

Master's Thesis – master Sustainable Development

Assessing the political impact of UN Sustainable Development Goals on the central government of Taiwan



Po-Hsun Lu (2453886)

Supervisor: Prof. dr. Frank Biermann

Co-supervisor: Dr. Mara Wendebourg

Second assessor: Dr. Rakhyun E. Kim

Abstract

Although Taiwan is not a member of the UN, it has been actively involved in sustainable development. It has issued two Voluntary National Reviews (VNRs), and Taiwan's National Council for Sustainable Development (NCSO) has also formulated Taiwan's version of the Sustainable Development Goals (T-SDGs). A more detailed analysis of the political impact of the UN-SDGs is necessary to examine the cause-and-effect relationships of whether the UN-SDGs have an impact at the national level. The thesis adopts a single case study design and incorporates qualitative content analysis to analyze 41 official documents and 22 interview transcripts. The thesis also analyzes the similarities and differences between the UN-SDGs and T-SDGs. The research results include three aspects. Firstly, regarding the factors that affect the formulation of T-SDGs, the research found that Taiwan referred to the framework of UN-SDGs in the process of formulating T-SDGs, but also added content that is consistent with its own national conditions. Influencing factors include Taiwan's international status, domestic political environment and existing policy framework. Secondly, the thesis finds the institutional and normative changes in the Taiwan government's sustainable development since the launch of the UN-SDGs. NCSO and the Legislative Yuan have obviously experienced institutional changes due to UN-SDGs. For changes in a single policy and a single department, it is difficult to clarify the impact of UN-SDGs. Finally, UN-SDGs have an impact on Taiwan through diplomatic and economic mechanisms. Especially under Tsai Ing-wen's steady fast diplomatic strategy, Taiwan conducts diplomatic activities through UN-SDGs. The thesis expands the understanding of the impact of the UN-SDGs at the national level through an in-depth analysis of the unique case of Taiwan as a non-UN member state.

Preface

I would like to express my sincere gratitude to the interviewees who participated in my research. Thanks for their willingness to be interviewed and for providing many valuable insights. They made this research possible.

Special thanks to Prof. dr. Frank Biermann and Dr. Mara Wendebourg for their guidance over the past few months. I am grateful and honored to have the opportunity to be a member of the Global Goals Project and attended GLOBALGOALS 2024 conference. This is a lifetime experience for me.

I would also like to express my sincere thanks to Michele Joie Prawiromaruto, Yuxi Luo, my long-term supportive family and friends.

I hope that anyone who reads this thesis will enjoy it.

Po-Hsun Lu

Utrecht, September 2024

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List of Abbreviations

DPP	Democratic Progressive Party
EPA	Environmental Protection Administration, Republic of China (Taiwan)
HLPF	High-Level Political Forum
MOEA	Ministry of Economic Affairs, Republic of China (Taiwan)
MOE	Ministry of Education, Republic of China (Taiwan)
MOENV	Ministry of Environment, Republic of China (Taiwan)
MOFA	Ministry of Foreign Affairs, Republic of China (Taiwan)
MOHW	Ministry of Health and Welfare, Republic of China (Taiwan)
MOI	Ministry of Interior, Republic of China (Taiwan)
MOTC	Ministry of Transportation and Communications, Republic of China (Taiwan)
NCSD	National Council for Sustainable Development
NDC	National Development Council
OAC	Ocean Affairs Council, Republic of China (Taiwan)
SD	Sustainable Development
SDG	Sustainable Development Goal
TAISE	Taiwan Institute for Sustainable Energy
T-SDG	Taiwan Sustainable Development Goal
UN	United Nations
UNFCCC	United Nations Framework Convention on Climate Change
UN-SDG	United Nations Sustainable Development Goal
VNR	Voluntary National Review

1. Introduction

1.1 Background

In September 2015, the United Nations (UN) adopted the *Sustainable Development Goals* (SDGs), comprising 17 core goals and 169 targets, with an additional 232 indicators to be established in 2017 (UN, 2015). The United Nations High-Level Political Forum (HLPF) has become the main platform to review the implementation of the SDGs globally, and an important venue for tracking and reviewing the Agenda 2030. Countries could voluntarily report on their implementation of the SDGs at the HLPF by submitting their Voluntary national reviews (VNR).

Although Taiwan is not a member of the UN, the international norm from the UN continues to have a significant impact on the decision making of Taiwan government (Cheng, 2021; Cheng, 2022). It also follows the UN's norms related to sustainable development (SD) and launched the VNR in 2017 and 2022 according to the UN Handbook for preparation of VNRs (NCSD, 2022A). In addition, the National Council for Sustainable Development (NCSD) has formulated the T-SDGs and set corresponding indicators to UN-SDGs. Nowadays, the T-SDGs have 18 core goals, 143 targets and 337 corresponding indicators (NCSD, 2023). Among them, the T-SDG 18 is unique to Taiwan, namely, the nuclear-free homeland.

1.2 Problem Definition and knowledge gap

The Taiwan government regularly tracks and evaluates the effectiveness of the implementation of T-SDGs by the achievement of goals, targets and indicators. However, the indicator-oriented assessments have shortcomings. First, there were constant changes and adjustments of T-SDGs' goals, targets, and indicators after the formulation of T-SDGs (NCSD, 2022B; NCSD 2022C). Therefore, it is difficult to understand the mechanism of how does the UN-SDGs lead to the political change in Taiwan from the achievement of goals and targets alone. The political changes in this paper refer to the institutional and normative changes of the Taiwan government after the introduction of the UN-SDGs in 2015.

Second, a more detailed analysis of the political effects of the UN-SDGs is necessary to examine the causality about whether the UN-SDGs have impact on the national level. Assessing the achievement of SDG indicators might ignore the causal relationship between UN-SDGs and its political effects at the national level (Biermann et al., 2022). In addition, it is also doubted that whether the UN-SDGs have impact on guiding national policies or are simply used by governments to legitimize their specific development areas strategically (Forestier & Kim, 2020). Hence, the achievement of indicators does not necessarily indicate the political effects of UN-SDGs. These successes may simply be based on the country's original institutions, norms, and resources without real sustainable transformation. Therefore, more detailed qualitative research is needed to analyze the impacts of the UN-SDGs on Taiwan, as well as its mechanisms. In this way, the transformation of Taiwan's SD can be better

portrayed.

In addition to the lack of qualitative research on what are the political effects of UN-SDGs in Taiwan, past literature has emphasized that there is still a lack of empirical research on the impact of national political institutions on the localization process of the UN-SDGs at the national level (Jönsson & Bexell, 2021; Novovic, 2022). To address these knowledge gaps, this paper not only analyzes the political changes in Taiwan government after the introduction of the UN-SDGs, but examines the mechanisms of how the UN-SDGs affect Taiwan's SD.

1.3 Research questions

The research aim of this thesis is to examine the political impacts of the UN-SDGs on Taiwan, and the factors that have contributed to these political changes. The overarching research question of this paper is:

What political changes have occurred in Taiwan's SD since the launch of UN-SDGs in 2015, and what factors have contributed to these changes?

The overarching research question will be answered in three steps. The first is an explanatory research question that analyzes the influential factors in the formulation process of T-SDGs. The second research sub-question is a descriptive research question that analyzes the political changes in Taiwan's SD after the introduction of the UN-SDGs in 2015. Then, an explanatory research question will be asked to analyze the mechanisms by which UN-SDGs are able to influence the politics of Taiwan's SD. Therefore, three research questions are:

RQ 1: What factors influence the formulation process of T-SDGs?

RQ 2: What political changes have taken place in Taiwan's SD since the introduction of the UN-SDGs in 2015?

RQ 3: Through what mechanism did the UN-SDGs lead to political changes in Taiwan's SD?

1.4 Scientific and social relevance

By providing an in-depth analysis of the political effect of UN-SDGs in Taiwan, the paper expands the understanding of the impact of UN-SDGs at the national level as well as the mechanisms in a unique context. As Biermann et al., (2017) emphasizes, the success of the UN-SDGs will largely depend on how well countries integrate the global agenda into their national governance arrangements in accordance with their national circumstances in order to fulfill their commitments. However, only a few scholars have conducted empirical studies on the localization of the UN-SDGs, emphasizing the influence of national political institution on

the localization of political decisions at the global level (Jönsson & Bexell, 2021; Novovic, 2022). In relation to this, this paper focuses on the mechanisms through which the UN-SDGs have influenced Taiwan, thus providing a richer understanding of the politics of Taiwan's SD.

When it comes to societal relevance, this study enriches the understanding of the politics of SD in Taiwan. For a long time, Taiwan is excluded from the UN, but the government still actively strives to participate in international affairs and abide by international norms. Due to the inability to submit VNRs at HPLF, many SDGs assessments exclude Taiwan. Taiwan also lacks experience in international exchange and learning. Therefore, this study can supplement the international community's understanding of T-SDGs. As one of the few unofficial assessments, this paper provides new insights into the development of T-SDGs from a perspective different from that of government indicator-oriented SDGs assessment.

2. Theoretical backgrounds

2.1 Sociological institutionalism

Using sociological institutionalism, this paper discusses the mechanisms by which the UN-SDGs influence T-SDGs in the absence of participation in international SDGs governance, and its political impact on Taiwan.

The new institutionalism includes various schools of thought (Peters, 2019). Sociological institutionalism stems from a critique of functionalist theories that view formal organization, represented by bureaucracy, as a means of maximizing efficiency (Dobbin, 1994). In the view of sociological institutionalists, the institutional forms and procedures of modern organizations were introduced not because they were best suited to accomplish the tasks of the job, but because they were evaluated as the most appropriate in the existing cultural context and could effectively increase the external legitimacy of the organization (Meyer & Rowan, 1977; Powell & DiMaggio, 2012).

Sociological institutionalism is concerned with more informal factors such as norms, culture, symbolic systems, meanings, and especially taken-for-granted beliefs and cognitive schema (Hall & Taylor, 1996). Scott (2013, p33) defines institutions as "[...] cognitive, normative, and regulative structures and activities that provide stability and meaning to social behavior. Institutions are transported by various carriers – cultures, structures, and routines – and they operate at multiple levels of jurisdiction."

In sociological institutionalism, institutional change is seen as a process of convergence; rather than finding the source of institutional change in the search for efficiency, institutional change is understood as mimicking socially sanctioned structures, functions, and processes (Tolbert & Zucker, 1983). Considering this, sociological institutionalism is characterized by an emphasis on the logic of appropriateness rather than the logic of consequentiality in explaining institutional change (Campbell, 1997).

To be specific, Meyer & Rowan (1977) argue that organizational behaviors and institutional change stem from the need for legitimacy to survive and thrive in contemporary society, and that legitimacy mechanisms often lead to organizational convergence (i.e. the tendency for organizations with different mandates and technologies to adopt the same organizational systems and practices). DiMaggio & Powell (1983) further discuss the origins of organizational convergence. They suggest three mechanisms that lead to organizational isomorphism: the first is coercive, whereby the institutional environment forces organizations to accept the relevant institutions and regulations through governmental decrees or legal systems. The second mechanism is mimetic, whereby organizations imitate the behavior and practices of successful organizations in the same field. The third mechanism is the normative, i.e., the binding effect of social norms on the role played by organizations or individuals or on the norms of behavior. It is because of these mechanisms that we often observe a tendency for organizations in the same institutional environment to converge in terms of internal structures,

processes, and behaviors.

The Taiwan government has voluntarily localized the UN-SDGs into T-SDGs to demonstrate its legitimacy. Specifically, Taiwan has been actively embracing international order over the past decades. Taiwan's unclear national status and ties with Beijing have hindered its ability to broaden its participation on the global stage (Glaser, 2013). As a result, Taiwan has strategically embraced western liberal values to show that it is a responsible state and to prove its legitimacy. It hopes to make the world pay more attention to Taiwan and sympathize with its political plight through its ideological and cultural appeal (Rawnsley, 2014; Wang & Lu, 2008) and further expands its international influence and popularity and gaining international recognition.

In the past, Taiwan has incorporated many UN conventions into domestic law, to demonstrate its values consistent international community. For example, Taiwan not only ratified the two major UN human rights conventions, the International Covenant on Civil and Political Rights (ICCPR) and the International Covenant on Economic, Social and Cultural Rights (ICESCR) in 2009 (Chen, 2019; Chen, 2020), but the Committee on the Elimination of Discrimination against Women (CEDAW) (Chen, 2011). It also voluntarily adopts climate legislation with legally binding targets (Chen, 2020).

Therefore, it is expected that Taiwan has similarly demonstrated its legitimacy by voluntarily complying and implementing UN-SDGs as a diplomatic strategy. Thereby, UN-SDGs have political impacts on Taiwan with normative mechanism. At the same time, because Taiwan adheres to UN-SDGs as a strategy to demonstrate its ideology as well as its legitimacy, it may imitate and learn from the practices of other UN member states to ensure the legitimacy of its own practices. Especially in the case of complex issues with high policy uncertainty, Taiwan tends to act as a follower and mimic other states' practices to ensure policy legitimacy. As a result, UN-SDGs may exert political influence on Taiwan with mimetic mechanism.

For the sake of its legitimacy, the Taiwanese government is influenced by the UN-SDGs as an external factor that exerts political impact on Taiwan's SD through normative and imitative mechanisms. However, Taiwan's domestic factors also influence the politics of SD in Taiwan. Therefore, historical institutionalism will be used in the following section to explain the influence of domestic factors.

2.2 Historical institutionalism

Historical institutionalism defines institutions as “the formal or informal procedures, routines, norms and conventions embedded in the organizational structure of the polity or political economy (Hall & Taylor, 1996, p.938)”. They tend to have a view of institutional development that emphasizes path dependence and unintended consequences (Hall & Taylor, 1996). Path dependence refers to the fact that once an economic, social, and technological system enters a certain path, it becomes self-reinforcing due to the force of inertia, which locks

the system into that particular path (David, 1975).

North, (1981) shifted the study of path dependence from technological change to institutional change and proposed the theory of institutional path dependence. He pointed out that there exists the mechanism of increasing returns and self-reinforcement in the institutional change. Once institutional change enters a particular path, it persists and cannot be replaced even by better paths. Therefore, path dependence refers to the institutional framework determines the direction of path selection and constrains those locked institutional paths. Historical institutionalists argue that existing state capacity, policy legacy and past policy directions have a significant impact on future policy choices. They point out that institutions are closely linked to historical legacies (Kickert & van der Meer, 2011). As a result of this close linkage, policy change becomes a difficult task, not only because of the limited number of alternative paths, but also because of the potentially high cost of changing the current path (Nichols, 1998).

In the process of localizing UN-SDGs, politics of Taiwan's SD may be affected by path dependence and diverge with UN-SDGs. Past literature suggests that although international norms is an important factor influencing Taiwan's climate policy, Taiwan tends to passively meet only the minimum requirements to satisfy its diplomatic needs (Shyu, 2014; Cheng, 2021; Cheng, 2022). Thus, the external pressure of international institutional isomorphism is not the only reason influencing institutional change in Taiwan. In contrast, the path dependency caused by Taiwan's developmental national legacy is the main reason influencing Taiwan's climate politics and constraining Taiwan's low-carbon economic transition (Liu & Chao, 2023). Therefore, this paper predicts that while the UN-SDGs leads to political change of Taiwan's SD through normative and imitative institutional convergence mechanisms, this process will be simultaneously influenced by path dependency within Taiwan. UN-SDGs cover multiple goals in different areas, and most of these goals have had corresponding institutional frameworks in Taiwan in the past. As a result, the localization process will follow the evolution of the existing institutional framework, which aligns political change along past policy legacies or development patterns.

2.3 Analytical framework

Legitimacy and path dependence are mechanisms that explains the political change in Taiwan's SD after the introduction of UN-SDGs. Political change in Taiwan's SD is reflected in the two dimensions of change: institutional and normative change. Due to the limited length of the thesis and data availability, this thesis doesn't analyze the discursive changes of Taiwan's SD. Table 1 outlines how political change is conceptualized and illustrates how the two mechanisms affect political change.

Table 1. Analytical framework to explain the mechanism of political change in Taiwan's sustainable development after the introduction of UN-SDGs

	Normative change	Institutional change
Legitimacy	The legislative and regulatory frameworks and policies have changed to conform to the international norm or to imitate the practices of other countries.	The institutional arrangements such as the creation of new departments or committees have changed to conform to the international norm or to imitate the practices of other countries.
Path dependence	The legislative and regulatory frameworks and policies adjust along past policy legacies or development patterns.	The institutional arrangements adjust along past policy legacies or development patterns.

3. Research design and methods

This chapter explains the research design and methods of this thesis. Yin (2009) suggests that different research strategies can be mixed because triangulation of research methods and triangulation of data sources can help improve the reliability and validity of the study. Hence, after the desk research on T-SDGs context and key concepts, this paper uses single-case design as the research strategy and qualitative content analysis to analyze research materials from official documents, and semi-structured interviews combining with the comparison of UN-SDGs and T-SDGs (Figure 1).

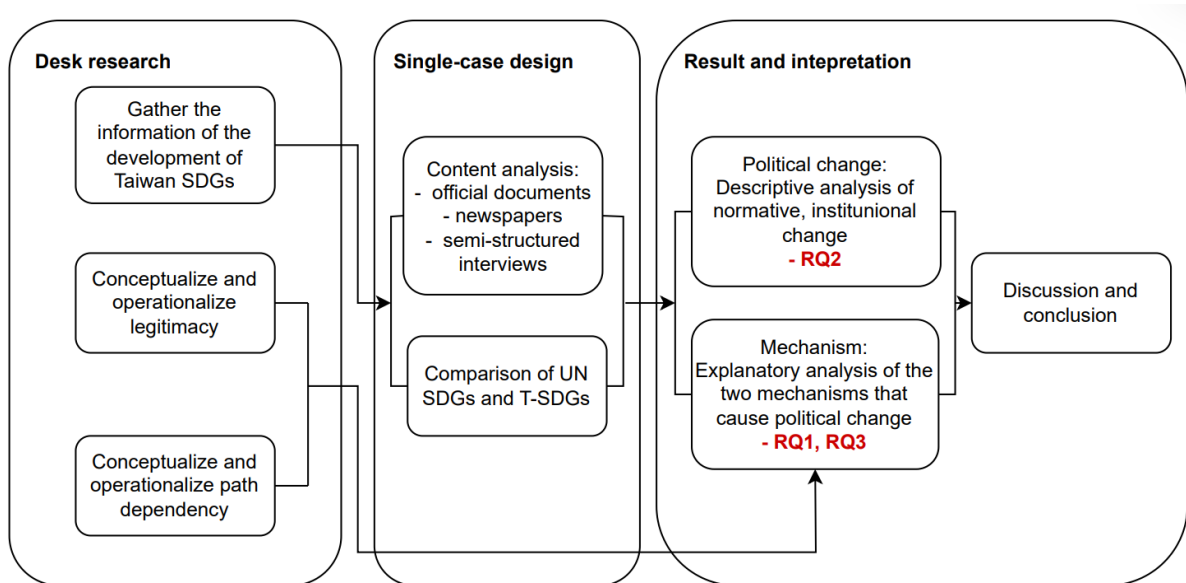


Figure 1. Research framework of the thesis

3.1 Single-case design

Gerring (2004: p.341) argues that “a case study is best defined as an in-depth study of a single unit (a relatively bounded phenomenon) where the scholar’s aim is to elucidate features of a larger class of similar phenomena”. Nevertheless, there might be instances where a particular case is exceptionally distinctive or significant that the researcher refrains from applying its findings to any other cases (Stake, 2005). Single-case studies can not only follow interpretivist approach to explore a phenomenon and formulate an initial theory as an explorative or descriptive case study, but positivist approach to test theories empirically as an explanatory case study (Yin, 2009).

Taiwan is a unique case of a non-member of the UN that voluntarily implemented the SDGs and submitted VNRs. Hence, the research strategy employed in this paper is a single-case design to assess the political impact of UN-SDGs on a unique case of Taiwan descriptively,

explain the mechanisms of the impact and explore how did Taiwan formulate T-SDGs. Previous literature lacks empirical research on T-SDGs to adequately explain the mechanism by which the UN norms affect on Taiwan. Therefore, the selection of Taiwan as a unique case in this paper helps to refine and strengthen existing theories and research.

