The participation of CEECs in EU twinning projects: Offering specific added value for EU transgovernmental cooperation in the Eastern neighbourhood? *East Eur. Polit. Soc.* **2017**, *31*, 334–359. [[CrossRef](#)]
21. İşleyen, B. The European Union and neoliberal governmentality: Twinning in Tunisia and Egypt. *Eur. J. Int. Relat.* **2015**, *21*, 672–690. [[CrossRef](#)]
22. Lee, H.S.; Moon, S. Contributions of Technology Standard Capacity Building for Developing Countries on UN SDGs. *Int. Dev. Coop. Rev.* **2018**, *10*, 21–53.
23. Hesser, W.; Feilzer, A.J.; De Vries, H.J. *Standardisation in Companies and Markets*; Helmut Schmidt University: Hamburg, Germany, 2010.
24. JCDCMAS. Building Corresponding Technical Infrastructures to Support Sustainable Development and Trade in Developing Countries in Transition. 2004. Available online: https://www.bipm.org/cc/JCDCMAS/Allowed/Background_documents/Background_paper_final.pdf (accessed on 1 June 2020).
25. Waas, T.; Hugé, J.; Verbruggen, A.; Wright, T. Sustainable development: A bird's eye view. *Sustainability* **2011**, *3*, 1637–1661. [[CrossRef](#)]
26. Brunsson, N.; Jacobsson, B. *A World of Standards*; Oxford University Press: Oxford, UK, 2000.
27. Shim, C.S.; Lee, H. The Korean Aid for Trade and its implication to developing countries. *Inf. J.* **2015**, *18*, 173–180.
28. Hudson, J.; Jones, P. International trade in “quality goods”: Signalling problems for developing countries. *J. Int. Dev.* **2003**, *15*, 999–1013. [[CrossRef](#)]
29. Kim, Y.R. Does aid for trade diversify the export structure of recipient countries? *World Econ.* **2019**, *42*, 2684–2722. [[CrossRef](#)]
30. Blind, K.; Mangelsdorf, A.; Wilson, J.S. Mutual recognition of accreditation: Does it matter to trade? Evidence from the food, beverage, and tobacco industry. *Front. Econ. Glob.* **2013**, *12*, 291–310.
31. Athukorala, P.C.; Jayasuriya, S. Food safety issues, trade and WTO rules: A developing country perspective. *World Econ.* **2003**, *26*, 1395–1416. [[CrossRef](#)]
32. Lee, H.-H.; Park, D.; Shin, M. Do Developing-country WTO Members Receive More Aid for Trade (Aft)? *World Econ.* **2015**, *38*, 1462–1485. [[CrossRef](#)]
33. *WTO Recommendations of the Task Force on Aid for Trade (WT/AFT/1)*; WTO: Geneva, Switzerland, 2006.
34. Naito, T. Aid for trade, infrastructure, and growth. *Int. Tax Public Financ.* **2013**, *20*, 886–909. [[CrossRef](#)]
35. Helble, M.; Mann, C.L.; Wilson, J.S. Aid-for-trade facilitation. *Rev. World Econ.* **2012**, *148*, 357–376. [[CrossRef](#)]
36. Berrittella, M.; Zhang, J. A Global Perspective on Effectiveness of Aid for Trade. *Open Econ. Rev.* **2014**, *25*, 289–309. [[CrossRef](#)]
37. Adhikari, R. Targeting Aid for Trade for Impactful Capacity-Building in the Least Developed Countries. *Glob. Policy* **2019**, *10*, 408–412. [[CrossRef](#)]
38. Hühne, P.; Meyer, B.; Nunnenkamp, P. Who Benefits from Aid for Trade? Comparing the Effects on Recipient versus Donor Exports. *J. Dev. Stud.* **2014**, *50*, 1275–1288. [[CrossRef](#)]
39. Kilolo, J.M.M. Foreign aid and trade reform: Evidence from ACP-EU data. *J. Int. Trade Econ. Dev.* **2018**, *27*, 184–199. [[CrossRef](#)]
40. QWIDS. Available online: <https://stats.oecd.org/qwids/> (accessed on 19 March 2020).
41. European Commission. Available online: https://ec.europa.eu/international-partnerships/topics/trade_en (accessed on 19 March 2020).