3.2 Research materials

3.2.1 Public official documents

The research material contains different types of official documents of the Taiwan government, all of which were obtained from the website of the NCS¹. The NCS originated from the Global Change Policy Steering Group of the Executive Yuan, which was established in August 1994. It was upgraded and expanded to NCS in 1997, with the earliest public official document dating back to the National Sustainable Development Annual Report in 1999. Minutes of committee meetings have been made public since 2003, and minutes of working meetings since 2013. Since this paper examines the impacts resulting from the UN's determination of SDGs in August 2015, all official documents from NCS after August 2015 were included in this study (Table 2). Most of the documents are available in Mandarin only, and few of them are available in both Mandarin and English. Since the researcher's native language is Mandarin, the Mandarin version of the documents are chosen for the study to analyze, supplemented by the English documents.

Table 2. Public official documents analyzed in this paper

Official document	Amount	Year
Voluntary National Reviews, VNR	2	2017, 2022
Annual Report on National Sustainable Development	7	2015 - 2021
Annual Review Report	4	2016 - 2021
Committee meeting minutes	9	2015 - 2023
Working meeting minutes	19	2015 - 2023

3.2.2 Semi-structured interview

The study uses snowball sampling method for semi-structured interview. Table 3 is List of interviewees, corresponding organization and job title. The first group of interviewees are

¹ Taiwan national council for sustainable development. <https://ncsd.ndc.gov.tw/>

based on the current committee list published by NCSD². The study contacted government officials, academics and civil society organizations on the list to further identify the first groups of interviewees. Interviewees were asked to provide at least one interviewee who potentially understands the trajectory of T-SDGs. Semi-structured interviews were conducted in Mandarin, with interviews conducted in online meetings and transcribed in real time. With the consent of the interviewees, audio recordings were made, and the transcript of the interview were supplemented by the recordings.

The point of using semi-structured interviews is that the interviews have certain themes and assumptions in advance, but the actual questions are not specific. The interviewer has the flexibility to make the necessary adjustments based on the actual circumstances of the interview. In addition, the interview questions were adapted and customized for the interviewees' roles in policy making for sustainable development. The interviews were conducted in Mandarin and lasted 60 to 120 minutes for each. The interview guide and the informed consent form can be found in Annex A.

*Table 3. List of interviewees, corresponding organization and job title
(The order is according to the first letter of first name.)*

Interviewee	Organization	Job Title
Chi-Yu Chuang	Department of Occupational Safety and Health, Chang Jung Christian University	Assistant Professor
	Ministry of Economic Affairs	Electric Power Carbon Emission Coefficient Review Committee Member
Chia-Wei Chao	Risk Society and Policy Research Center, National Taiwan University	Assistant Professor
	Taiwan Environment & Planning Association	Chairman
Chih-Wei Chen	Taiwan Net Carbon Association	Chairman
	National Council for Sustainable Development (NCSD)	Committee Member
Ching-Yi Hsueh	Ministry of Education Republic of China (Taiwan)	Assistant Researcher
Chun-An Hsieh	Ministry of Education Republic of China (Taiwan)	Project manager
Eugene Chien	Taiwan Institute for Sustainable Energy	Chair & President
	Ministry of Foreign Affairs	Ambassador-at-large

² Register of the 20th Members of the National Sustainable Development Council, Executive Yuan, R.O.C.

<https://ncsd.ndc.gov.tw/Fore/nsdn/about/committee-member>

	National Council for Sustainable Development (NCSD)	Committee Member
John Chung-En Liu	Department of Sociology, National Taiwan University	Associate Professor
Jui-Hsiang Lu	Central Bank Republic of China (Taiwan)	Deputy Director General
Kwang-Tsao Shao	Biodiversity Research Center, Academia Sinica	Adjunct Research Fellow
	National Council for Sustainable Development (NCSD)	Former Committee Member
Liang-Yu Chen	Department of Social and Policy Sciences, Yuan Ze University	Assistant Professor
Ling-Ling Lee	Institute of Ecology and Evolutionary Biology, National Taiwan University	Professor
	National Council for Sustainable Development (NCSD)	Committee Member
Ming-yuan Chen	Ministry of Environment Republic of China (Taiwan)	Associate Technician Specialist
Shi-Wei Huang	Taiwan Institute of Economic Research	Researcher
Shih-Chun Candice Lung	Center for Sustainability Science, Academia Sinica	Deputy Executive Secretary
	National Council for Sustainable Development (NCSD)	Former Committee Member
Shin-Cheng Yeh	Graduate Institute of Sustainable Management and Environmental Education, National Taiwan Normal University	Professor
	Environmental Protection Administration Republic of China (Taiwan)	Former Deputy Director-general
	National Council for Sustainable Development (NCSD)	Former Chief Executive Officer
Shin-Min Shih	Taiwan Environmental Protection Union	Founding President
	National Council for Sustainable Development (NCSD)	Committee Member
	Department of Chemical Engineering, National Taiwan University	Professor
Shyue-Wen Kuo	Ministry of Interior Republic of China (Taiwan)	Section Chief
Tien-Pen Hsu	Department of Civil Engineering, National Taiwan University	Professor

	National Council for Sustainable Development (NCSD)	Former Committee Member
Tsu-Shou Cheng	Ministry of Environment Republic of China (Taiwan)	Senior Environmental Technician
Tze-Luen Lin	Executive Yuan	Former Spokesperson
	Office of Energy and Carbon Reduction, Executive Yuan	Deputy Executive Director
	Department of Political Science, National Taiwan University	Associate Professor
Wei-Jun Huang	Ministry of Education Republic of China (Taiwan)	Assistant Researcher
Yi-Huei Chen	Taiwan Institute for Sustainable Energy (TAISE)	Director

Note: The interviewees' comments represent only their personal positions. The interviewees participated in the interviews in their personal capacity, and do not represent the institutions to which they are affiliated.

3.3 Research method

3.3.1 Qualitative content analysis

Qualitative content analysis is a research method involving the subjective interpretation of content through systematic coding and theme identification to describe the meaning within qualitative material (Hsieh & Shannon, 2005). This study uses qualitative content analysis to analyze public official documents, as well as semi-structured interview transcripts. This deductive approach follows the steps of Cho & Lee (2014). The software NVIVO is used to conduct qualitative content analysis. First, it starts with an analytical framework of two dimensions of political change and two mechanisms which are derived from theory to define prior codes and categories (Table 1). Second, an iterative process is conducted which allows the interaction between data coding and the adjustment of analytical framework by revising codes and categories. The iterative step is important. Although this study was primarily coded using a deductive approach, during the iterative process, some indicators may be found to be inconsistent with the existing analytical framework. Based on this, the existing analytical framework is supplemented with the inductive approach.

3.3.2 Comparison of UN-SDGs and T-SDGs

This thesis compares the latest versions of UN-SDGs and T-SDGs. The source of T-SDGs is the revised version of T-SDGs approved on December 29, 2022, which includes 18

goals, 143 targets and 337 indicators³. The source of UN-SDGs is from the official website of the UN Statistics Division, the latest version as of the Statistical Commission 55th session in February/March 2024, which includes 17 goals, 169 targets and 248 indicators⁴.

This thesis classifies indicators into “T-SDG is similar with UN-SDG indicator”, “T-SDG is relevant to UN-SDG indicator”, “Non-adopted UN-SDG indicator”, and “Added T-SDG indicator” (Annex B). There are only limited resources comparing T-SDG and UN-SDG indicators. This thesis refers to the report from Taiwan Circular Economic Network: “Towards Sustainable Development 2030—A Report on Taiwan’s Current Sustainability Progress” to compare UN-SDGs and T-SDGs⁵.

The report lists all UN-SDG indicators and the corresponding basic values in Taiwan. If Taiwan does not have relevant indicators, it is recorded as having “no suitable indicators”. Hence, if an UN-SDG indicator has a corresponding basic value in Taiwan, the UN-SDG indicator will be considered adopted. I further judged the indicators as “T-SDG is similar with UN-SDG” or “T-SDG is different but relevant to UN-SDG”.

This thesis differentiates “T-SDG is similar with UN-SDG” with “T-SDG is different but relevant to UN-SDG” by the calculation of indicator. For example, T-SDG 2.1.1 “Prevalence of insufficient calorie intake.” is similar to UN-SDG 2.1.1 “Prevalence of undernourishment”. Although the wording of indicators is different, they are considered as similar indicators because the way they calculate are basically the same. Food and Agriculture Organization's definition of undernourishment is that a person is not able to acquire enough food to meet the daily minimum dietary energy requirements. Hence T-SDG 2.1.1 is considered as similar indicator to UN-SDG 2.1.1.

In contrast, T-SDG 1.2.1 “Rate reduction of population of male, female, and children in low-income households” is a different but relevant indicator with UN-SDG 1.2.1 “Proportion of population living below the national poverty line, by sex and age”. Although they are not similar, I found that the national poverty line in Taiwan is one of the criteria for defining low-income households. Hence, T-SDG 1.2.1 is classified as a different but relevant indicator with UN-SDG 1.2.1.

If an UN-SDG indicator is recorded as Taiwan has “no suitable indicators” in the report,

³ NCS (2022). Taiwan Sustainable Development Goals Revised Version. <https://ncsd.ndc.gov.tw/Fore/en/Taiwansdg#T-SDGs>

⁴ United Nations Statistics Division (2024). Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development. <https://UNstats.un.org/sdgs/indicators/indicators-list/>

⁵ Taiwan Circular Economic Network (2018). Towards Sustainable Development 2030—A Report on Taiwan’s Current Sustainability Progress. <https://circular-taiwan.org/en/learn/sdgs/>

the UN-SDG indicator is considered as “Non-adopted UN-SDGs”. If a T-SDG indicator doesn’t correspond to any UN-SDG indicator according to the report, the indicator would be considered as "Added T-SDGs". More examples can be found in the result chapter.

4. Result

4.1 Influential factors for Taiwan government to formulate T-SDGs

4.1.1 The background of UN-SDGs localization in Taiwan

The Taiwan government's attempt to formulate T-SDGs can be traced back to February 10, 2015, when the Deputy Director General of the EPA, invited members of the NCSD to convene the “Sustainable Development Goals Review and Consultation Meeting”. The 27th NCSD working meeting resolved on June 9, 2015 to study and develop Taiwan's medium-term (2020) and long-term (2030) SDGs by making reference to the UN-SDGs and its 169 targets, as well as the NCSD's policy framework and action plan. Originally, it was expected that the draft of T-SDGs would be completed by February 2016. However, it was decided that the draft only needs to be partially finalized in February 2016 during the 40th working meeting on December 3, 2015.

In 2016, Taiwan saw a peaceful transition of power from Ma ing-jeou to Tsai Ing-wen on May 20. The President Tsai appointed the Premier of the Executive Yuan and then signed the orders submitted by the Premier for the appointment of the heads of the ministries and departments, and Lin Chuan's Cabinet was officially inaugurated. In response to the transfer of power on May 20, 2016 and the reorganization of the Executive Yuan, the reappointment of members of the NCSD took place in October 2016. As a result, there were significant changes in the membership from government departments, scholars and experts, and social organizations in the NCSD.

At the 29th NCSD Council Meeting on November 3, 2016, Lin Quan stated that the issue of nuclear waste disposal would be handed over to the NCSD which affects the list of recruited NCSD members. The NCSD began to focus on the implementation of the “2025 Nuclear-free homeland goal”. During the meeting, adjustments to the operation and organizational structure of the NCSD were discussed, as well as the start developing T-SDGs. The previous administration's process of developing the T-SDGs was largely ignored. Now, the government considers the resolution of the 29th NCSD Council meeting in 2016 as the beginning of the developing T-SDGs with reference to UN-SDGs.

The development T-SDGs under the Ma Ying-jeou administration which started on June 9, 2015, made reference to documents not only the UN-SDGs, but NCSD's Sustainable Development Policy Framework, Sustainable Development Action Plan, and the Strategies and Directions for Promoting a Green Economy. The unfinished draft of T-SDGs consists of 42 goals and 185 targets.

In contrast, the development of T-SDGs during the Tsai Ing-wen administration which started on November 3, 2016 mainly referred to the UN-SDGs. The previous achievement of NCSD were only used as background information to provide the working groups and members.

4.1.2 Process of T-SDGs formulation

At the 29th NCSO council meeting on November 3, 2016, it was resolved that T-SDGs should have phased goals, including goals to be achieved by 2030, and targets to be achieved by 2020. Among the goals proposed by the NCSO Secretariat, a new goal 18 "Build a nuclear-free homeland" was added. The division of work under these 18 goals was discussed at the meeting.

On December 14, 2018, the 31st NCSO council meeting completed the draft of the T-SDGs. In response to the SDGs' corresponding indicators published by the UN in 2017, T-SDGs added the corresponding indicators in 2019. There are 18 goals, 143 targets, and 336 corresponding indicators. After the 34th NCSO council meeting on July 29, 2022 to review the T-SDGs, the Executive Yuan deleted the indicator 5.3.1 that has already been met, and adding new indicators 1.3.12 and 14.1.3, for a total of 337 corresponding indicators after the amendment.

4.1.3 Mechanism for developing T-SDGs

Within the NCSO, there are inter-ministerial meetings convened by each working subgroup and task force, biannual meetings of the NCSO council meeting, and NCSO working meetings convened from time to time as needed. The NCSO Secretariat proposed the goals and assigned them into subgroups, and invites non-government members to join one to three subgroups in order to formulate targets to be achieved in 2020, and then to formulate the goals to be achieved by 2030 based on the targets. Each working subgroup will finalize the draft of the goals and targets under their responsibility, and then submit them to the NCSO for discussion during the meeting.

In addition to the internal discussions of the NCSO, the formulation of T-SDGs also included citizen participation and social dialog. Seven national citizen forums were held in Taipei, Taichung, Tainan, Kaohsiung, and Yilan. Citizens' opinions were solicited on the Executive Yuan's Public Policy Web Engagement Platform. The Executive Yuan has sought the suggestion of civil organizations related to SD in the Legislative Yuan five times.

4.1.4 The comparison of UN-SDGs and T-SDGs

T-SDGs have 18 goals, 143 targets, and 337 corresponding indicators. There are 12 targets and 73 corresponding indicators repeated in different goals. Most of the goals of T-SDGs are similar to those of the UN-SDGs, with only minor textual adjustments. Among them, T-SDG 1, 6, 9 and 18 are the most different with the UN-SDGs. In addition to the goals, there are some differences between the targets or indicators in T-SDGs and the UN-SDGs. Table 4 shows the summary of T-SDGs comparing with UN-SDGs. Annex B is the full

list of comparing T-SDG with UN-SDG indicators.

The formulation of T-SDGs can be considered as a normative change, because in Taiwan, these T-SDG indicators are evaluated as the government performance of ministries every year. Regardless of whether the government proposes new policies or resources due to T-SDGs, T-SDGs themselves are mandatory norm. This thesis distinguishes the formulation of T-SDGs from the change of legislative and regulatory frameworks and policies. In this chapter, the formulation of T-SDGs is introduced, and in the following chapters will discuss whether T-SDGs has caused changes of legislative and regulatory frameworks and policies.

Table 4. Summary of T-SDGs comparing with UN-SDGs

	Number of UN-SDGs	Number of T-SDGs	Number of T-SDGs similar to UN-SDGs	Number of T-SDGs different but relevant to UN-SDGs	Number of non-adopted UN-SDGs	Number of added T-SDGs	Adopted percentage
Goal 1	14	26	13	5	7	8	50.00%
Goal 2	13	24	12	2	0	10	100.00%
Goal 3	27	39	24	3	8	12	70.37%
Goal 4	12	30	0	11	4	19	66.67%
Goal 5	10	12	5	3	3	4	70.00%
Goal 6	11	29	6	4	1	19	90.91%
Goal 7	6	5	2	2	2	1	66.67%
Goal 8	18	34	5	5	8	24	55.56%
Goal 9	12	10	3	1	10	6	16.67%
Goal 10	11	15	3	2	6	10	45.45%
Goal 11	15	28	10	1	5	17	66.67%
Goal 12	13	29	7	5	3	17	76.92%
Goal 13	9	5	1	2	4	2	55.56%
Goal 14	10	15	10	0	2	5	80.00%
Goal 15	14	13	12	0	3	1	78.57%
Goal 16	22	10	1	3	19	6	13.64%
Goal 17	25	13	0	0	25	13	0.00%
Goal 18	-	-	-	-	-	-	-

4.1.4.1 SDG 1

There are 14 indicators in UN-SDG 1 and 26 indicators in T-SDG 1. There are 13 T-SDG corresponding to UN-SDG indicators. 5 T-SDG indicators are relevant but different from UN-SDG indicators. 7 UN-SDG indicators have no similar or relevant T-SDG indicators. 8 T-SDG indicators are added.

For example, there is not similar nor relevant T-SDG indicator with UN-SDG 1.1.1 “Proportion of the population living below the international poverty line by sex, age, employment status and geographic location (urban/rural)” because T-SDG 1.1.1 “Rate growth of portion of self-reliance in the economically disadvantaged” doesn’t consider the international poverty line at all. Whereas T-SDG 1.2.1 “Rate reduction of population of male, female, and children in low-income households” is a different but relevant indicator with UN-SDG “1.2.1 Proportion of population living below the national poverty line, by sex and age”.

Although they are not comparable indicators, the national poverty line in Taiwan is one of the criteria for defining low-income households.

In Taiwan, some of the goals, targets or indicators have already accomplished the basic values required by the UN-SDGs. Therefore, goals, targets, indicators that are more advanced and consistent with Taiwan's national conditions. Interviewee (interviewee #1) indicated that in Taiwan, issue regarding poverty (SDG 1), hunger (SDG 2), safe water (SDG 6.1.1; 3.9.2), and gender equality (SDG 5) have better progress. Hence, although UN-SDG 1 is "End poverty in all its forms everywhere", Taiwan formulated T-SDG 1 as "Strengthen social care services and economic security for the disadvantaged". In 2016, committee members of the NCSO had a discussion on formulating T-SDG 1 which is different from UN-SDG 1⁶.

"The current direction is to 'eliminate all poverty' is difficult for the working group to start (formulating T-SDG 1). It is suggested that the working group should clarify the issue, refine the text and content in the future"⁷.

Taiwan formulated T-SDG 1 as "Strengthen social care services and economic security for the disadvantaged" mainly because the poverty problem in Taiwan is not serious, so the focus in the discussion is on the vulnerable groups. Many interviewees pointed out that Taiwan is not a developing country, and that its economic development is already comparable to that of developed countries, and that the proportion of people living in poverty in Taiwan is not high (interviewee #1; #7; #12; #19).

"Poverty and hunger are actually not big problems in Taiwan, whether calculated from the International Poverty Line in UN-SDG 1 or the nutritional intake in UN-SDG 2 (...) The indicators of UN-SDGs can be changed (interviewee #19)".

"Many of the SDGs in Taiwan have already exceeded the basic values required by the UN-SDGs, such as poverty reduction and hunger (interviewee #1)"

In addition, "T-SDG 1.1.1 Rate growth of portion of self-reliance in the economically disadvantaged" is a higher standard comparing with the international poverty line, which shows that Taiwan has a better progress. A different indicator from the international poverty line may be more suitable for the national situation.

However, T-SDG 1.2 only focuses on the economic dimension and does not embody the various dimensions of poverty as UN-SDGs. The indicators under T-SDG 1.4 and 1.a are also

⁶ NCSO (2016). The 29th Committee Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

⁷ NCSO (2016). The 29th Committee Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

significantly different from UN-SDG 1.4 and 1.a. This may be due to the fact that T-SDGs were developed, in large part, by the ministries that would present their current policy plan as targets⁸. Although NCSD tried its best to develop T-SDG indicators and targets which are corresponding to UN-SDGs, they largely refer to the original data of various departments, so there are still many differences between T-SDGs and UN-SDGs. The target setting of many of the indicators in the T-SDG 1 was questioned in the working meeting of the NCSD as being consistent with the original policy plan. These indicators were proposed by the MOHW, which put the indicators that had already been included in the original policy plan into the T-SDGs. Hence, the formulation of T-SDGs did not bring about transformative changes to MOHW, and the meaning of these indicators was not fully in line with the UN-SDGs. The target value for 2030 appears to be only the status quo⁹.

“All the new indicators related to the long-term care services are proposed by the Long-term Care Group (from MOHW), which are only taken from the policy plan, with no vision in sight¹⁰.”

T-SDG 1.3.10 was amended because it was in conflict with the original policy objective of the government¹¹. T-SDG 1.3.10 used to be the number of foreign caregivers employed. Committee member in NCSD pointed out that one of the policy objectives of promoting long-term care in Taiwan was to reduce the reliance on foreign caregivers in order to reduce the burden of long-term care on families. Therefore, T-SDG 1.3.10 was in conflict with the policy objective and was later adjusted.

4.1.4.2 SDG 2

There are 13 indicators in UN-SDG 2 and 24 indicators in T-SDG 2. There are 12 T-SDG corresponding to UN-SDG indicators. 2 T-SDG indicators are relevant but different from UN-SDG indicators. Every UN-SDG indicator has similar or relevant T-SDG indicators. 10 T-SDG indicators are added.

For example, T-SDG 2.1.1 “Prevalence of insufficient calorie intake.” is similar to UN-SDG 2.1.1 “Prevalence of undernourishment”. Taiwan developed this indicator based on the UN Food and Agriculture Organization's definition of undernourishment: undernourishment means that a person is not able to acquire enough food to meet the daily minimum dietary

⁸ NCSD (2017). The 41st Working Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

⁹ NCSD (2019). The 47th Working Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

¹⁰ NCSD (2018). The 46th Working Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

¹¹ NCSD (2019). The 47th Working Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

energy requirements. Originally, there was no analytical data on the ratio of undernourished people in Taiwan's Nutrition and Health Survey¹². This indicator was planned to collect data due to the need to formulate T-SDG 2.1.1. In contrast, although there is no UN-SDG 2.1.3, Taiwan formulated T-SDG 2.1.3 as its unique indicator.

UN-SDG 2 is “End hunger, achieve food security and improved nutrition and promote sustainable agriculture“, whereas Taiwan formulated T-SDG 2 as “Ensure food security, eradicate hunger and promote sustainable agriculture”. The meanings of the two are basically the same. The reason for the slight difference may be that Taiwan first formulated the mandarin version of T-SGDs before translating it into the English version, so the wording is slightly different.¹³

As mentioned before, in T-SDGs 2017 version mentioned that there was no analytical data on the proportion of undernourished people (UN-SDG 2.1.1) in Taiwan's existing database, nor was there data on the proportion of people who are moderately or severely food insecure (UN-SDG 2.1.2). Hence, no 2025 and 2030 goals for these T-SDG indicators can be set. Later, in T-SDGs 2022 version mentioned that the data collection for indicators is completed in 2020. The 2025 and 2030 goals for indicators will be adjusted on a rolling basis based on future monitoring results and the development of national conditions.¹⁴

T-SDG 2.2.3 is an indicator that is not in UN-SDGs and was revised in 2019. Since this indicator does not exist in UN-SDGs, the revision of this indicator is not affected by UN-SDGs, but in response to regulations in Taiwan¹⁵.

4.1.4.3 SDG 3

There are 27 indicators in UN-SDG 3 and 39 indicators in T-SDG 3. There are 24 T-SDG corresponding to UN-SDG indicators. 3 T-SDG indicators are relevant but different from UN-SDG indicators. 8 UN-SDG indicators have similar or relevant T-SDG indicators. 12 T-SDG indicators are added.

For example, T-SDG 3.1.1 “Maternal mortality rate” is similar to UN-SDG 3.1.1 “Maternal mortality rate”. There is no UN-SDG 3.2.3, but Taiwan formulated T-SDG 3.2.3 as “Under-5 mortality rate of accident injury”.

T-SDG 3 and UN-SDG 3 are both “Goal 3. Ensure healthy lives and promote well-being for all at all ages”. MOHW takes responsibility for T-SDG 3. To a large extent, it incorporates the original policy into T-SDG 3 (interviewee 7). For example, UN-SDG 3.3 is “By 2030, end

¹² NCSD (2019). Taiwan Sustainable Development Goals 2019. <https://ncsd.ndc.gov.tw/Fore/en/Taiwansdg#U>

¹³ NCSD (2016). The 29th Committee Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

¹⁴ NCSD (2022). Taiwan Sustainable Development Goals 2022. <https://ncsd.ndc.gov.tw/Fore/en/Taiwansdg#U>

¹⁵ NCSD (2019). The 47th Working Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases”, whereas Taiwan formulated T-SDG 3.3 as “Reduce the incidence rates of AIDS, tuberculosis, and acute hepatitis B; maintain zero indigenous cases of malaria; reduce the fatality rate of dengue fever”. The main reason is because these diseases are of concern to the MOHW and there are years of tracking data for these diseases.

“The MOHW gave whatever they have. Dengue fever has been a focus for Taiwan in the past 10 years, so they have continued to collect data (...) The MOHW’s decision (on T-SDGs) at that time was mostly based on its existing data (interviewee 7).”

Similarly, UN-SDG 3.4 is “By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being“, whereas Taiwan formulated T-SDG 3.4 as “Reduce cancer, liver cancers and chronic liver disease, cardiovascular disease, chronic respiratory disease and premature death from it, and suicide rate, and promote the healthy lifestyle to citizens” which clearly lists diseases of concern in Taiwan. It is also because the MOHW has long-term statistical data on these diseases (interviewee 7).

“The MOHW is very concerned about cancer and chronic diseases. Liver cancer is our national disease, so we have 30 to 40 years of data on this, so they decided to include it. As for the four major chronic diseases, they already have this information, so they think it is this kind of routine that they produce every year and it is convenient to put it in (T-SDGs) (interviewee 7).”

UN-SDG 3.9.1 is “Mortality rate attributed to household and ambient air pollution” whereas T-SDG 3.9.1 is “Improve air quality and protect public health”. Taiwan did not collect new data due to UN-SDG 3.9.1, but chose to include the existing indicators from the EPA¹⁶. And T-SDG 3.9.1, 6.c.1, 11.6.3 are all the same indicators.

Taiwan's international status affects the formulation of T-SDGs. UN-SDG 3.a refers to the Framework Convention on Tobacco Control, but T-SDG 3.a is “Reduce smoking rate”. There is no mention of the Framework Convention on Tobacco Control in T-SDGs. As early as 2005, Taiwan's MOFA and the MOHW jointly promoted participation in the ratification of the "Framework Convention on Tobacco Control" and completed the domestic legal procedures. The MOFA, through the permanent representatives of friendly countries to the

¹⁶ NCSD (2019). Taiwan Sustainable Development Goals 2019. <https://ncsd.ndc.gov.tw/Fore/en/Taiwansdg#U>

UN, sent a letter to the Secretary-General of the UN on May 12 in 2005, requesting the permanent representatives of friendly countries to submit Taiwanese instrument of accession to the official responsible for the treaty and legal department of the UN, but the UN did not respond (Chou, 2020). However, Taiwan has always been promoting tobacco harm prevention and has chosen indicators suitable for Taiwan's national conditions to formulate T-SDG 3.a.1 (interviewee 7).

Taiwan does not have T-SDGs target which corresponds to UN-SDG 3.C and 3.D. Although Taiwan provides medical assistance to many developing countries, Taiwan's international status will make it difficult to achieve its targets, so it does not want to be assessed in the T-SDGs. Taiwan has always sent medical teams to conduct health-related diplomatic activities, or epidemic prevention teams to some developing countries. However, due to Taiwan's international status and very few diplomatic states, the countries Taiwan can help are limited. It is also difficult for Taiwan to make a significant contribution to global health. Therefore, the government does not want to include these difficult-to-implement indicators into T-SDG (interviewee 7).

"In Taiwan, once this indicator is included in (T-SDGs), it will be assessed every year. If we don't have more diplomatic states, our scores in 3.C and 3.D will be very poor (...) Over the years, we have really fulfilled our international obligations to help other countries prevent the epidemic (...) However, when it comes to including the indicators, that is another pressure (interviewee 7)"

Members of NCSO had proposed to add some new indicators on the health impacts of climate change in T-SDG 3, but this did not lead to the addition of new indicators by the Taiwan government. The current indicators in T-SDG 3 only focus on traditional chronic diseases and cancer monitoring. Heat injuries or health impacts caused by climate change are not included¹⁷. Firstly, the health impacts of climate change were still an under-appreciated issue when UN-SDGs were proposed, and therefore there was no target on health impacts of climate change in UN-SDGs. Furthermore, although the issue was raised in the NCSO, the decision of whether to include it in the indicators rested with the MOHW. In the end, the MOHW did not pay attention to the issue and thought that what they had done in the past was enough (interviewee 7).

"The Ministry of Health and Welfare said that high temperature is not a disaster now. There are already statistics of consultation rates caused by heat in the health insurance database,

¹⁷ NCSO (2018). The 44th Working Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

so there is no need to formulate this as a T-SDG indicator (interviewee 7)''.

4.1.4.4 SDG 4

There are 12 indicators in UN-SDG 4 and 30 indicators in T-SDG 4. There is no T-SDG corresponding to UN-SDG indicators. 11 T-SDG indicators are relevant but different from UN-SDG indicators. 4 UN-SDG indicators have similar or relevant T-SDG indicators. 19 T-SDG indicators are added.

For example, T-SDG 4.1.1 “When students complete basic education before age 15, the percentage of students who achieve level 2 or higher in reading and mathematics on the PISA exam should increase (PISA is held once every three years)” is relevant but different from UN-SDG 4.1.1 “Proportion of children and young people (a) in grades 2/3; (b) at the end of primary; and (c) at the end of lower secondary achieving at least a minimum proficiency level in (i) reading and (ii) mathematics, by sex” because Taiwan has different standard to evaluate children’s and young people’s education. However, they are relevant because both T-SDG 4.1 and UN-SDG 4.1 are aiming to ensure education for all girls and boys.

T-SDG 4 is the same as UN-SDG 4, but there are no similar indicators, only different but related indicators. It is mainly because Taiwan is well-developed in education, and the performance of some indicators has exceeded the UN-SDGs. For example, UN-SDG 4.6.1 “Proportion of population in a given age group achieving at least a fixed level of proficiency in functional (a) literacy and (b) numeracy skills, by sex”, was formulated in T-SDG 4.6.1 as “Increase the participation rate of adults (above the age of 18) in lifelong learning”. This is because Taiwan’s literacy rate is close to 100%. Therefore, when formulating T-SDGs, NCSD considered whether there are other more appropriate indicators under Taiwan’s national conditions.

“In terms of the supply of safe drinking water, the literacy rate in education, the school attendance situation of schoolchildren of different genders, and gender equality, Taiwan’s development on these aspects is actually ahead of (UN-SDGs) quite a lot (interviewee #1)”

“In fact, Taiwan’s literacy rate is close to 100%, far exceeding the UN-SDGs. At that time, we began to think about whether there is other (...) indicators that can replace UN-SDGs. That’s why there are some T-SDG indicators that look different from the UN-SDGs. It may be because of the national conditions (interviewee #4).”

4.1.4.5 SDG 5

There are 10 indicators in UN-SDG 5 and 12 indicators in T-SDG 5. There are 5 T-SDG

corresponding to UN-SDG indicators. 3 T-SDG indicators are relevant but different from UN-SDG indicators. 3 UN-SDG indicators have no similar or relevant T-SDG indicators. 4 T-SDG indicators are added.

For example, UN-SDG 5.1.1 is “Whether or not legal frameworks are in place to promote, enforce and monitor equality and non-discrimination on the basis of sex”, whereas T-SDG 5.1.1 is “Sex ratio at birth” which doesn’t consider the legal frameworks that promote, enforce and monitor gender at all. Neither does it mentions the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW).

T-SDG 5.2.1 “The prevalence of violence against women aged 18 and above by current or former intimate partner in the last 12 months” is similar to UN-SDG 5.2.1 “Proportion of ever-partnered women and girls aged 15 years and older subjected to physical, sexual or psychological violence by a current or former intimate partner in the previous 12 months, by form of violence and by age”. This indicator promoted Taiwan's first large-scale survey and research on women's experience of intimate partner violence in 2017. However, in T-SDGs in 2017, the prevalence rate of women aged 18 to 74 being harmed by their partners in the past 12 months among women aged 18 to 74 was 9.8%. The 2020 and 2030 goals are only maintained at 9.8% and are not very ambitious. This is because "as society becomes more gender-equality-oriented, people have a higher awareness of gender equality and have a more accurate understanding of intimate violence and are more willing to express it. Therefore, if Taiwan continues to promote gender equality education, in the short and medium term, the survey results of violence rates may increase due to the public's awareness of violence and their exposure to violence.”¹⁸ Therefore, the government has not set very ambitious goals when the indicators need to be assessed. However, in the T-SDGs Revised Version in 2022, the target value of this indicator has been revised, and there are some more ambitious goals.

4.1.4.6 SDG 6

There are 11 indicators in UN-SDG 6 and 29 indicators in T-SDG 6. There are 7 T-SDG corresponding to UN-SDG indicators. 3 T-SDG indicators are relevant but different from UN-SDG indicators. 1 UN-SDG indicator has no similar or relevant T-SDG indicators. 4 T-SDG indicators are added.

For example, UN-SDG 6.1.1 is “Proportion of population using safely managed drinking water services”, and T-SDG 6.1.1 is similar which is “Proportion of population receiving adequate and quality services of water supply”. UN-SDG 6.1.2 is “Proportion of population using (a) safely managed sanitation services and (b) a hand-washing facility with soap and

¹⁸ NCSD (2019). Taiwan Sustainable Development Goals 2019. <https://ncsd.ndc.gov.tw/Fore/en/Taiwansdg#U>

water”, whereas T-SDG 6.1.2 is “Percentage of Public Toilets with Excellent Level”. T-SDG 6.1.2 is different but relevant to UN-SDG 6.1.2 because it is an indicator related to sanitation services.

UN-SDG6 “Ensure availability and sustainable management of water and sanitation for all” was formulated as SDG 6 “Ensure environmental quality and sustainable management of environmental resources”. Taiwan does not only focus on water and sanitation but on environmental quality management, mainly because Taiwan has already well-developed in terms of sanitation. Therefore, at the suggestion of the NCSD committee members, the EPA, which is responsible for this goal, expanded this T-SDG 6 from focusing on water to focusing on other environmental qualities too.

“SDG 6 was originally only for water and sanitation. In Taiwan, sanitation is no longer an issue. So, when we were discussing it, the EPA hoped to expand this goal to the entire environment, including air, water, soil, and environmental quality. Moreover, it hopes for a sustainable management of environmental resources, so the concept is very progressive and forward-looking, and it is not just about the water (interviewee #7).”

“Only the aspect of water resources seems to be relatively narrow, so we expanded it to the maintenance of environmental resources as a whole (...) This is the insistence of (NCSD member) to do this (...) Although air and solid waste has also been mentioned in other places, but it would be more complete to integrate these in T-SDG 6 (...) At the same time, we have not missed the things mentioned in the original UN-SDG 6 (interviewee #22).”

Although the recommendations of the NCSD Committee members are the main factor to affect the formulation of T-SDG 6, the will of the EPA and the support of citizens in the subsequent civil dialogue were also influencing factors. The EPA is willing to include more indicators to demonstrate Taiwan's long-term efforts in environmental protection. And in the three citizen dialogues, "air pollution" and "climate change" were the most urgent sustainability issues for the participants¹⁹. Therefore, T-SDG 6c, 6d and 6e, which were not included in the UN-SDGs, were formulated.

For many targets and indicators in UN-SDG 6, Taiwan is already relatively advanced. For example, in terms of UN-SDG 6.1.1, Taiwan already has very good popularization of piped water. Hence, Taiwan set it as T-SDG 6.1.1²⁰. In terms of UN-SDG 6.1.2, Taiwan's health situation is relatively good, so the indicator that is more suitable for Taiwan's national

¹⁹ NCSD (2017). 30th Committee Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

²⁰ NCSD (2016). 29th Committee Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

conditions is used (interviewee #7; #22). T-SDG 6.1.2 is formulated as "The percentage of Public Toilets with Excellent Level". However, indicators that are in line with Taiwan's national conditions face difficulties in being in line with international standards.

"In Goal 6, the penetration rate of sanitation facilities in Taiwan is almost 100%, so if you look at it based on UN-SDG indicators, this should be considered a perfect score. We changed T-SDG 6.1.2 into a public health facility, so it cannot be matched internationally. (interviewee #16)"

Taiwan has also incorporated a number of indicators that are not included in the UN-SDGs, but that exist and perform well in Taiwan. For example, because Taiwan has invested in the construction of public sewage sewers in recent years, Taiwan has set it as T-SDG 6.3.1 which is a completely different indicator from UN-SDG 6.3.1. National Water Patrol Squads are Taiwan's unique way of public participation in water management. The government feels that this practice is something to be proud of, so it was formulated as T-SDG 6.b.1 (interviewee #7). T-SDG 6.3.5, 6.3.6, 6.3.7 are also included in T-SDG 6 because the Water Protection Office routinely collects these indicators. As mentioned before, the promotion of the NCSD committee members, the willingness of the EPA, and public participation have made T-SDG 6 cover not only water, but also various environmental qualities and resources. Therefore, Taiwan has formulated targets such as T-SDG 6C, 6D, 6E that are not in UN-SDGs²¹.

Difficulties are faced when it comes to indicators that require integration between different ministries. UN-SDG 6.5.1 is "Degree of integrated water resources management", while T-SDG 6.5.1 is "Set up the Water Resources Master Plan to stabilize water supply". And is responsible by of Water Resources Agency of the MOEA. Taiwan does not have integrated management of water resources, so the Water Resources Master Plan already being carried out by the Water Resources Agency of the MOEA was formulated as T-SDG 6.5.1. However, the indicator developed by Water Resources Agency lacks consideration of the ecosystem (interviewee #7).

"The Water Resources Administration itself is not so clear about the water ecosystem. Integrated management requires the coordination of many other units. Water Resources Agency does not have such capabilities (...) So these (indicators) actually need to have cross-sector thinking, but in the formulation process, it may not have been emphasized enough and taken seriously (interviewee #1)."

²¹ NCSD (2017). 30th Committee Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

4.1.4.7 SDG 7

There are 6 indicators in UN-SDG 7 and 5 indicators in T-SDG 7. There are 2 T-SDG corresponding to UN-SDG indicators. 2 T-SDG indicators are relevant but different from UN-SDG indicators. 2 UN-SDG indicator has no similar or relevant T-SDG indicators. 1 T-SDG indicators are added.

For example, UN-SDG 7.1.1 is “Proportion of population with access to electricity”, and T-SDG 7.1.1 is similar which is “Percentage of households with access to electricity”. UN-SDG 7.1.2 is “Proportion of population with primary reliance on clean fuels and technology”, whereas T-SDG 7.1.2 is “Proportion of clean fuel power generation”. T-SDG 7.1.2 is different but relevant to UN-SDG 7.1.2 because it is an indicator related to clean fuel, however it is not an indicator measured by the proportion of population.

In addition to UN-SDGs, there are many factors affecting the formulation of T-SDG 7, such as climate change, energy conservation and carbon reduction issues, and the Paris Climate Summit²².

Committee members of the NCSO have suggested adding some new targets and indicators that are more in line with Taiwan’s national conditions, such as adding targets of strengthening the promotion of decentralized power grids, or new targets on energy policy and environmental education to popularize energy education among the public²³. But these suggestions did not affect the formulation of T-SDG 7 in the end.

4.1.4.8 SDG 8

There are 18 indicators in UN-SDG 8 and 34 indicators in T-SDG 8. There are 5 T-SDG corresponding to UN-SDG indicators. 5 T-SDG indicators are relevant but different from UN-SDG indicators. 8 UN-SDG indicator has no similar or relevant T-SDG indicators. 24 T-SDG indicators are added.

For example, T-SDG 8.1.1 “Economic growth rate” is different but relevant to UN-SDG 8.1.1 “Annual growth rate of real GDP per capita” because GDP per capita is not calculated. There’s no UN-SDG 8.1.2, whereas Taiwan formulated T-SDG 8.1.2 as “Gini coefficient of household disposable income”.