42. Del Sarto, R.A. Normative Empire Europe: The European Union, its Borderlands, and the “Arab Spring”. *J. Common Mark. Stud.* **2016**, *54*, 215–232. [[CrossRef](#)]

43. Chun, H.-M.; Munyi, E.N.; Lee, H. South Korea as an Emerging Donor: Challenges and Changes on its Entering OECD/DAC. *J. Int. Dev.* **2010**, *22*, 788–802. [[CrossRef](#)]
44. Choung, J.Y.; Ji, I.; Hameed, T. International Standardization Strategies of Latecomers: The Cases of Korean TPEG, T-DMB, and Binary CDMA. *World Dev.* **2011**, *39*, 824–838. [[CrossRef](#)]
45. Sohn, H.S.; Yoo, N. Motivation for Aid Allocation and Political Ideology: A Case Study of South Korea. *Pacific Focus* **2015**, *30*, 344–371. [[CrossRef](#)]
46. Kim, E.M.; Oh, J. Determinants of Foreign Aid: The Case of South Korea. *J. East Asian Stud.* **2012**, *12*, 251–274. [[CrossRef](#)]
47. Minato, K. Comparing Public Attitudes towards Aid to Developing Countries between “Traditional” and “Emerging” Donors: The Case of Japan and Korea. *Dev. Policy Rev.* **2015**, *33*, 805–826. [[CrossRef](#)]
48. Watson, I. Beyond the Aid Trap for Emerging Donors: Private and Public Partnerships in South Korea’s Official Development Assistance (ODA) Strategy. *J. Comp. Asian Dev.* **2013**. [[CrossRef](#)]
49. Kim, S. The misadventure of Korea Aid: Developmental soft power and the troubling motives of an emerging donor. *Third World Q.* **2019**, *40*, 2052–2070. [[CrossRef](#)]
50. Mathews, J.A. Catch-up strategies and the latecomer effect in industrial development. *New Polit. Econ.* **2006**, *11*, 313–335. [[CrossRef](#)]
51. Wang, J.H. From technological catch-up to innovation-based economic growth: South Korea and Taiwan compared. *J. Dev. Stud.* **2007**, *43*, 1084–1104. [[CrossRef](#)]
52. KATS. Available online: <http://kats.go.kr/main.do> (accessed on 14 February 2020).
53. Yin, R.K. *Case Study Research: Design and Methods*, 4th ed.; Sage Publications: Thousand Oaks, CA, USA, 2009.
54. Elo, S.; Kyngäs, H. The qualitative content analysis process. *J. Adv. Nurs.* **2008**, *62*, 107–115. [[CrossRef](#)] [[PubMed](#)]
55. Mariotto, F.L.; Zanni, P.P.; de Moraes, G.H.S.M. What is the use of a single-case study in management research? *RAE Rev. Adm. Empres.* **2014**, *54*, 358–369. [[CrossRef](#)]
56. Geertz, C. *The Interpretation of Cultures*; Basic Books: New York, NY, USA, 1973.
57. Lewis-Beck, M.; Bryman, A.E.; Liao, T.F. *The Sage Encyclopedia of Social Science Research Methods*; Sage Publications: Thousand Oaks, CA, USA, 2003.
58. Vaismoradi, M.; Turunen, H.; Bondas, T. Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nurs. Heal. Sci.* **2013**, *15*, 398–405. [[CrossRef](#)] [[PubMed](#)]
59. Holly, C. *Scholarly Inquiry and the DNP Capstone*; Springer Publishing Company: New York, NY, USA, 2014.
60. Munhall, P.L. The Landscape of Qualitative Research in Nursing. In *Nursing Research: A Qualitative Perspective*, 5th ed.; Johns & Bartlett Learning: Sudbury, MA, USA, 2012.
61. Sandelowski, M. Whatever happened to qualitative description? *Res. Nurs. Health* **2000**, *23*, 334–340. [[CrossRef](#)]
62. Erlandson, D.A.; Harris, E.L.; Skipper, B.L.; Allen, S.D. *Doing Naturalistic Inquiry: A Guide to Methods*; Sage Publications: Thousand Oaks, CA, USA, 1993.
63. Basit, T.N. Manual or electronic? The role of coding in qualitative data analysis. *Educ. Res.* **2003**, *45*, 143–154. [[CrossRef](#)]
64. Elliott, R.; Timulak, L. Descriptive and interpretive approaches to qualitative research. In *Handbook of Research Methods for Clinical and Health Psychology*, 1st ed.; Miles, J., Gilbert, P., Eds.; Oxford University Press: New York, NY, USA, 2005.
65. Saldaña, J. *The Coding Manual for Qualitative Researchers*; Sage Publications: Thousand Oaks, CA, USA, 2009.
66. Smit, B. Atlas.ti for qualitative data analysis: Research paper. *Perspect. Educ.* **2002**, *20*, 65–75.
67. Korea Testing Certification. *International Competitiveness Improvement Program for Bolivia National Standard System*; KTC: Gunpo, Korea, 2017.