I found that UN-SDGs prompted Taiwan to set policy objectives for the circular economy. However, the original objective is criticized as having no ambition. For example, T-SDG 8.4.2 Resource Productivity. In T-SDGs 2019 version, the value in 2016 is 66.1 yuan/kg

²² NCSO (2016). 29th Committee Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

²³ NCSO (2018). The 46th Working Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

and the objective for 2030 is 76.11 yuan/kg. In T-SDGs 2022 version, the value in 2021 is 77.99 yuan/kg and the objective for 2030 is 109.14 yuan/kg. In the past, when Taiwan was promoting a circular economy, it did not set an objective for this indicator (interviewee #11). UN-SDGs led to the establishment of the objective for this indicator. However, the initial objective for resource productivity was to increase by 15%. Such conservative objective setting was criticized by NCSD members as having no progressive ambition²⁴. Later, affected by the Net zero emissions policy in Taiwan, the objective of this indicator was increased by 40% (interviewee #11).

“We set policy objectives for circular economy because of SDGs. For example, T-SDG 12.2.2 Resource Productivity (...) But it did not affect resource allocation (...) When the objective was set at that time, there was no further analysis of what exactly needs to be done to achieve the objective, so the budget and regulations were not changed accordingly (...) T-SDGs didn't bring to transformative change either. Although the current resource productivity objective has been changed from a 15% increase to a 40% increase, its driving force is the Net zero emissions policy. (interviewee #11)”.

4.1.4.9 SDG 9

There are 12 indicators in UN-SDG 9 and 10 indicators in T-SDG 9. There are 3 T-SDG similar to UN-SDG indicators. 1 T-SDG indicators are relevant but different from UN-SDG indicators. 10 UN-SDG indicator has no similar or relevant T-SDG indicators. 6 T-SDG indicators are added.

For example, T-SDG 9.2.1 “The proportion of rural areas households accessing bus service within 500 meters” is different but relevant to UN-SDG 9.1.1 “Proportion of the rural population who live within 2 km of an all-season road”. T-SDG 9.1.1 “The growth percentage of passenger volume of bus”, T-SDG 9.1.2 “The growth percentage of passenger volume of railway”, T-SDG 9.1.3 “The growth percentage of passenger volume of high speed rail” are similar to UN-SDG 9.1.2 “Passenger and freight volumes, by mode of transport”.

There is a big difference between UN-SDG 9 “Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation” and T-SDG 9 “Build affordable, safe, environmentally friendly, resilient and sustainable transportation”. The main reason is that UN-SDG 9 covers various infrastructure constructions, but the business scope of the MOTC, which is in charge of this goal, cannot fully cover the relevant fields of UN-SDG 9, which makes it difficult to formulate targets under this goal²⁵. Therefore, Taiwan's

²⁴ NCSD (2018). The 45th Working Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

²⁵ NCSD (2017). The 41st Working Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

organizational structure has greatly affected the formulation of T-SDG 9. In Taiwan, the MOTC is responsible for transportation, and the MOI is responsible for urban and rural development. T-SDG 9 is formulated by the MOTC, so it defined T-SDG 9 as transportation based on its original business content.

“Because of the organizational structure in Taiwan at the time, we defined the goal (only related to) transportation (...) T-SDG 9 was only discussed by the MOTC. For the topic related to regional and urban development, it would be put under the T-SDG 11 (interviewee #12)“.

Moreover, the Ministry of Transportation and Communication was leading green transportation working group and was mainly responsible for T-SDG 9, has not integrated the indicators from other ministries into T-SDG 9. The green transportation working group mentioned the target of T-SDG 9 did not fully cover the content of the UN-SDG 9. The green transportation working group has invited all competent authorities to set targets related to industry and infrastructure. For example, the MOEA was invited to mention the industrial part, but the MOEA has already mentioned relevant goals in the green economy working group, so it will not be repeatedly mentioned in the green transportation working group. Other targets that the green transportation working group is responsible for have similar situations, so targets are only mentioned for the transportation part²⁶. In addition, according to UN-SDG 9, the Ministry of Science and Technology and the National Science Council should also be responsible for some indicators under T-SDG 9. However, in this case of difficult integration, the Ministry of Science and Technology and the National Science Council are not responsible for any indicators in T-SDG 9 (interviewee #11).

According to meeting minutes and interviews, I found that committee members of the NCSD have repeatedly emphasized that T-SDG 9 should be more in line with UN-SDG 9 and should also integrate indicators from different ministries. But at the end, it did not cause changes to T-SDG 9. It may be because in the formulation of T-SDG 9, the division of labor among bureaucratic professions increased the communication costs between ministries. The Ministry of Transportation and Communication is responsible for contacting and coordinating other ministries into T-SDG 9. However, during the back-and-forth communication process, the time for other ministries to respond was very short. Therefore, there is often no consensus within other ministries to determine the indicators they could be responsible for T-SDG 9. This hierarchical division of labor leads to high communication costs, which is also observed in other government ministries. It is a challenge for civil servants at the grassroots level (interviewee #2).

²⁶ NCSD (2017). The 41st Working Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

“NCSD hopes to revise it (T-SDG 9) several times, but there is not much change with each revision (...) because it is passed to different levels of administration, and each level takes several days. When documents actually reach the officer responsible for execution, it often only takes two or three days for them to respond (interviewee #7).”

Almost no resources have been invested in collecting new indicators in Taiwan due to the formulation of T-SDG 9. T-SDG 9 only included the government's existing work content, and the formulation process was adapted to the existing statistical data of Taiwan government departments. The main reason is that after the T-SDGs are formulated, the ministries need to implement the indicators, so the final decision-making power of the indicators still lies with the ministries.

“When formulating targets and indicators, they are basically same as existing statistics (...) T-SDG indicators that are consistent with existing statistical indicators can make management and examination more convenient, and using existing government statistical data are also convenient for the operations of various departments. We need administrative departments for implementation, and indicators must be able to be assigned to specific departments. Therefore, the opinions of the ministry are always respected (interviewee #12)”.

4.1.4.10 SDG10

There are 11 indicators in UN-SDG 10 and 15 indicators in T-SDG 10. There are 3 T-SDG similar to UN-SDG indicators. 2 T-SDG indicators are relevant but different from UN-SDG indicators. 6 UN-SDG indicator has no similar or relevant T-SDG indicators. 10 T-SDG indicators are added.

For example, T-SDG 10.1.1 “Growth rates of household disposable income per capita among the bottom 40% of the population and the total population nearly 5 years” is similar to UN-SDG 10.1.1 “Growth rates of household expenditure or income per capita among the bottom 40 per cent of the population and the total population”. T-SDG 10.2.1 “The ratio of the population of employed indigenous peoples whose income from work is below NT\$30,000” is different but relevant to UN-SDG 10.2.1 “Proportion of people living below 50 per cent of median income, by sex, age and persons with disabilities”. Taking into account Taiwan's national conditions, the government pays special attention to the low-income situation of indigenous peoples. Due to the small amount of data, this study is unable to further analyze T-SDG 10 in detail.

4.1.4.11 SDG11

There are 15 indicators in UN-SDG 11 and 28 indicators in T-SDG 11. There are 10 T-SDG similar to UN-SDG indicators. 1 T-SDG indicators are relevant but different from UN-SDG indicators. 5 UN-SDG indicator has no similar or relevant T-SDG indicators. 17 T-SDG indicators are added.

For example, T-SDG 11.1.1 “Proportion of subsidized rent households and social housing households of potential demand of disadvantaged families households” is different but relevant to UN-SDG 11.1.1 “Proportion of urban population living in slums, informal settlements or inadequate housing”. Although the indicators are different, they are relevant since their targets are both “ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums.”

Both UN-SDG and T-SDG 11 are “Make cities and human settlements inclusive, safe, resilient and sustainable”. However, some targets and indicators are different. T-SDG 11.10.2 is a unique indicator in Taiwan, and the NCSD has discussed the formulation of the indicator. The members of NCSD made suggestions to the MOHW to modify the indicator, and finally pushed the MOHW to change the indicator to “Re-report rate of closed protective service cases”²⁷.

The added T-SDG 11.6.4 indicator are mainly because T-SDG 11.6 are relevant to the business scope of the EPA, and the EPA already has these indicators. Therefore, according to the business content of the ministry, water, air, and solid waste are included in this target (interviewee #8). T-SDGs does not have targets and indicators related to UN-SDG 11.a, 11.b or 11.c. This may be due to the fact that these indicators are difficult for administrative units to implement and were not a priority for Taiwan at the time (interviewee #9). T-SDGs are constantly updated. If the objective of an indicator has been reached, the NCSD would discuss whether the objective of the indicator can continue to be improved (interviewee #8).

4.1.4.12 SDG12

There are 13 indicators in UN-SDG 12 and 29 indicators in T-SDG 12. There are 7 T-SDG similar to UN-SDG indicators. 5 T-SDG indicators are relevant but different from UN-SDG indicators. 3 UN-SDG indicator has no similar or relevant T-SDG indicators. 17 T-SDG indicators are added.

For example, T-SDG 12.1.2 “Quantity of industry-driven cradle to cradle design guidelines” is different but relevant to UN-SDG 12.1.1 “Number of countries developing, adopting or implementing policy instruments aimed at supporting the shift to sustainable

²⁷ NCSD (2018). The 45th Working Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

consumption and production”. Although the indicators are different, they are relevant since their targets are both related to clean production.

Both UN-SDG and T-SDG 12 are “Ensure sustainable consumption and production patterns”. However, UN-SDG 12.2.1 “Material footprint, material footprint per capita, and material footprint per GDP” and T-SDG 12.2.1 “Industrial chain distribution and quantity of the critical materials” are different but relevant. The indicators are different because the life cycle needs to be taken into account when calculating material footprints, but Taiwan lacks data (interviewee #22). T-SDG 12.3.1, 12.3.2, 12.3.3 are not exactly the same as UN-SDG 12.3.1. This is also because it is not easy to establish the new indicator as UN-SDGs. Taiwan chose to use existing statistical indicators instead (interviewee #22).

“This is an easier way for Taiwan to provide information (...) Before establishing the new indicator, it uses a consumption ratio (...) In the future, we will cooperate with department to establish new indicators based on UN-SDGs. (interviewee #22).”

I found that UN-SDGs prompted Taiwan to set policy objectives for the circular economy. For example, T-SDG 12.2.2 Resource Productivity. The value in 2021 is 77.99 yuan/kg and the objective for 2030 is 109.14 yuan/kg. In the past, when Taiwan was promoting a circular economy, it did not set an objective for this indicator (interviewee #11). Although UN-SDGs led to the establishment of the objective for this indicator, the initial objective for resource productivity was to increase by 15%. Later, affected by the Net zero emissions policy in Taiwan, the objective of this indicator was increased by 40% (interviewee #11).

“We set policy objectives for circular economy because of SDGs. For example, T-SDG 12.2.2 Resource Productivity (...) But it did not affect resource allocation (...) When the objective was set at that time, there was no further analysis of what exactly needs to be done to achieve the objective, so the budget and regulations were not changed accordingly (...) T-SDGs are not transformative enough. Although the current resource productivity objective has been changed from a 15% increase to a 40% increase, its driving force is the Net zero emissions policy. (interviewee #11).”

The division of labor between departments also affects the formulation of T-SDGs. For example, T-SDG 12.4.2 “Industrial Waste Recovery Rate & Output Value of the Recovery Industry” and T-SDG 12.4.3 “Proportion of industrial waste recycling in science parks” are separated indicators. This is because Taiwan’s industrial zones are managed by the Industrial

Bureau of the MOEA. The science park is managed by the National Science Council, so the industrial waste indicators are collected separately by them (interviewee #22).

4.1.4.13 SDG13

There are 9 indicators in UN-SDG 13 and 5 indicators in T-SDG 13. There are 1 T-SDG similar to UN-SDG indicators. 2 T-SDG indicators are relevant but different from UN-SDG indicators. 4 UN-SDG indicator has no similar or relevant T-SDG indicators. 2 T-SDG indicators are added.

For example, T-SDG 13.2.1 “Achieve the greenhouse gas periodic regulatory goals” is different but relevant to UN-SDG 13.2.1 “Number of countries with nationally determined contributions, long-term strategies, national adaptation plans and adaptation communications, as reported to the secretariat of the United Nations Framework Convention on Climate Change”. Although the indicators are different, they are relevant since their targets are both related to climate change policy.

This thesis found that under the promotion of NCSO committee members, indicators have more progressive objectives. For example, T-SDG 13.2.1 once set the proportion of new energy locomotives in new sales of locomotives in 2030 at 10%. Under the impetus of the NCSO committee members, the CEO of the NCSO asked the MOEA and the Ministry of Transport to re-work out more progressive goals²⁸.

As mentioned earlier, the government often formulates T-SDGs based on existing policy objectives. However, I also found that T-SDGs were adjusted continuously. When the objective of indicator is reached, NCSO would adjust the indicator. For example, in T-SDG 13.3.1, after the 2020 objective set in 2019 was achieved, the 2025 and 2030 objective of this indicator were revised in the 2021 T-SDGs revision (interviewee #3).

“Subsidy for the sustainable campus exploration and renovation plan is a business we have been promoting (...) but its connotation has changed (because of T-SDGs) (...) We have made the objectives of the plan more consistent with SDGs (...) Continuing to encourage colleges and universities to offer courses related to climate change and sustainable development is a work that we did not have (interviewee #3).”

Taiwan's past policies, as well as its lack of international participation, affected the formulation of T-SDGs. For example, T-SDG 13.2.1 is formulated as “Achieve the greenhouse gas periodic regulatory goals”. This is because Taiwan enacted the Greenhouse

²⁸ NCSO (2019). The 47th Working Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

Gas Reduction and Management Act in 2015, and the administrative department set policy objectives in accordance with the regulation. Therefore, Taiwan formulated its existing policy objectives as T-SDGs (interviewee #5). In addition, Taiwan has not participated in the UNFCCC, so it is difficult to set corresponding targets for UN-SDG 13.a and 13.b (interviewee #5).

4.1.4.14 SDG14

There are 10 indicators in UN-SDG 14 and 15 indicators in T-SDG 14. There are 10 T-SDG similar to UN-SDG indicators. There is no T-SDG indicator relevant but different from UN-SDG indicators. 2 UN-SDG indicators have similar or relevant T-SDG indicators. 5 T-SDG indicators are added.

For example, T-SDG 14.1.1 “The Eutrophication Index in coastal areas” and T-SDG 14.1.3 “The quantity of drifting plastics in coastal areas” are similar to UN-SDG 14.1.1 “(a) Index of coastal eutrophication; and (b) plastic debris density”. T-SDG 14.1.2 “The achievement rate for DO, Cd, Pb, Hg, Cu, Zn and Ammonia nitrogen from coastal water monitoring stations” is a different, but relevant indicator to UN-SDG 14.1.1 because both of their targets are to reduce marine pollution.

I find that the NCSD members help with cross-departmental communication during the formulation of T-SDGs. For example, T-SDG 14.1.1 is sponsored by the EPA and co-organized by the OAC and Council of Agriculture. NCSD members pointed out that OAC has updated the indicators within T-SDG 14.1.1 and requested the EPA to update it²⁹.

UN-SDGs caused Taiwan to establish new indicator, such as T-SDG 14.2.3 (interviewee #6). Although UN-SDGs do not have indicators related to T-SDG 14.2.3 “Establish National Ocean Data Bank”, UN-SDGs are factor that promotes the establishment of an ocean data bank in Taiwan. When discussing the formulation of T-SDGs, NCSD member pointed out that Taiwan lacks a marine database to plan Taiwan's marine policy. Therefore, the OAC became responsible for promoting this indicator³⁰.

It may be because the government wanted the indicator implementation to look better, so the calculation method of T-SDG 14.5.1 “The coverage of Marine Protected Areas (MPAs) within the national waters” is very different from UN-SDG 14.5.1 “Coverage of protected areas in relation to marine areas”. UN-SDGs use the area of 200 nautical miles as the denominator, while Taiwan uses the area of 12 nautical miles as the denominator. In addition, Taiwan adds the area of fish bans and fish restrictions together, so the value of the numerator

²⁹ NCSD (2018). The 46th Working Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

³⁰ NCSD (2018). The 46th Working Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

is also relatively large. The value calculated by Taiwan are very good-looking, but they have been criticized for not truly conserving marine area (interviewee #6). In addition, because the ministry is under pressure to be responsible for reaching the objective of indicators, it does not want to set objectives that are difficult to achieve. Therefore, the criteria of T-SDG 14.3.1 regarding pH value are considered too low (interviewee #6).

4.1.4.15 SDG15

There are 14 indicators in UN-SDG 15 and 13 indicators in T-SDG 15. There is 12 T-SDG similar to UN-SDG indicators. There is no T-SDG indicators relevant but different from UN-SDG indicators. 3 UN-SDG indicators have similar or relevant T-SDG indicators. 1 T-SDG indicator is added.

For example, T-SDG 15.1.1 and UN-SDG 15 are both “Forest area as a proportion of total land area”. T-SDG 15.1.2 “Proportion of Spatial Planning Act's environmental conservation zone covered by protected area system” is similar to UN-SDG 15.1.2 “Proportion of important sites for terrestrial and freshwater biodiversity that are covered by protected areas, by ecosystem type”.

T-SDG 14.a.1 and 15.a.1 originally contain indicators about budget. Since the budget is proposed by the Executive Yuan team and reviewed by the legislators, it cannot be decided by the competent administrative agency (interviewee #7). Therefore, the indicator was deleted.

“T-SDG 14.a.1 and 15.a.1 about budget. Using specific budget as targets and indicators are not substantive, because the budget needs to be reviewed by the legislators, and be proposed by the Executive Yuan rather than the governing agency.”³¹

4.1.4.16 SDG16

There are 22 indicators in UN-SDG 16 and 10 indicators in T-SDG 16. There are 1 T-SDG similar to UN-SDG indicators. 3 T-SDG indicators are relevant but different from UN-SDG indicators. 19 UN-SDG indicator has no similar or relevant T-SDG indicators. 6 T-SDG indicators are added.

For example, T-SDG 16.1.1 “Offenses of violent crimes” is different but relevant to UN-SDG 16.1.1 “Number of victims of intentional homicide per 100,000 population, by sex and age”. Although the indicators are different, they are relevant since their targets are both related to violence.

³¹ NCSD (2018). The 46th Working Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

There is limited information on T-SDG 16. It is only found that NCSD members promoted the addition of T-SDG 16.2.2 to T-SDG 16.2 in the context of international discussions on the Convention on the Rights of the Child (CRC).

“T-SDG 16.2 only focuses on drug prevention. However, there are several key points in the Convention on the Rights of the Child (CRC) (...) which is not only about drug detection (...) I hope the Ministry of Justice to incorporate several of the key points mentioned by the CRC.”³²

4.1.4.17 SDG17

There are 25 indicators in UN-SDG 17 and 13 indicators in T-SDG 17. There are no T-SDG similar to UN-SDG indicators. No T-SDG indicators are relevant but different from UN-SDG indicators. 25 UN-SDG indicator has no similar or relevant T-SDG indicators. 13 T-SDG indicators are added.

For example, T-SDG 17.4.1 “Projects to assist developing countries to improve water and sanitation systems” is totally different from UN-SDG 17.4.1 “Debt service as a proportion of exports of goods and services”.

T-SDG 17 “Establish diversified partnerships and work together to advance the vision of sustainability” has big differences with UN-SDG 17 “Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development” in terms of goals, targets, and indicators. Because of the limitation of Taiwan's international space, many indicators in UN-SDG are not suitable for implementation in Taiwan (interviewee #9). It is also found that T-SDG 17 only focus on the aspect of international cooperation due to the division of labor among ministries and committees. It incorporates Taiwan's past diplomatic activities into T-SDG 17 (interviewee #11).

“Taiwan's international space is very limited (...) We can't achieve it (indicators in UN-SDG 17). I think the Taiwan government is actually a team that seeks truth from facts (...) So we tried our best to list out the things we could do (interviewee #9).”

“We only focused on the diplomacy and international cooperation without institutional reform which is mentioned in UN-SDGs. Because of the original task of ministries, they interpreted UN-SDG 17 as an international partnership (...) It discussed the international cooperation of the International Cooperation and Development Fund together with Taiwan's

³² NCSD (2017). The 30th Committee Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

environmental diplomacy and medical diplomacy in T-SDG 17 (interviewee #11)."

4.1.4.18 SDG18

There are 5 targets but no indicators in T-SDG 18. Nuclear energy is a controversial topic. According to the Basic Environment Act Article 23 enacted in 2002 "The government must formulate a plan to progressively achieve the goal of a non-nuclear homeland. Nuclear energy safety control, radiation protection, radioactive material management and environmental radiation detection must also be strengthened to ensure that people avoid radiation hazards in their daily lives." But the controversy over nuclear power continues to be debated.

In 2016, Taiwan achieved a peaceful transfer of power from Ma Ying-jeou to Tsai Ing-wen on May 20. The new ruling party, the Democratic Progressive Party (DPP), has vigorously promoted the issue of non-nuclear homeland and begun to include non-nuclear homeland in the discussion of sustainable development (interviewee #7). In response to the transfer of power and the reorganization of the Executive Yuan, the members of the NCSD were reformed in October 2016 and representatives of civil society concerned about the non-nuclear homeland entered the NCSD³³. At the 29th NCSD Council Meeting on November 3, 2016, the issue of nuclear waste disposal has handed over to the NCSD. The NCSD began to focus on the implementation of the "2025 Nuclear-free homeland goal". The "Nuclear-free Homeland Task Force" was established in NCSD and started to formulate T-SDG 18 "Build a nuclear-free homeland".

The nuclear energy issue was discussed in the NCSD and was formulated as T-SDG 18, largely due to the dominance of the ruling party (interviewee #11, #12, #13). Promoting a non-nuclear homeland was a political commitment of the DPP before the election. Therefore, in 2016, the DPP proposed the policy objective of a non-nuclear homeland in 2025. Tsai Ing-wen also made it clear that "a non-nuclear homeland in 2025 is our unchanging objective, and we will never go back."³⁴ The DPP's clear political intention and long-term advocacy for a non-nuclear homeland have led it to set non-nuclear homeland as its policy objective (interviewee #9, #12).

The original government administrative institution did not have a proper system to deal with the issue of nuclear power decommissioning and nuclear waste (interviewee #11). And the government hopes to dominate the framework or content of T-SDGs (interviewee #13). Hence, the NCSD invited some committee members who are with longstanding concerns

³³ NCSD (2016). 2016 Annual report on national sustainable development.

<https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

³⁴ NCSD (2016). The 29th Committee Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

about nuclear energy issues and they have promoted the discussion of non-nuclear homeland in the NCSD and the formulation of T-SDG 18 (interviewee #11, #12, #13).

“The issue of nuclear power decommissioning and nuclear waste cannot find an appropriate system within the government administrative system. Later, they set up such an additional task force at NCSD. NCSD hired some more committee members who focus on this theme (nuclear-free homeland) (...) Therefore, when formulating T-SDGs, T-SDG 18 was added (interviewee #11).”

“Because of the new government's policies, several committee members who are specifically concerned about nuclear energy have been hired to make this issue more prominent (in NCSD) (interviewee #12).”

“Executive Yuan spent some effort in 2016 to replace the original members and hired a new group of people. We can see that the government at that time very much hoped to dominate the framework or content of T-SDGs (...) I didn't see any clear objections from any member (interviewee #13).”

However, T-SDG 18 continues to be affected by the debate on nuclear energy in Taiwan, so it does not have indicators like other T-SDGs. Specifically, Article 95 of Taiwan's The Electricity Act, which was revised on January 26 in 2017 stated “All nuclear power generation equipment should cease operation before 2025”. This law caused great controversy at the time and triggered a referendum. According to the results of the referendum, the Electricity Act expired on December 2, 2017³⁵. NCSD also repealed the original policy objective of non-nuclear homeland by 2025 due to the repeal of the law.³⁶ The government still promotes a non-nuclear homeland in accordance with the Basic Environmental Act, but has no timeline for reaching it.

³⁵ The Electricity Act (2017). <https://law.moj.gov.tw/LawClass/LawOldVer.aspx?pcode=J0030011>

³⁶ NCSD (2018). The 46th Working Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

4.2 Political changes since the introduction of UN-SDGs

This chapter studies the normative and institutional changes brought by UN-SDGs to Taiwan. In general, the normative and institutional changes brought by UN-SDGs to Taiwan are limited. However, it should be noted that this does not mean that Taiwan has not changed its policies in the field of sustainable development. In fact, the Taiwan government has paid great attention to sustainable development in recent years, and the interviewee also clearly pointed out that sustainable development has become mainstream in Taiwan (interviewee #18).

The reasons for the limited impact of UN-SDGs are firstly, the changes in government policies, organizational structures, and resource allocation are affected by multiple factors (interviewee #16, #18). Therefore, although Taiwan has had many political changes on sustainable development, in many cases it cannot be entirely attributed to UN-SDGs. Through policy analysis, I also found that in most policy texts, UN-SDGs are only mentioned as one of many international trends in the introduction part of policies.

“Many changes in the government are not due to a single thing. It's hard to attribute them to a single factor (UN-SDGs). (...) UN-SDGs play as a guiding role (interviewee #18).”

Second, after UN-SDGs, other issues have emerged that affect Taiwan's sustainable development. Therefore, it is even more difficult to clarify the impact of UN-SDGs. For example, COVID 19 and Net Zero Carbon Emissions issues (interviewee #18). These new issues have caused political changes in many areas of sustainable development in Taiwan. Although the UN-SDGs still play a guiding role, the new issues started to receive more attention than UN-SDGs (interviewee #18).

The third reason is that the UN-SDGs cover a wide range of topics, many of which are consistent with the government's original work. Therefore, the Taiwan government used UN-SDGs to examine whether its governance is in sync with the international standards (interviewee #19). However, considering that international norms may not necessarily apply to Taiwan, and the UN also emphasizes that UN-SDGs need to be localized to match national conditions, Taiwan does not fully follow the same goals, targets or indicators as UN-SDGs.

“The biggest benefit SDGs brings to Taiwan's governance is that it can make us examine the international approach to see whether our governance is in sync with the world. There are conflicts and intersections along the way, and a new route emerged (interviewee #19).”

4.2.1 Normative change

Considering that sustainable development policy is a difficult concept to define, and there are so many policies in Taiwan from 2015 to 2024, it is difficult to examine them one

by one. Therefore, the legislative and regulatory frameworks and policies investigated in this thesis are based on the legislative and regulatory frameworks and policies related to sustainable development mentioned by the interviewees or mentioned in Taiwan's VNR.

Merely searching for "SDGs" in policy documents, or comparing whether the objectives of UN-SDGs or T-SDGs are consistent with Taiwan's policy objectives, are not sufficient to analyze the causal relationship between UN-SDGs and normative changes. The reasons are, firstly, many policies only mention sustainability and sustainable development as a background, and rarely directly mention UN-SDGs or T-SDGs (interviewee #16). Secondly, Taiwan's 2017 and 2022 VNR list many government policies related to sustainability. However, it is difficult to clarify the causal relationship between UN-SDGs and Taiwan's policy changes because the policies in VNR are often existing policies, or Taiwan's long-standing achievements in sustainable development, rather than being driven by UN-SDGs. It is difficult to clarify the causal relationship between UN-SDGs and normative changes by simply analyzing policy documents or VNR. Therefore, this chapter uses a large number of interview sources.

4.2.1.1 Taiwan National Development Plan

The UN-SDGs are mentioned three times in the Taiwan National Development Plan (2021-2024)³⁷. First, in looking forward to global trends, Taiwan National Development Plan (2021-2024) mentioned the 2030 Agenda for Sustainable Development and the 17 UN-SDGs. When the National Development Plan mentions climate change and low-carbon adaptation, it mentions that the UN emphasizes that countries need to actively curb carbon emissions and prevent runaway climate change in order to achieve sustainable development goals. Finally, when the National Development Plan mentions digital governance and smart government, it mentions that in order to strengthen government digital transformation, countries are actively building smart governments and aligning with the UN-SDGs. These show that Taiwan pays attention to the integration with UN-SDGs when formulating its national development plan.

4.2.1.2 Climate Change

The SDGs are mentioned in the Climate Change Response Act Article 17 "In response to climate change, the Government shall promote adaptation capacity building as follows: 3. Ensure that climate change adaptation measures correspond with national sustainable development goals." In addition, in 2023, the Ministry of the Environment's "National Climate Change Adaptation Action Plan (2023-2026)" emphasized that the purpose of adaptation will be based on the advancement of national sustainable development goals and included a chapter on "the relevance of national sustainable development goals".

³⁷ NDC (2021). National Development Plan. https://www.ndc.gov.tw/Content_List.aspx?n=D61190201622DA50

However, it remains questionable whether these policy changes are normative changes or merely adjustments in policy discourse. The original intention of mentioning SDGs in legislation is to avoid negative impacts on other SDGs due to climate adaptation actions. However, the “National Climate Change Adaptation Action Plan (2023-2026)” does not achieve the expected effects of legislation. Although the relationship between climate adaptation and T-SDGs has been considered, it is not comprehensive enough. It lacks of focus on the relevance of all SDGs.

“When the legislation was enacted, we had been thinking that we should avoid the negative impact of climate adaptation actions on SDGs (...) For example, will climate change adaptation actions on water have any impact on the SDG 8 about economic growth rate? Or on SDG 11 about local community? Or on SDG 15 about ecology? (...) However, when it comes to the relevance of climate change adaptation in the water sector to the SDGs, it only mentioned SDG 6 (interviewee #11)”.

UN-SDGs are not the driving force behind the enactment of Climate Change Response Act. The main reason for the enactment of the Climate Change Response Act is that climate change issues have gained attention internationally, and countries have proposed objectives for carbon neutral, which has brought international pressure to Taiwan, causing Taiwan to propose goal for GHG net-zero emission by 2050 (interviewee #5, #13). Although UN-SDGs was not the cause of the enactment of the Climate Change Response Act, it asked the consideration of T-SDGs to be included in the revision process of Climate Change Response Act (interviewee #12, #20).

4.2.1.3 Spatial Planning

The SDGs are mentioned in the Spatial Planning Act Article 9: “National spatial plan that is established by the central government shall include the following information. The objectives of sustainable national land development.”

Regarding the normative effect of the regulation, interviewees had different conclusions with different focuses. One interviewee mentioned that T-SDG 11.3.2 is “Promoting participatory planning in the private sector for the implementation of urban planning and rural development projects”. This indicator can be easily achieved by holding public participation channels such as public hearings. In addition, the 2021 statistic for this indicator has been met 100% in 2021, and there are no more ambitious objectives for 2025 and 2030. Therefore, the UN-SDGs are considered not to have brought about normative changes in spatial planning (interviewee #11).

“One of the indicator in T-SDGs is about whether there is sufficient public participation in spatial planning (...) The objective is set as 100%. As long as there are public hearings and people come to provide opinions, this indicator will be achieved (...) In terms of the content and discussion of the spatial planning, it is actually not very closely related to SDGs (interviewee #11)”.

The Spatial Planning Act was enacted on December 18, 2015. Taiwan hopes to replace “regional planning” with “spatial planning”. Systematically integrate spatial plans such as urban plans, regional plans, and national park plans that were independent in the past. Driven by the NCSD, Taiwan's sustainable development was taken into consideration during the formulation of the Spatial Planning Act. However, when the UN-SDGs was proposed, the Spatial Planning Act was already in the final discussion stage, so it was not affected by the UN-SDGs. The objectives of sustainable national land development mentioned in the Spatial Planning Act are objectives that Taiwan had formulated before the emergence of UN-SDGs and T-SDGs.

“It is for the sake of Taiwan's sustainable development that we draft Spatial Planning Act (...) We believe that the rapid economic development process of Taiwan, coupled with the great impact of Taiwan's natural disasters, can easily affect Taiwan's sustainable development. Therefore, we need to draw up Spatial Planning and take some conservation and even restrictive actions (interviewee #12)”.

“In response to sustainable development, the NCSD went to the MOI and told them that we must integrate sustainable development into the spirit of the Spatial Planning Act. Because it was already in the final stages of discussing the Spatial Planning Act at that time, it was completely unaffected by the UN-SDGs (interviewee #9)”.

Although the UN-SDGs did not bring normative changes to the Spatial Planning Act, after the implementation of the Spatial Planning Act, the UN-SDGs had a normative impact on policies related to Spatial Planning. Article 45 stipulates: “The central competent authority shall announce the National spatial plan within two years after this Act takes effect.” Therefore, the “National Land Use Plan (draft)” was formulated in June 2016 and announced on April 30, 2018. And the Spatial Planning Act did have an effect. In the National Land Use Plan, Chapter 4 is dedicated to discussing the SDGs related to land use.

Hence, the SDGs in the National Land Use Plan are consistent with the T-SDGs. Although the sustainable development goals mentioned in the Spatial Planning Act did not

initially refer to UN-SDGs or T-SDGs. But as T-SDGs replaced the old sustainable development indicators with T-SDGs in the past, the indicators in T-SDGs have been taken into consideration when formulating Taiwan's National Land Use Plan. Therefore, T-SDGs will have a normative impact on Taiwan's policies related to land use.

“In the future, when local governments are doing land planning, they will pay attention to sustainable development goals... And this related goal is mentioned in the national land plan, and it is basically included in the sustainable development goals (interviewee #12).”

It was also found that the Spatial Planning Act pays attention to biodiversity and mentions the issue of ecological restoration, but the reason is the Convention on Biological Diversity rather than the UN-SDGs (interviewee #9). UN-SDGs make Taiwan's land use planning pay more attention to sustainable development and bring the land use planning to the NCSD for discussion (interviewee #12).

“Later, when we were doing the land planning, we also discussed it within the NCSD to incorporate the entire concept of sustainability into the land use planning. Therefore, land use planning should receive greater attention and be developed more completely because of UN-SDGs (interviewee #12).”

The “Coastal Management Act” and the “Wetland Conservation Act” are also important regulations related to land conservation in Taiwan (interviewee #1). Due to the limited research data, detailed analysis is not performed. The Coastal Management Act was enacted on January 20, 2015. The Wetland Conservation Act was enacted on June 18, 2013. Therefore, although their formulation process was motivated by the sustainable development of Taiwan, it was not affected by UN-SDGs.

4.2.1.4 Marine Conservation

The Marine Conservation Act was just announced on July 31, 2024, and is considered a regulation that is fully aligned with T-SDG 14 (interviewee #1). However, it is not clear whether the legislative motivation for the Marine Conservation Act is due to the UN-SDGs. Interviewee #6 pointed out that the Marine Conservation Act has little to do with UN-SDGs. The international trend of increasing attention to marine conservation and the increasing scarcity of marine resources in Taiwan have led civil society organizations, scholars, and legislators to push for the establishment of the OAC in Taiwan. On June 16, 2015, legislation proposed by legislators related to the OAC, Coast Guard Administration, Ocean Conservation Administration, and National Oceanic Research Institute was passed. On April 28, 2018, the “OAC” was officially established. After the institution changes, laws and regulations related

to marine conservation began to be proposed or amended. Moreover, the Marine Conservation Act has been discussed for a long time and was only passed recently. Mainly because there have been constant protests by fishermen who believe that the law harms their interests (interviewee #6).

“The Marine Conservation Act actually has little to do with SDGs, but because marine conservation is important as an international trend. Taiwan's marine resources have been declining (...) so civil society organizations, scholars, and legislators (...) worked hard to push for the Legislative Yuan to pass legislation to establish the OAC, and Ocean Conservation Administration. After they were formally established, they introduced many laws on marine conservation, such as the amendment of Marine Pollution Control Act and Marine Industry Development Act and the Marine Conservation Act (interviewee #6)”.

4.2.1.5 Environmental Education

Taiwan's current environmental education is mainly promoted in accordance with the Environmental Education Act amended in 2017, Curriculum Guidelines launched in 2019, and New-generation Environmental Education Development (NEED) launched in 2021. The Environmental Education Act was amended on 29 November, 2017. From the content analysis, there is no mention of SDGs in the Environmental Education Act. Interviewee #13 pointed out that although the Environmental Education Act hopes to guide the country toward sustainable development, the Environmental Education Act did not involve the correspondence with the UN-SDGs in the legal provisions after the UN-SDGs came out. It may be because the Environmental Education Act is under the jurisdiction of the EPA, so more attention is paid to environmental issues (interviewee #13).

When the Curriculum Guidelines 2019 was drafted, insufficient attention was paid to the SDGs (interviewee #2). While T-SDGs were still being formulated, Curriculum Guidelines 2019 was almost completed. Therefore, not enough attention has been paid to the international trend of UN-SDGs before 2021 (interviewee #2).

It was not until NEED in 2021 that environmental education began to connect with SDGs (interviewee #2). Environmental education is included in the Curriculum Guidelines 2019 as important learning topics, but it focuses on environmental-oriented learning and lacks comprehensive thinking on economic and social aspects of SDGs. Later, the MOE responded to the UN' Sustainable Development Education and proposed NEED. It is to face current international trends such as climate change, Education for Sustainable Development (ESD) and SDGs.

“Subsequently, we proposed NEED in response to issues such as SDGs, net zero and energy

transition. We hope teachers and students should not only focus on environmental issues, but consider economic and social aspects (interviewee #2)."

Although SDGs has had an impact on environmental education, many recent changes in the field of environmental education are due to the Taiwan government's push for net zero and its emphasis on climate change. For example, in 2022, Taiwan announced a "General strategy statement for Taiwan's 2050 net-zero emissions path", and environmental education is one of its 12 key strategies. Taiwan's 2023 amendment to the Climate Change Response Act also mentions environmental education (interviewee #2).

It has been explained previously that environmental education in Taiwan has undergone normative changes with new issues such as UN-SDGs and Net Zero emission. However, the legacy of past policies also affects the development of environmental education in Taiwan. Taiwan has not changed its environmental education-related policies to sustainable development education because the Environmental Education Act is a higher-level guiding regulation. Therefore, the NEED proposed in 2021 still uses the term of environmental education instead of sustainable development education. Even though sustainable development is a larger field than environmental issues, it is still regarded as one of the sub-topics in environmental education (interviewee #2).

Environmental education in Taiwan has been developing for more than 30 years. In the beginning, many scholars from the United States and Canada returned to Taiwan to teach and brought the North American environmental education system to Taiwan. Therefore, Taiwan's environmental education has always followed the North American system, emphasizing natural experience or ecological conservation, rather than the sustainable development that Europe attaches importance to (interviewee #2; #13). These past policy developments still influence Taiwan's current environmental education. However, with the introduction of the UN-SDGs, although Taiwan still uses the term environmental education, the connotation has changed towards Education for Sustainable Development.

"In the past, when talking about environmental education, everyone would focus on the environment (...) and not regard the economy and society. After the UN-SDGs, environmental education was forced to face new global discussion. That's why MOE formulated the NEED, which actually uses the UN framework of ESD. The environmental education in Taiwan came from North America, while Europe talks about ESD. I think the current understanding of environmental education in Taiwan has been broadened (...) Policies mostly use the term environmental education, but the connotation of environmental education has become more comprehensive with the initiative of SDGs (interviewee #13)."

4.2.1.6 Renewable energy

In recent years, Taiwan has adopted more resource allocation and policies regarding renewable energy. However, the huge investment in renewable energy is largely due to the energy transition and the push for a non-nuclear homeland in the past few years, not because of the SDGs (interviewee #11; #13; #21).

“SDG 7 is not an incentive to increase the energy transition budget. Instead, the government uses the results of energy transition policies to fill in the SDG 7 report (interviewee #11).”

“The DPP has always promoted a non-nuclear homeland (...) so it needs to propose a new energy solution and carry out energy transformation (...) so what everyone actually cares about is not SDGs (interviewee #21)”

4.2.1.7 Road safety

The issue of road safety accidents has received a lot of attention in Taiwan in recent years. For example, the Ministry of Transport proposed the “Pedestrian Traffic Safety Policy Framework (2023-2027)”. And the Road Traffic Safety Basic Act has enacted in 2023. In fact, as early as when T-SDG 9.4.1 “The number of road traffic fatalities” was formulated, there was already an objective of reducing the number of road safety accident fatalities by 30% in 2030. However, after T-SDG 9.4.1 was formulated, it did not cause changes in policies or budgets nor did it consider what actions are needed to achieve the objective of T-SDG 9.4.1. Until recent years, the issue of Humanity-Oriented Traffic has been highly discussed in Taiwan and people launched demonstrations, which forced the government to propose Pedestrian Traffic Safety Policy, and Road Traffic Safety Basic Act (interviewee #11).

“There should be corresponding policies, regulations, and budgets to achieve the objective of T-SDGs. But none of these things happened. Until 2023, the discussion of Humanity-Oriented Traffic and the large demonstrations forced the launch of new policy and legislation (...) The driving force is not SDGs, but the initiative of the issue itself (interviewee #11).”

4.2.2 Institutional change

4.2.2.1 NCSD

The UN-SDGs have impacted the organizational structure of NCSD in 2016 and 2021. In 2016, the organizational structure of NCSD was adjusted to comply with the international

sustainable development trend and implement the “2025 non-nuclear homeland goal”³⁸. It established four deputy executives, which are the deputy heads of the Ministry of the Interior, the MOEA, the NDC, and the EPA (Figure 2). There are seven working groups and two task forces, and the secretariat is run by the EPA. “The Nuclear-Free Homeland Task Force” was added. The reason for this organizational adjustment was influenced by the proposal of UN-SDGs, but it did not completely use the 17 goals of UN-SDGs as working groups. Instead, it was adjusted based on the organizational structure of the past NCSD. The two new task forces were established in response to issues of concern in the context at that time (interviewee #9).

“In 2016, the Taiwan government quickly responded to the UN-SDGs by making adjustments to existing administrative operations (...) The Nuclear-Free Homeland Task Force emerged because we have the goal of nuclear-free homeland. Air pollution was also a big topic of discussion in Taiwan, so these two task forces (Nuclear-Free Homeland and Climate Change and Energy, Carbon Reduction Task force) were actually related to energy issues (interviewee #9).”

In 2021, the organizational structure of NCSD was revised. Four deputy executives changed to the deputy heads of the MOHW, the MOEA, the NDC, and the EPA. Each deputy executive supervises the Working Circles, 18 Working Groups are set up for each core goal, and the secretariat is run by the NDC³⁹ (Figure 3).

According to document analysis, the reason for organizational structure adjustment is because the past organizational structure did not correspond to all core goals. Goal 5 "Gender Equality", Goal 10 "Reducing Inequality", Goal 16 "Peace and Justice System" and Goal 17 "Global Partnership" cannot be mapped to the original NCSD organizational structure⁴⁰.

However, through interviews, I understand the complex reasons for changes in organizational structure of NCSD. The members of NCSD pushed for the change of the Secretariat of NCSD from the EPA to the NDC, and accordingly the executive of NCSD was changed to the chairman of the NDC. In the process of formulating the T-SDGs, NCSD members found that the EPA, as the secretariat, has a low administrative level and it is

³⁸ NCSD (2016). 2016 Annual report on national sustainable development.

<https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

³⁹ NCSD (2021). 2021 Annual report on national sustainable development.

<https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

⁴⁰ NCSD (2021). 2021 Annual report on national sustainable development.

<https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

difficult to coordinate among various ministries (interviewee #7). And UN-SDGs constantly emphasize the importance of cross-domain collaboration. NCSO members found that the promotion of UN-SDGs actually requires cross-domain integration which let them think about organizational adjustments (interviewee #9). The NDC itself coordinates inter-ministerial affairs. Have greater authority in budget planning and allocation. Moreover, Taiwan's efforts to promote net zero are unified by the NDC (interviewee #19). Therefore, the Secretariat and Executives of the NCSO were changed to the NDC.

“At that time, the EPA's status in the government was not that high, so communication was harder (...) Most of its functions were in environmental protection work (...) The NDC had a relatively large power and influence in the government. In addition, the NDC was working on net-zero emission roadmap in Taiwan (interviewee #19).”

This adjustment is considered to have a very positive impact. It contributes to the integration of Taiwan's sustainable development. It has changed the situation in Taiwan that focuses more on the environmental aspect (interviewee #12, interviewee #19). Through the coordination of the NDC, more ministries and agencies have paid attention to sustainable development (interviewee #13). However, there are a few doubts. It is that since the NDC took office as the secretariat, due to NDC's unfamiliarity with environmental issues, sustainable development was discussed from an economic perspective (interviewee #7).

In the adjustment of the organizational structure in 2021, the MOI no longer serves as the deputy executive, but is replaced by the MOHW which is responsible for leading the inclusive social working circle. Maybe it's because of the COVID-19 pandemic and the impact of climate change on health (interviewee #9, interviewee #12). And the leadership role of the MOI could be replaced by the NDC (interviewee #12).

“Although the epidemic has slowed down, when everyone talks about the issue of climate change, they include health (...) We believe that public health is actually a very important issue, and the MOI's Spatial Planning Act is already on track (...) In order to make the country resilient (...) there are many policies implemented corresponding to social welfare and health care (interviewee #9).”

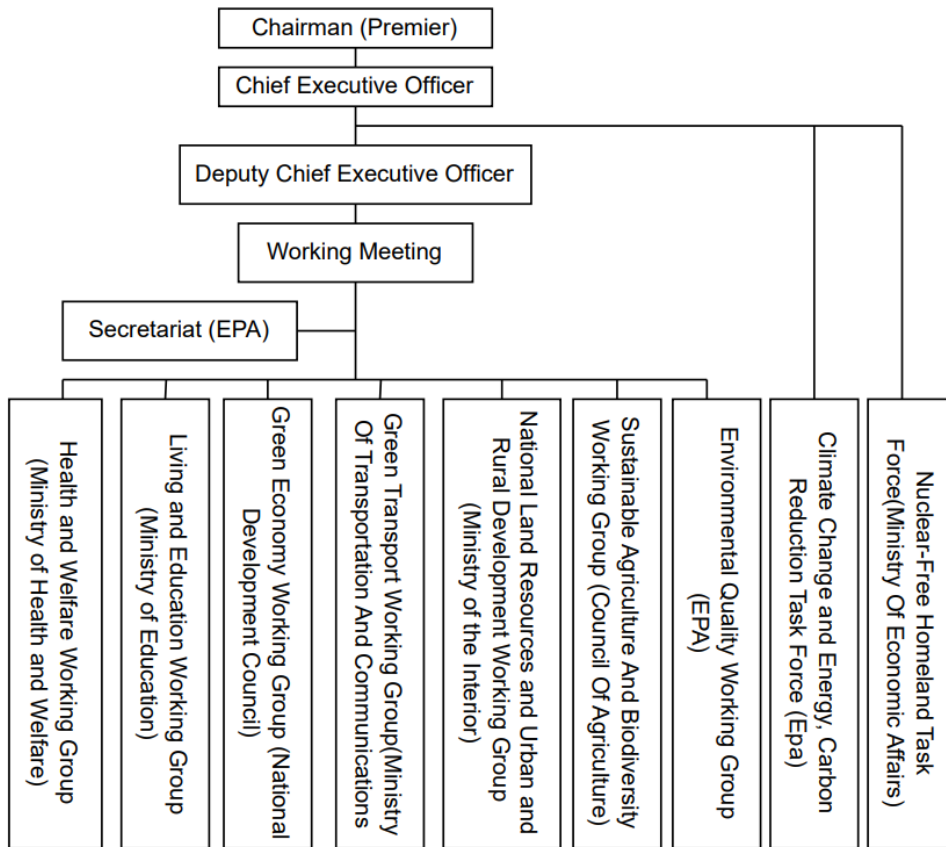


Figure 2. The organizational structure of NCSD since 2016⁴¹

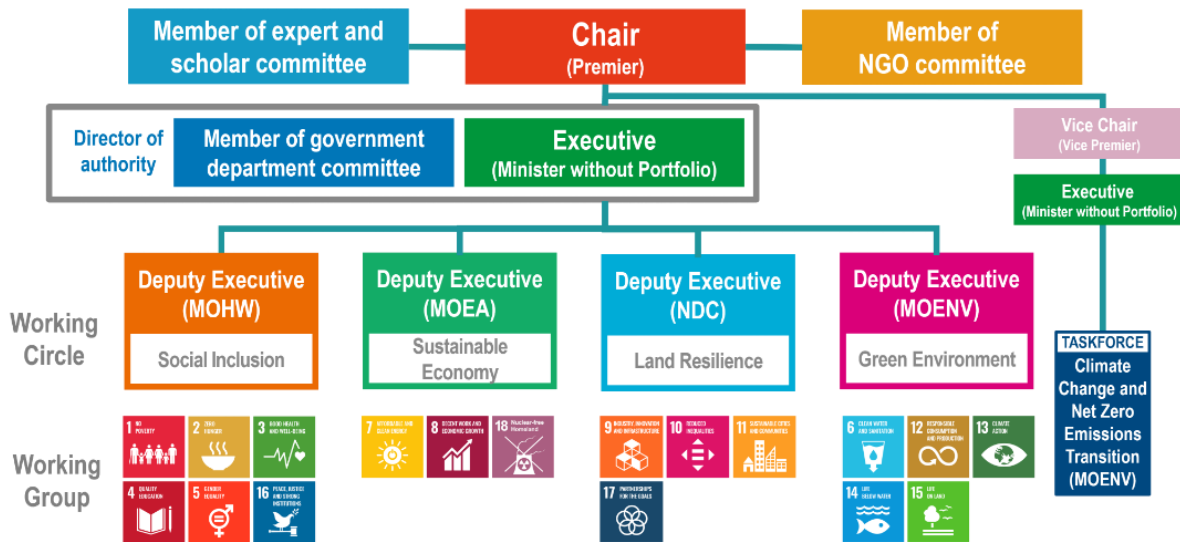


Figure 3. The organizational structure of NCSD since 2021 (adopted from NCSD website)

⁴¹ NCSD (2016). 2016 Annual report on national sustainable development.

<https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

4.2.2.2 Legislative Yuan

Taiwan's legislators can organize sub-groups within the Legislative Yuan. Since 1998, there have been sub-groups related to sustainable development that discuss issues related to sustainable development across party lines. It did not operate from 2008 to 2015. In 2016, with the change of political parties and changes in legislators, the Sustainable Development Promotion Association reappeared. The establishment of United Nations Sustainable Development Goals Advisory Council in 2017 and 2020 are both in response to the sustainable development trend of UN-SDGs (interviewee #9). It plays a supervisory role for the Executive Yuan (interviewee #12). They have more connection with enterprises and NGOs, so they not only pay attention to UN-SDGs, but also have many discussions on ESG issues, or the carbon fee issue that the industry has recently been concerned about (Interviewee #9). These organizational structures within the Legislative Yuan, as well as cross-party and cross-sector participation, have enabled Taiwan's sustainable development to no longer only emphasize environmental protection. However, interviewee #11 believes that the actual effectiveness of these organizations is limited, it did mainstream sustainable development in Taiwan, but its effect on policy and governance reforms was limited.

“They have not promoted so-called cross-party discussions on some key issues in terms of policy (...) and I have not seen them discuss the progress of Taiwan's SDG (...) So I think they may mainstream SDGs, but they have little effect on governance reforms and policies (interviewee #11).

4.2.2.3 Ministry of Environment

In 2023, the EPA was restructured into the Ministry of Environment (MOENV), and five third-level agencies, including the Climate Change Administration, the Resource Circulation Administration, the Chemicals Administration, and the Environmental Management Administration, as well as the National Environmental Research Academy, were established. The reason for the restructuring is to respond to the international net-zero emission trend and global environmental changes, instead of UN-SDGs⁴². Although climate change is one of the SDGs, the reason for the restructuring is mainly because Taiwan is working hard to transform to net-zero emissions and cope with climate change (interviewee #16). T-SDGs didn't lead to the institutional change of EPA into MOENV (interviewee #21).

“In response to climate change (...) We established a climate change agency (...) The issue of climate change is also one of the important issues of SDGs. This is an example that in order

⁴² Ministry of Environment. <https://www.moenv.gov.tw/page/59EAF1F6651BCFAA>

to achieve the goal, we make some organizational and resource changes (interviewee #16)”

There are personnel in the EPA who are responsible for doing T-SDGs tasks. But this is not a change in the organizational structure, because the personnel composition has not changed, but the original personnel have been added to the transactional work related to T-SDGs.

“These people are already performing the work of the EPA. They are just assigned to perform tasks in accordance with our goals and policies (...) If there is no UN-SDGs today, we still have a lot of environmental protection work to do (...) So, we just have some people assigned to do transactional work for T-SDGs (interviewee #16).”

“The department itself has its own business (...) policies have continuity, and there have always been policies related to sustainable development and environmental protection (...) so it is difficult to quantify the changes in resources, labors, and funding brought by UN-SDGs (interviewee #17).”

4.2.2.4 Ministry of Education

Similarly, although the MOE has dedicated personnel responsible for implementing the T-SDGs tasks, there have been no changes in its organizational structure.

“The MOE has not experienced major changes in its organizational structure due to UN-SDGs. There are many units under the MOE (...) Has a new sustainability office suddenly appeared in these units? No, we use the original organizational structure to correspond to our current T-SDGs business (interviewee #3).”

4.2.2.5 Ministry of Interior

On June 9, 2023, the “Organization Act of the National Land Management Agency” and the “Organization Act of the National Park Service” were announced. On September 20, the Construction and Construction Administration was restructured into the National Land Management Agency. The national park, national natural park, wetland and coastal management business of the former Construction and Construction Administration were transferred to the National Park Service.

In the past, the Construction and Planning Agency had a very wide range of business. In 2023, it was divided into the Land Management Agency and the National Park Service. It can be seen that the ecological protection work in the Construction and Planning Agency in the past was strengthened, and the National Park Service was established separately to carry out

ecological protection work (interviewee #8). The Sewerage Engineering Office of the Construction and Planning Agency was also be divided into a Sewer Construction Division and a Sewer Sustainable Operation Division in 2023 due to the trend of sustainable development. The split of the organization allowed the original business to be expanded and handled, and the total number of personnel invested increased (interviewee #8). Such changes in organizational structure cannot be attributed to SDGs, but they are related to sustainable development (interviewee #8). In terms of budget, the total construction funds for the recycled water task related to T-SDG 6.3.3 have continued to increase (interviewee #8). T-SDG 6.3.3 also has higher objective after the amendment in 2021. Therefore T-SDGs are associated with increased resource allocation. But there is not enough evidence to prove that the increase of resource allocation is because of T-SDGs.

“The work of recycled water originally had a total construction fund of about 15.2 billion. In order to expand the promotion, our construction funds have expanded to 25.1 billion (...) So funding or resource investment is ongoing (...) If the work is important for sustainable development, the government would invest more funds (interviewee #8).”

4.2.2.6 National Audit Office

UN-SDGs has caused changes in the work content of the National Audit Office. The International Organization of Supreme Audit Institutions (INTOSAI) actively advocated the role of audit institutions in tracking and reviewing the “2030 Agenda for Sustainable Development” and passed the “Abu Dhabi Declaration”, declaring that audit institutions in countries would focus on auditing the 2030 sustainable development agenda.

Taiwan's National Audit Office also follows the international trend. When it conducts the audit of the general budget every year, it has a special chapter focusing on SDGs to show those aspects of Taiwan's budget used for SDGs (interviewee #13). This helps the Taiwan government clarify its resource allocation related to SDGs. It can also better integrate the resources needed under Taiwan's different policies. For example, Taiwan's net-zero budget includes subsidies for public transportation, which can also contribute to the goals of the public transportation part of T-SDGs (interviewee #13).

4.2.2.7 Ocean Affairs Council

Various ministries and departments in Taiwan have also made adjustments to their organizational structures, but the reasons for the adjustments are not necessarily due to UN-SDGs. The OAC was established in 2018 and became the leading administrative agency of T-SDG 14. It is also the co-organizer of T-SDG 2 and 15⁴³.

⁴³ NCSD (2019). The 47th Working Meeting. <https://ncsd.ndc.gov.tw/Fore/en/Achievements#Achievement>

The establishment of OAC has almost no causal relationship with UN-SDGs. The Organization Act of the OAC passed in 2015, requiring the Executive Yuan to establish OAC, incorporating the original “Coast Guard Administration”, and newly establishing the “Ocean Conservation Administration” and “National Academy of Marine Research”. The main reason is that Taiwan has not had a single agency in charge of oceans in the past. With signatures from citizens and appeals from civil society groups, the international emphasis on ocean conservation has indeed affected Taiwan, especially the establishment of the Ocean Conservation Administration (interviewee #6). But this is not because of UN-SDGs, but because of international trends such as the Convention on Biological Diversity that focus on the ocean (interviewee #6).

“The international community has begun to pay attention to marine conservation. In the past, Taiwan only developed and utilized, and did not think about conservation. Later, a dedicated unit was needed to manage it, and the Ocean Conservation Administration was introduced (...) UN-SDGs relies on experts from different fields and UN-SDG 14 and 15 are basically follow Objectives of the Convention on Biological Diversity (...) UN-SDGs is not the original author, but it is very appealing (interviewee #6).”

4.3 The mechanism by which UN-SDGs affects Taiwan

It is mentioned on the NCSO website that sustainable development has always been one of the core values that Taiwan. In order to enable Taiwan to actively move towards sustainable development, respond to global sustainable development actions and align with international standards, and take into account local development needs, Taiwan launched the formulation of T-SDGs in 2016. At the 29th committee meeting of the NCSO in 2016, it was decided to formulate the T-SDGs with reference to the UN-SDGs. UN-SDGs affect Taiwan through the following mechanisms:

4.3.1 Long-term focus on sustainable development

Taiwan has always paid close attention to international sustainable development trends. As early as 1992, after the “Earth Summit” and the “Agenda 21” was passed, Taiwan followed the global trend and the Executive Yuan established the Executive Yuan Global Change Policy Steering Group in August 1994. And on August 23, 1997, the original “Executive Yuan Global Change Policy Steering Group” was upgraded and expanded to The National Council for Sustainable Development (NCSO). In November 2002, the Legislative Yuan passed the “Basic Environment Act”. Article 29 “The Executive Yuan shall set up a National Sustainable Development Council, which shall be responsible for decision-making on national sustainable development-related matters and must be implemented by relevant ministries and commissions, and the council must be composed of one-third each of government agency representatives, scholars and experts, and civic group representatives.” It gives the NCSO a legal positioning level. In 2012, the Taiwan government participated in the Rio20+ under the name of a non-governmental organization, led by the Deputy Director of the EPA (interviewee #11, interviewee #13). Taiwan has been following the international sustainable development trend for many years (interviewee #11; #18).

Taiwan has been keeping pace with international sustainable development trends and has the motivation to increase international exchange opportunities through sustainable development. Taiwan hopes to be seen and recognized internationally. Although Taiwan is not a member of the UN, it hopes that more international visibility will allow the world to understand Taiwan's situation, which will benefit the country's development.

“Although we are not a member of UN, we hope to be seen and recognized internationally. Actions that are in line with the international process, or even go beyond this action, allow the world to understand some of our situations. This may be more beneficial to international connections, and it will also be helpful to the development of our country (interviewee #1).”

“We hope that some of Taiwan's excellent performance and achievements can be seen by the world. Then we can also influence some friendly countries and countries with similar ideas, and then show our achievements in Taiwan (interviewee #15)”

4.3.2 Taiwan's international status

Moreover, Taiwan is not a member of the UN, which makes it more active in participating in international affairs (interviewee #3; #5). It hope to maintain good relations with the international community through these international participations (interviewee #12). Taiwan cannot participate in many international conferences in an official capacity, but can participate in an unofficial capacity. Or communicate with many countries with similar ideas on occasions other than conferences. Therefore, sustainable development is indeed a field where Taiwan can conduct diplomatic activities (interviewee #18).

“Because Taiwan is not a normal country, we want to do a lot. We want to prove that we are qualified to be a normal country (...) We do not have formal channels to participate in many international affairs, so we think we must learn from the international community (interviewee #5).”

“Because we are not a member of the UN, we have always felt that we want Taiwan to be an international model student, so we have to follow international norm (interviewee #18).”

4.3.3 UN-SDGs emphasize on global partnership

Taiwan's focus on the UN-SDGs seems to have more diplomatic motivations than its past sustainable development efforts. With the emergence of the UN-SDGs, Taiwan's foreign strategy has changed (interviewee #9; #11; #19). I found that before SDG, Taiwan tended to bring international experience into Taiwan, but after the emergence of SDG, it began to focus on exchanging Taiwan's experience in sustainable development with the world (interviewee #9). It is also found that UN-SDGs plays a more prominent role in diplomacy than previous sustainability issues (interviewee #11). It is mainly because the Taiwan government has noticed that the UN-SDGs emphasize multilateral cooperation to promote global partnerships, so it has become more diversified in its strategies to promote the UN-SDGs. Not just implementing UN-SDGs in Taiwan, but using UN-SDGs to conduct more international exchanges (interviewee #9).

“Before 2016, we (NCSD) were only translating and bringing over international things (to Taiwan). After 2016, (...) we hope to exchange Taiwan's experience with the international community (...) This is related to our re-understanding of global partnership (...) In addition to official-to-official exchanges, there are more cooperation and exchanges from NGOs and

even different stakeholders. I think the Taiwan government catches this key point and our strategies become more diversified (interviewee #9).”

4.3.4 Tensions with Beijing after DPP coming to power

Although it was not affirmed by the interviewees, the change of political parties in Taiwan in 2016 may also be the reason why Taiwan is more active in promoting SDGs. The DPP came to power in 2016, and then-President Tsai Ing-wen did not recognize the “1992 Consensus”, bringing cross-Strait relations to a deadlock and the shrinking of Taiwan’s diplomatic space. From 2016 to 2024, 10 countries have severed diplomatic relations with the Republic of China (Taiwan), and it has also lost its status as an observer in the WHA and ICAO (BBC, 2024).

“Is it because our international space is a little harder, so we do diplomacy in this way (actively cooperating and communicating with different stakeholders)? It seems so. But I think from a deeper perspective, we discovered that communication can be more diverse and flexible. Our international participation in many areas will become more diversified (interviewee #9).”

It can be seen that when Taiwan's international space is limited, SDGs have become an opportunity for many Taiwan to engage in international participation and exchanges. For example, “Leave no one behind” was used by Taiwan as one of the entry points for advocating to participate international affairs in UN, calling on the world to not leave out Taiwan while emphasizing the SDGs (interviewee #11). The Taiwan Representative Office in New York has co-organized seminars on SDGs-related issues with diplomatic allies and Columbia University during the UN General Assembly (interviewee #9).

Former President Tsai Ing-wen has also used sustainable as the theme during her diplomatic trips, such as her 12-day, 11-night Journey of Freedom, Democracy, and Sustainability at noon in 2019. She emphasized to “promote international cooperation based on mutual assistance for mutual benefits with sustainable development as the goal” (interviewee #11).

4.3.5 Steadfast diplomacy after DPP coming to power

As mentioned earlier, under the difficult circumstances of Taiwan's international space, UN-SDGs has used as an opportunity for Taiwan to expand its diplomatic space. This paragraph is going to explain that the Taiwan’s participation of UN-SDGs are related to Taiwan’s steadfast diplomacy after 2016. In 2016, former Foreign Minister Li Dawei explained that the connotation of “steadfast diplomacy” is to abandon one-way aid, move toward international cooperation, and deepen exchanges with democratic countries to

establish a “democratic alliance”⁴⁴. It clarifies that Taiwan used universal values such as democracy and freedom as the basis for interactions with other countries, showing the tendency of values diplomacy⁴⁵. This diplomatic strategy affects Taiwan's participation in UN-SDGs. I found that Taiwan promotes the same values as democratic countries through its participation in SDGs. It has deepened exchanges with countries in the Democratic Alliance, not just friendly countries (interviewee #18; #19).

“We closely monitor HLPF or surrounding conferences, and then introduce these rules to Taiwan (...) We also share our progress with like-minded allies, whether they have diplomatic relations with us or not (interviewee #18).”

“Countries are now talking about whether they have the same value? (...) SDGs are a good opportunity because our Taiwan’s sustainability is very cutting-edge. For example, our gender equality in Asia (...) The (countries with) same values are often easily communicated, and it is a good bridge tool (interviewee #19).”

4.3.6 International trade and pressure from companies and civil society

Taiwan is not a member of the UN, but Taiwan is a highly export-oriented economy that is greatly affected by international trade (interviewee #1; #6). Therefore, the Taiwanese government, enterprises, and civil society are all paying close attention to international trends (interviewee#6; #20). Taiwan interacts frequently with international trade, and Taiwan plays an important role in the global supply chain. Therefore, the government itself pays great attention to UN-SDGs and the integration of Taiwan and global industries (interviewee #1; #13). Enterprises and civil society responded to UN-SDGs even faster than the government, becoming the driving force for the government to pay attention to UN-SDGs. After UN-SDGs were proposed, many companies quickly mentioned SDGs in their CSR reports in 2016 and 2017 (interviewee #11; #13). Representatives of many civil society organizations were invited as NCSO committee members and became the driving force to promote UN-SDGs in Taiwan (Interviewee #12).

“After the UN-SDGs were proposed, many CSR report writing requirements for companies have been redefined. Companies are beginning to pay attention to sustainability which promoted the government to respond UN-SDGs (interviewee #11).”

⁴⁴ Ministry of Foreign Affairs (2021). Review of Diplomatic Achievements in 2021.

https://www.mofa.gov.tw/News_Content.aspx?n=95&sms=73&s=97020

⁴⁵ Ministry of Foreign Affairs (2019). 2019 Year-End Review.

https://www.mofa.gov.tw/News_Content.aspx?n=95&sms=73&s=90672

“Companies quickly adopted the SDGs as a common language. We have already seen SDGs in the sustainability reports of many companies in 2016 and 2017 (interviewee #13).”

“Some of the members of NCSD are environmental groups and they are very actively involved (...) If there are new topics discussed in the world, the government will discuss it, and civil society will also ask for discussion (interviewee #12).”

4.3.7 The government believes that sustainable development is important for the country and the world

Lastly, the Taiwan government also hopes to build a sustainable homeland for Taiwanese people. Taiwan also believes that as a member of the world, they need to pay attention to sustainability. Although there are diplomatic motives and economic motives for integrating with international standards for responding to the UN-SDG, Taiwan does agree with the concept of sustainable development and believes that this is important to the country and the world (interviewee #7; #9; #12; #19).

“Taiwan is an island with a high density of economic development (...) its hinterland is limited, and Taiwan's population density is very high. If the environment is destroyed, there will be no place to go (interviewee #12).”

“Sustainable development is related to whether human beings can survive on this earth. Therefore, it is also very important for Taiwan's local development (interviewee #7)”

“Taiwan government hopes to create a more sustainable home for Taiwanese people (...) We agree with vision put forward by the UN. As a member of the world's global village, the Taiwan government actually hopes to contribute its own efforts. (interviewee #9).”

“The government's attitude is that we should also follow what is done right in the world (interviewee #19).”

5. Conclusion

For RQ1: “What factors influenced the Taiwan government to formulate T-SDGs?”, this thesis found that in response to UN-SDGs, Taiwan formulated T-SDGs. T-SDGs have 18 goals, of which T-SDG 1, 6, 9, 18 are somewhat different from the UN-SDGs, and many targets and indicators are not consistent with UN-SDGs.

Among them, T-SDG 1 and UN-SDG 1 are different because the extreme poverty problem is smaller in Taiwan. By considering the reality of Taiwan, Taiwan formulated T-SDG 1 which focuses on the disadvantaged. The reason for the difference between T-SDG 6 and UN-SDG 6 is that Taiwan's water resources and sanitation facilities are in a better situation, so many targets and indicators were adjusted. In addition, since the Ministry of the Environment is responsible for T-SDG 6, the work of the Ministry of the Environment on air and waste was also included in T-SDG 6. The reason why T-SDG 9 is different from UN-SDG 9 is related to the functions and responsibilities of MOTC. MOTC is responsible for the development of T-SDG 9 and it should have taken the lead in coordinating with other ministries to formulate targets and indicators of T-SDG9. However, there were obstacles in this process, so the MOTC proposed all the targets and indicators alone without other ministries. Hence, T-SDG 9 was formulated as “Build affordable, safe, environmentally friendly, resilient and sustainable transportation”. The reason for the formulation of T-SDG 18 was largely influenced by domestic politics. The issue of nuclear energy retention or abolition is very controversial in Taiwan, and the Democratic Progressive Party (DPP), as the new ruling party in 2016, has vigorously promoted “Non-nuclear homeland”. When the new government came to power in 2016, it made large-scale personnel adjustments to the NCSO, and representatives of civil society concerned about the non-nuclear homeland entered the NCSO. Hence, the nuclear energy issue began to enter the discussions of the NCSO.

For other T-SDGs, they have caused Taiwan to formulate a few new indicators. However, in most cases, Taiwan only formulates the T-SDGs based on the original policy objective and existing statistical data in the past. And since the indicators are proposed by various ministries, they need to be monitored regularly after being formulated. Therefore, the indicator may be calculated using a different calculation method than the international calculation method, or it may only set unambitious objectives for indicators. In addition, the division of labor among each department also affects T-SDGs. The impact of the division of labor between departments is reflected in the fact that many indicators do not directly correspond to the business of a single department, so they are assigned to different departments to jointly complete parts of their own business. Indicators that require integration between different ministries also face implementation difficulties. The government may

choose indicators that do not correspond to the UN-SDGs but are under the responsibility of a single ministry and therefore are convenient for assessment. There may also be some completely different indicators from UN-SDGs, such as the indicators under T-SDG 9. The hierarchical organizational structure of the government increases a lot of communication costs and makes it difficult to integrate ministries well. Therefore, it can be seen that during the T-SDGs formulation, due to path dependence, many goals, targets, indicators were different from UN-SDGs and rewritten due to the political and institutional factors in Taiwan to adapt to the country's conditions.

This thesis also found that many factors other than path dependency, such as Taiwan's international status, restrict T-SDGs from formulating indicators related to UN's conventions and international cooperation. On the other hand, Taiwan has the motivation to use SDGs for promoting international exchanges. Therefore, in terms of Taiwan's advanced aspects, the members of the NCSD and the government incorporated many existing and well-performing indicators into T-SDGs.

Issues that have higher priority in Taiwan also affect the formulation of T-SDGs. Especially in the areas of climate change and energy transition. It can be seen that when some indicators are formulated in response to UN-SDGs, their objectives are not ambitious. But later, after being combined with other issues, it began to have higher policy objectives.

NCSD is responsible for developing T-SDGs. Driven by the NCSD members, some new indicators and more ambitious objectives have been formulated. They also helped with cross-department communication. But generally speaking, NCSD only plays the role of an advisory body and has no decision-making power. Indicators proposed by each ministry will be discussed with NCSD members. However, members' suggestions may not be adopted. Although NCSD made adjustments to its organizational structure, there were no new resource allocations. Therefore, NCSD does not have the resources to create new indicators and the decision remains with the ministries.

RQ2 is "What political changes have taken place in Taiwan's SD since the introduction of the UN-SDGs in 2015?". In terms of the normative change, this thesis found that since T-SDGs are formulated after considering the government's policy objectives, it is not possible to determine the causal relationship between the T-SDGs and the normative change through the consistency of the objectives of the policy and the T-SDGs. It is also found that although many policies mention sustainable development and sustainability, only very few policies mention SDGs. This article selects limited topics to discuss how UN-SDGs can bring about normative changes. In general, although Taiwan has placed great emphasis on sustainable development in recent years, many normative changes in sustainable development are influenced by other factors instead of UN-SDGs, especially the issue of net-zero emissions.

The impact of UN-SDGs on Taiwan is limited.

For example, SDGs are mentioned in the Climate Change Response Act, but it remains to be examined whether this is merely a change in the narrative of the policy, or whether it has a normative effect. When implementing the regulation, Taiwan's Climate Change Action Plan did not pay enough attention to the impact of climate adaptation action on T-SDGs.

UN-SDGs didn't affect Spatial Planning Act. However, since T-SDGs replaced the previous Taiwan sustainable development indicators previously mentioned in Spatial Planning Act, according to the regulation, Taiwan's current spatial planning pay attention to T-SDGs. And T-SDGs have normative effect on Taiwan's spatial planning.

Policies in other areas rarely mention the SDGs in regulations or policy discourse, or only use the SDGs as a general background. In addition, UN-SDGs are also a complex of various sustainable development fields, such as the Convention on Biological Diversity, UNFCCC. Moreover, the reasons for policy formulation are affected by many factors, such as Taiwan's own need to promote the energy transition, non-nuclear homeland, net-zero emissions objectives, the legacy of past environmental education policies, humanity-oriented traffic etc. Therefore, it is difficult to identify the normative changes brought by UN-SDGs to a single policy.

Regarding institutional changes, the two organizational structure changes of the NCSD and the composition of the sub-groups of the Taiwan Legislative Yuan have an obvious causal relationship with the UN-SDGs. However, it is difficult to identify the causal relationship between the changes in the organizational structure of various ministries and committees in Taiwan and the UN-SDGs. These changes are more driven by other issues.

The UN-SDGs have impacted the organizational structure of NCSD in 2016 and 2021. The current organizational structure of NCSD is completely divided according to T-SDGs. Due to the need for cross-department integration of T-SDGs, the CEO and secretariat of NCSD are both served by the NDC, allowing for better cross-field integration.

Although various ministries have been reorganized after 2016, UN-SDGs have almost no effect. Organizational changes are often caused by specific issues, such as transition to net zero, climate change, rising attention to ecological protection and Convention on Biological Diversity etc. In addition, each department add sustainable development business based on their existing personnel.

To sum up, UN-SDGs caused a few normative changes in policy and institutional changes in NCSD and the Legislative Yuan. But most policies, as well as changes in various ministries, are not due to UN-SDGs. The past development context of various fields of sustainable development, as well as Taiwan's own priority policy areas, are the main reasons for these changes.

RQ3 is "Through what mechanism do the UN-SDGs lead to political changes in Taiwan's SD?" This thesis found that because Taiwan has long been concerned about

sustainable development, the government, enterprises and civil society can respond quickly when UN-SDGs arise. The government's past organizational structure in the field of sustainable development has allowed Taiwan to align with the UN-SDGs.

Taiwan is not a member of the UN, but it is still affected because of diplomatic motives. Taiwan hopes its efforts in sustainable development issues and international exchanges allow the world to see Taiwan. In addition, UN-SDGs emphasis on global partnerships has allowed Taiwan to move from passively importing sustainable development knowledge to proactively cooperating on the theme of sustainable development. It also combines international cooperation with aiding friendly countries in the past.

In addition, the tense relationship between the DPP and Beijing after it came to power has compressed Taiwan's diplomatic space. And Taiwan's diplomatic strategy of steadfast diplomacy, seeking to establish ties with democracies with similar values. Therefore, Taiwan promotes the same values as democratic countries and broadens its international space by participating in SDGs.

As a highly export-oriented economy, Taiwan is deeply affected by international trade. Therefore, governments, companies, and civil society are all paying attention to the international trend of sustainable development. Companies and civil society have also become a pressure to influence the government. Last but not the least, Taiwan government itself also agrees with the concept of sustainable development.

In summary, long-term participation in the institutional arrangement of sustainable development, diplomatic motivations, economic motivations, and the promotion of domestic stakeholders are the mechanisms through which the UN-SDGs can influence non-UN member Taiwan. Legitimacy does not seem to fully explain these mechanisms. Legitimacy can explain Taiwan's relatively passive international participation in the past. For example, it followed the trend of the UN and formulated domestic laws corresponding to various international conventions. However, after UN-SDGs were proposed, Taiwan did not adopt UN-SDGs for the sake of legitimacy because it didn't fully converge with the international community. The thesis observed that Taiwan proactively communicated with international stakeholders. It hopes to promote the same values as democratic countries, but in practice sometimes diverges from them. Taiwan promotes its strengths in sustainable development issues and boasts that Taiwan has its own sustainable development practices that are consistent with localization.

6. Discussion

6.1 Theoretical implications

The Taiwan government regards the formulation of T-SDGs as the localization of UN-SDGs in Taiwan. Localization is defined as “a process through which political decisions at the global level are adopted by political institutions at lower levels and integrated into the policy ambitions of those institutions (Jönsson & Bexell., 2021, p.184)”. I found that many indicators in T-SDGs are already existing policy objectives and do not really adopt global level political decisions, so this thesis has avoided using the term “localization” and instead using “formulation”.

This thesis creates a dialogue with the literature discussing the localization of UN-SDGs (Jönsson & Bexell., 2021; Novovic., 2022; Park & Park., 2024). Similar to the findings of the case study with South Korea (Park & Park., 2024), I found that in the process of formulating T-SDGs, the details of many goals from UN-SDGs have been changed due to the political and institutional environment of Taiwan.

The political and institutional factors identified in this article include Taiwan’s own national development on different issues, long-standing indicators and policy legacy, as well as domestic politics’ special attention to specific issues, and the division of labor of departments. However, this article also found that Taiwan’s motivation to use SDGs for international exchanges led Taiwan to include indicators that originally performed well but were inconsistent with UN-SDGs into T-SDG. It shows that the localization process of UN-SDGs cannot be understood only from domestic factors. As Jönsson & Bexell., (2021) stated, UN-SDGs localization embodies the process of interaction between the local and the global.

Past literature found that in the process of national localization of UN-SDGs, there are problems of institutional fragmentation within the government and insufficient coordination on sustainable development policies (Park & Park., 2024; Jönsson & Bexell., 2021). Although the purpose of NCSO itself is to promote policy integration for sustainable development, this thesis still finds that the integration of departments is challenging in Taiwan. As a result, some T-SDGs and UN-SDGs are very different. T-SDGs do not meet the connotation of UN-SDGs, because the government simply choose indicators which are easy for the management of a single department.

What is unique about Taiwan is that after the formulation of T-SDGs, the division of labor among various departments is clearer, and there is no problem of unclear division of responsibilities as in the Tanzania case (Jönsson & Bexell., 2021). However, Taiwan's clear division of labor prevents various departments from proposing ambitious policy objectives. Taiwan also has a unique challenge affected by its international status. Taiwan is unable to participate in most international conventions and has official exchanges. And due to the lack of official exchanges between countries, Taiwan can only provide help to limited countries. Implementation is therefore difficult for all indicators related to international cooperation and

conventions.

Past literature found that UN-SDGs caused some discursive changes at the national level, but few normative or institutional changes (Biermann et al., 2022). This article finds that although changes are limited, normative or institutional changes caused by UN-SDGs have been observed in a small number of T-SDG indicators, a small number of policies, as well as the institutional change of NCSO and the Taiwan Legislative Yuan.

This thesis explores how UN norms influence non-UN member by studying the special case of Taiwan. Past research on Taiwan's willingness to participation in international conventions largely explains Taiwan's desire to enhance its legitimacy internationally through these international participations. However, past literature has not conducted research on Taiwan's participation in UN-SDGs and Tsai Ing-wen's diplomatic strategy of "steadfast diplomacy". I found that UN-SDGs emphasizes global partnership, allows countries to localize by themselves, and Taiwan actively uses SDGs to engage in value diplomacy, rather than just passively localizing international norms. Therefore, the legitimacy mechanism cannot explain many indicators proposed by Taiwan that are different from the UN-SDGs which shows that T-SDGs are diverge from international norms to some extent.

6.2 Policy implications

NCSO plays an important role in Taiwan's sustainable development. After the UN-SDGs were proposed, it led the formulation of T-SDGs and was the communication platform for many cross-ministerial policies. There are not only members from various government departments, but also members from civil society and academia.

Although NCSO has a legal status, it functions as a consulting unit. It doesn't have actual decision-making power over policy. Therefore, the opinions of NCSO members are often not adopted. The NCSO has no decision-making power, which is reflected in the fact that many indicators of the T-SDG are proposed by the ministry itself, and it is difficult for members to change them. Therefore, the indicators are not in line with international standards and are just indicators from original policy objectives. The objectives for some indicators are still too conservative and can be achieved with the original policy. And the formulation of T-SDGs did not necessarily lead to changes of legislation, policies, or action plans.

Generally speaking, UN-SDGs has brought limited transformation to Taiwan. During the formulation process of T-SDGs, I found that firstly, since UN-SDGs are related to many businesses that the government is already doing, the government tends to respond with existing resources in the past, making it difficult to cause changes. Secondly, government departments are faced with yearly assessment pressure, so they are often not willing to set ambitious objectives. Multiple layers of government bureaucracy make communication between departments very costly and difficult to integrate. Grassroots staff often have too little time to implement. In addition, Taiwan's lack of international participation has led to a

disconnect from the UN-SDGs. Some aspects of Taiwan that they think they have done well may be because they are not assessed according to UN-SDGs' methodology. Therefore, UN-SDGs have only triggered the formulation of a few new indicators. The objective setting of indicators can also be completed largely based on existing policies, and there are few ambitious objective settings due to UN-SDGs. Organizational changes could be made to NCSD and more resources devoted to it. Let NCSD have greater decision-making power instead of an advisory role.

T-SDGs are hardly the impetus for a single policy. But as a T-SDG indicator, it will be continuously reviewed. Therefore, when new issues receive attention, the corresponding T-SDGs will be adjusted accordingly. It can be observed that some indicators were initially not very ambitious, but were later changed due to other issues. Therefore, policymakers can note that the promotion of sustainable development issues often needs to be consistent with domestic political concerns in order to be promoted.

6.3 Limitations

Firstly, the limitation of this thesis lies first in the research method. This thesis compared T-SDGs with UN-SDGs by referring to the report from Taiwan Circular Economic Network. And this thesis reviewed the indicators one by one to determine whether the indicators are similar or relevant. However, the basis for judging such indicators is still subjective. A better way is to have experts and scholars in different fields to participate in this judging process.

Secondly, the interviewees in this article also come from a limited field and do not cover all government departments.

Thirdly, this thesis analyzes the formulation of 18 T-SDGs, but it couldn't ensure that each T-SDGs has the same amount of data. Hence, some T-SDGs were only briefly analyzed and the thesis focused more on T-SDG 1, 6, 9, 18 which have different goals with UN-SDGs.

Fourthly, sustainable development is a big concept, and this article does not define sustainable development policy. Therefore, the analysis of normative change and institutional change cannot be regarded as a holistic review of Taiwan's sustainable development. This thesis is based on limited analytical data and attempts to explain how UN-SDGs have an impact in different fields of sustainable development by cases.

Finally, the premise of this thesis' assessment of political change is that UN-SDGs cannot be achieved unless there is sufficient transformative political change. Therefore, there is already a preset position to analyze whether there is enough political change. However, Acharya (2004, p.239) pointed out that "Constructivist scholarship on norms tends to focus on "hard" cases of moral transformation in which 'good' global norms prevail over the "bad" local beliefs and practices. But many local beliefs are themselves part of a legitimate normative order, which conditions the acceptance of foreign norms." Countries (in particular developed countries) already had an institution which is in line with local context and

legitimate to promote sustainable development before UN-SDGs was proposed (Park & Park., 2024). Therefore, future research can propose a normative framework to evaluate the quality of goals, targets and indicators after localization. Rather than focusing on analyzing the extent to which political changes are caused during the localization process, as this thesis.

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8. Acknowledgements

The author thanks the interviewees for their participation. The author also gratefully acknowledges Prof. dr. Frank Biermann and Dr. Mara Wendebourg for their guidance.

Annex A: Interview Introduction and Questions

INTERVIEW GUIDE

1. INTRODUCTION

Thank you very much for your time. This study is the master's thesis research of Po-Hsun Lu at Utrecht University, which aims to study the process of change in Taiwan's sustainable development since 2015. It is part of an international research project on sustainable development: the Global Goals project. On September 25, 2015, the United Nations Summit on Sustainable Development was held in New York, where the 193 member states of the United Nations formally adopted 17 Sustainable Development Goals. I would like to talk to you about how and why sustainable development in Taiwan has changed since then.

Before I begin, I would like to introduce you to some processes and data protection issues. The interview is expected to last 60-120 minutes. Your participation is voluntary and you can cancel the interview at any time without any disadvantage. Your information in this study will only be published anonymously. We will refer to you as “interviewee” in the study. With your permission, I would like to record our interview. The information you provide will only be used by the researcher for scientific research purposes.

I will also need your written statement of consent, which I would like to give you after the interview. The consent form will cover what I have just explained to you.

2. INTERVIEW QUESTION

The interview questions cover several aspects: the reasons for Taiwan's response to the UN-SDGs, the localization of the UN-SDGs into T-SDGs, institutional and normative changes, and cross-sectoral cooperation and integration.

First of all, can you briefly introduce your work (at the NCSD) and your work in the field of SD policy?

- a) How has the role of the NCSD in Taiwan's sustainable development changed since the introduction of the UN-SDGs?
- b) Are there any T-SDGs that have received particular attention or more discussion in the NCSD? And why?

2.1 Reasons for Taiwan's Response to the UN-SDGs

I am interested in the reasons for Taiwan's response to the UN-SDGs.

What are the reasons for Taiwan's government to respond to the UN's SDGs?

- a) As a non-member country of the UN, how can the UN-SDGs affect Taiwan?

- b) Why does Taiwan emphasize the importance of connecting with the international community on the issue of sustainable development?
- c) As a non-member of the UN, what obstacles does Taiwan have in implementing the SDGs?

2.2 Localization of the UN-SDGs into T-SDGs

The UN allow countries to localize the SDGs by considering their own national conditions.

What are the considerations of NCSO in localizing the UN-SDGs into T-SDGs?

- a) What are the similarities and uniqueness of T-SDGs compared to UN-SDGs? Why?
- b) Why are Goals 1, 6, 9, and 18 less consistent with the UN-SDGs?
- c) Are there any difficulties and challenges in the process of localizing UN-SDGs into T-SDGs?
- d) Why did Taiwan decide to formulate its own set of goals, targets, indicators in T-SDGs?

2.3 Institutional and normative changes

The UN-SDGs only set out goals to be achieved, but each country needs to do something concrete to achieve these goals.

What are the changes in laws, policies, regulations, and institutions that have occurred in order to realize Taiwan's SDGs?

- a) In the process of transforming T-SDGs into concrete actions and making the above changes in laws, policies, regulations, and institutions, were there any other influential factors?
- b) To what extent do you think changes in laws, policies, regulations, and institutions are due to the promulgation of the UN-SDGs and T-SDGs? Are there other more important factors?
- c) What changes do you see in laws, policies, regulations, and institutions? Is it enough or what challenges are?
- d) What are the challenges in the process of transforming the laws, policies, regulations, and institutions towards sustainability?

2.4 Cross-sectoral cooperation and integration

Has cross-sectoral cooperation and integration been promoted to achieve Taiwan's SDGs goals? Why?

- a) How do the working group within NCSO work? Do they facilitate cross-sectoral collaboration?
- b) Which SDGs targets have more cross-sectoral collaboration and which have less, and why?
- c) Are there other opportunities for cross-sectoral collaboration besides the working meeting and council meetings of the NCSO?
- d) What are the challenges in the process of cross-sectoral cooperation?
- e) How did Taiwan government address synergies and trade-offs between different SDGs?

3. CLOSING

This is the end of the interview. Would you like to add anything that you think is important to my

research?

Do you have any suggestions for other people I could interview that would be important to this study?

Thank you very much for your time and contribution.

Informed consent form

THE RESEARCH PROJECT

Title:	Assessing the political impact of SDGs on the central government of Taiwan
Host institution:	Utrecht University
Researcher:	Po-Hsun Lu (p.lu@students.uu.nl)
Supervisor:	Prof. dr. Frank Biermann (f.biermann@uu.nl) Dr. Mara Wendebourg (m.r.wendebourg@uu.nl)

The study's main objective is to analyze the political impact of UN-SDGs on Taiwan central government. The overarching research question of this study is: What political changes have occurred in Taiwan's SD since the launch of UN-SDGs in 2015, and what external or internal factors have contributed to these changes? To answer the overarching research question, three research sub-questions are proposed: a) What political changes have taken place in Taiwan's SD since the introduction of the UN-SDGs in 2015? b) What is the mechanism by which the UN-SDGs as an external factor have led to the political changes in Taiwan's SD? c) In the context of the introduction of the UN-SDGs, how do Taiwan's internal factors affect the political changes?

INTERVIEW DURATION

An interview of 60-120 minutes.

VOLUNTARY PARTICIPATION

Participation is voluntary, and you may withdraw from the project at any time, without having to give any reason.

CONFIDENTIALITY AND ANONYMITY

Your confidentiality is ensured with all data collected within this research project. No personal information will be disclosed to individuals outside of the project's research team. Your information will only be published in anonymized form. We will refer to you as "interviewee" in the thesis.

FURTHER USE OF THE DATA

Your data will be used exclusively by researchers and for scientific purposes.

CONSENT

I hereby confirm with my signature that I have read, understood, and agree to the terms of this consent, and participate voluntarily in this project.

Participant name	Signature
Interviewer name	Signature

Annex B: Full list of comparing T-SDG with UN-SDG indicators

UN-SDGs	T-SDGs	T-SDG is similar to UN-SDG	T-SDG is different but relevant to UN-SDG	Non-adopted UN-SDG	Added T-SDGs	
1.1.1	1.1.1			x	x	
1.2.1	1.2.1		x			
1.2.2				x		
1.3.1	1.3.1	x				
	1.3.2	x				
	1.3.3	x				
	1.3.4	x				
	1.3.5	x				
	1.3.6	x				
	1.3.7	x				
	1.3.8	x				
	1.3.9	x				
	1.3.10			x		
	1.3.11			x		
1.3.12			x			
1.4.1	1.4.1			x	x	
1.4.2	1.4.2			x	x	
	1.4.3				x	
	1.4.4				x	
	1.4.5				x	
	1.4.6				x	
1.5.1	1.5.1	x				
1.5.2	1.5.2	x				
1.5.3	1.5.3	x				
1.5.4	1.5.4	x				
1.a.1	1.a.1		x			
1.a.2	1.a.2			x	x	
1.a.3				x		
1.b.1				x		
2.1.1	2.1.1	x				
2.1.2	2.1.2	x				
	2.1.3				x	

	2.1.4				x
2.2.1	2.2.1	x			
2.2.2	2.2.2	x			
	2.2.3				x
2.3.1	2.3.1	x			
2.3.2	2.3.2	x			
	2.3.3				x
2.4.1	2.4.1	x			
	2.4.2	x			
	2.4.3				x
	2.4.4				x
	2.4.5				x
	2.4.6				x
	2.4.7				x
2.5.1	2.5.1	x			
2.5.2	2.5.2	x			
2.a.1	2.a.1		x		
2.a.2	2.a.2		x		
	2.a.3				x
2.b.1	2.b.1	x			
2.c.1	2.c.1	x			
3.1.1	3.1.1	x			
3.1.2	3.1.2	x			
3.2.1	3.2.1	x			
3.2.2	3.2.2	x			
	3.2.3				x
3.3.1	3.3.1	x			
3.3.2	3.3.2	x			
3.3.3	3.3.3	x			
3.3.4	3.3.4	x			
3.3.5	3.3.5	x			
3.4.1	3.4.1	x			
	3.4.2	x			
	3.4.3	x			
	3.4.4	x			
	3.4.5	x			
3.4.2	3.4.6	x			

	3.4.7				x
3.5.1	3.5.1		x		
	3.5.2		x		
3.5.2	3.5.3	x			
3.6.1	3.6.1	x			
	3.6.2				x
3.7.1	3.7.1	x			
	3.7.2	x			
3.7.2	3.7.4	x			
	3.7.5	x			
	3.7.3				x
3.8.1	3.8.2	x			
	3.8.3	x			
3.8.2				x	
	3.8.1				x
	3.8.4				x
	3.8.5				x
3.9.1	3.9.1			x	x
3.9.2	3.9.3		x		
	3.9.2				x
3.9.3				x	
3.a.1	3.a.1	x			
	3.a.2				x
3.b.1	3.b.1			x	x
3.b.2	3.b.2			x	x
3.b.3				x	
3.c.1				x	
3.d.1				x	
4.1.1	4.1.1		x		
4.1.2				x	
4.2.1	4.2.1		x		
4.2.2	4.2.2		x		
4.3.1	4.3.1		x		
	4.3.2				x
	4.3.3				x
4.4.1	4.4.1		x		
	4.4.2				x

	4.4.3				x
4.5.1	4.5.1			x	x
	4.5.2				x
	4.5.3				x
	4.5.4				x
	4.5.5				x
	4.5.6				x
	4.5.7				x
	4.5.8				x
	4.5.9				x
4.6.1	4.6.1			x	x
4.7.1	4.7.1		x		
	4.7.2		x		
	4.7.3				x
	4.7.4				x
	4.7.5				x
	4.7.6				x
	4.7.7				x
4.a.1	4.a.1		x		
	4.a.2		x		
	4.a.3		x		
4.b.1				x	
4.c.1	4.b.1		x		
5.1.1	5.1.1			x	x
5.2.1	5.2.1	x			
5.2.2	5.2.2	x			
5.3.1	5.3.1	x			
5.3.2				x	
5.4.1	5.4.1	x			
5.5.1	5.5.1		x		
	5.5.2		x		
	5.5.3				x
	5.5.4				x
5.5.2	5.5.5	x			
	5.5.6				x
5.6.1	5.6.1		x		
5.6.2				x	

6.1.1	6.1.1	x			
6.2.1	6.2.1		x		
	6.3.1				x
6.3.1	6.3.2	x			
	6.3.3				x
	6.3.4				x
	6.3.5				x
	6.3.6				x
6.3.2	6.3.7	x			
	6.3.8				x
6.4.1	6.4.1	x			
	6.4.2				x
	6.4.3				x
	6.4.4				x
6.4.2	6.4.5	x			
6.5.1	6.5.1		x		
6.5.2				x	
	6.6.1				x
6.6.1	6.6.2	x			
	6.6.3				x
	6.6.4				x
	6.6.5				x
6.a.1	6.a.1		x		
6.b.1	6.b.1		x		
	6.c.1				x
	6.d.1				x
	6.d.2				x
	6.e.1				x
	6.e.2				x
	6.e.3				x
7.1.1	7.1.1	x			
7.1.2	7.1.2		x		
7.2.1	7.2.1		x		
	7.3.1				x
7.3.1	7.3.2	x			
7.a.1				x	
7.b.1				x	

8.1.1	8.1.1		x		
	8.1.2				x
8.2.1	8.2.1		x		
	8.2.2				x
8.3.1	8.3.1			x	x
	8.3.2				x
	8.3.3				x
8.4.1	8.4.1		x		
	8.4.2				x
8.4.2	8.4.3	x			
8.5.1				x	
8.5.2	8.5.1	x			
	8.5.2				x
	8.5.3				x
8.6.1	8.6.1		x		
	8.6.2				x
8.7.1				x	
8.8.1	8.7.1	x			
8.8.1	8.7.2	x			
8.8.2	8.7.3			x	x
8.9.1	8.8.1	x			
8.9.2	8.8.2			x	x
	8.8.3				x
8.10.1	8.9.1			x	x
8.10.2	8.9.2		x		
	8.9.3				x
	8.10.1				x
	8.10.2				x
	8.10.3				x
	8.10.4				x
	8.11.1				x
	8.11.2				x
	8.11.3				x
	8.12.1				x
	8.12.2				x
	8.13.1				x
8.a.1				x	

8.b.1				x	
9.1.1	9.2.1		x		
9.1.2	9.1.1	x			
	9.1.2	x			
	9.1.3	x			
9.2.1				x	
9.2.2				x	
9.3.1	9.3.1			x	x
9.3.2	9.3.2			x	x
	9.3.3				x
	9.3.4				x
9.4.1	9.4.1			x	x
9.5.1	9.5.1			x	x
9.5.2				x	
9.a.1				x	
9.b.1				x	
9.c.1				x	
10.1.1	10.1.1	x			
10.2.1	10.2.1		x		
	10.2.2				x
10.3.1	10.3.2	x			
	10.3.1				x
	10.3.3				x
10.4.1	10.4.1		x		
	10.4.2				x
10.5.1	10.5.1			x	x
10.6.1	10.6.1			x	x
	10.6.2				x
	10.6.3				x
	10.6.4				x
10.7.1				x	
10.7.2				x	
10.a.1	10.a.1	x			
	10.a.2				x
10.b.1				x	
10.c.1				x	
11.1.1	11.1.1		x		

	11.1.2				x
11.2.1	11.2.1			x	x
	11.2.2				x
	11.2.3				x
	11.2.4				x
11.3.1	11.3.1	x			
11.3.2	11.3.2	x			
	11.3.3				x
11.4.1	11.4.1	x			
11.5.1	11.5.1	x			
11.5.2	11.5.2	x			
11.6.1	11.6.1	x			
	11.6.2	x			
11.6.2	11.6.3	x			
	11.6.4				x
11.7.1	11.7.1	x			
11.7.2	11.7.2	x			
	11.8.1				x
	11.8.2				x
	11.8.3				x
	11.9.1				x
	11.9.2				x
	11.9.3				x
	11.10.1				x
	11.10.2				x
	11.11.1				x
	11.12.1				x
11.a.1				x	
11.b.1				x	
11.b.2				x	
11.c.1				x	
12.1.1	12.1.1		x		
	12.1.2		x		
12.2.1	12.2.1		x		
12.2.2	12.2.3	x			
	12.2.2	x			
12.3.1	12.3.1	x			

	12.3.2				x
	12.3.3				x
12.4.1	12.4.5	x			
12.4.2	12.4.6	x			
	12.4.1				x
	12.4.2				x
	12.4.3				x
	12.4.4				x
	12.4.7				x
12.5.1	12.5.1		x		
	12.5.2				x
12.6.1	12.6.3	x			
	12.6.1				x
	12.6.2				x
12.7.1	12.7.1	x			
	12.7.2				x
12.8.1	12.8.1			x	x
	12.8.2				x
	12.8.3				x
12.a.1	12.a.1			x	x
12.b.1	12.b.3		x		
	12.b.1				x
	12.b.2				x
12.c.1				x	
13.1.1				x	
13.1.2	13.1.1		x		
13.1.3					
13.2.1	13.2.1		x		
13.2.2					
13.3.1	13.3.1	x			
13.3.2	13.3.2			x	x
	13.3.3				x
13.a.1				x	
13.b.1				x	
14.1.1	14.1.1	x			
	14.1.3	x			
	14.1.2				x

14.2.1	14.2.1	x			
	14.2.2				x
	14.2.3				x
14.3.1	14.3.1	x			
14.4.1	14.4.1	x			
	14.4.2				x
	14.4.3				x
14.5.1	14.5.1	x			
	14.5.2	x			
14.6.1	14.6.1	x			
14.7.1				x	
14.a.1				x	
14.b.1	14.b.1	x			
14.c.1	14.c.1	x			
15.1.1	15.1.1	x			
15.1.2	15.1.2	x			
	15.1.3				x
15.2.1	15.2.1	x			
15.3.1	15.3.1	x			
15.4.1	15.4.1	x			
15.4.2	15.4.2	x			
15.5.1	15.5.1	x			
	15.5.2	x			
15.6.1	15.6.1	x			
15.7.1	15.7.1	x			
15.8.1	15.8.1	x			
15.9.1	15.9.1	x			
15.a.1				x	
15.b.1				x	
15.c.1				x	
16.1.1	16.1.1		x		
16.1.2	16.1.2		x		
16.1.3	16.1.3			x	x
16.1.4				x	
16.2.1	16.2.1			x	x
16.2.2	16.2.2			x	x
16.2.3				x	

16.3.1	16.3.1			x	x
16.3.2				x	
16.4.1				x	
16.4.2				x	
16.5.1	16.4.1		x		
16.5.2				x	
16.6.1	16.5.1			x	x
16.6.2				x	
16.7.1	16.6.1			x	x
16.7.2				x	
16.8.1				x	
16.9.1	16.7.1	x			
16.10.1				x	
16.10.2				x	
16.a.1				x	
16.b.1				x	
17.1.1	17.1.1			x	x
17.1.2				x	
17.2.1	17.2.1			x	x
	17.2.2				x
17.3.1	17.3.1			x	x
17.3.2				x	
17.4.1	17.4.1			x	x
17.5.1	17.5.1			x	x
17.6.1	17.6.1			x	x
17.6.2	17.6.2			x	x
17.7.1	17.7.1			x	x
17.8.1	17.8.1			x	x
17.9.1	17.9.1			x	x
	17.9.2				x
17.10.1	17.10.1			x	x
17.11.1				x	
17.12.1				x	
17.13.1				x	
17.14.1				x	
17.15.1				x	
17.16.1				x	

17.17.1				x	
17.18.1				x	
17.18.2				x	
17.18.3				x	
17.19.1				x	
17.19.2				x	