

UNIVERSIDAD COMPLUTENSE DE MADRID
FACULTAD DE FILOLOGÍA



TESIS DOCTORAL

La traducción de las metáforas en el discurso sobre el medio ambiente: análisis descriptivo-contrastivo de inglés, español y coreano

Translation of metaphors in environmental discourse : descriptive-contrastive analysis of English, Spanish and Korean

MEMORIA PARA OPTAR AL GRADO DE DOCTOR

PRESENTADA POR

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PROGRAMA DE DOCTORADO EN LINGÜÍSTICA TEÓRICA Y APLICADA



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ABSTRACT

Although research on metaphor and metaphor translation has focused primarily on literary language for much of its history, there are other areas, such as environmental discourse, in which metaphor translation poses the most important particular problem even to skilled translators (Newmark, 1988). Environmental discourse represents one of the most pressing educational concerns in the globalized world in which translators play an essential role in transferring the metaphors of the source texts to the minds of young target readers. This dissertation intends to comparatively and contrastively examine linguistic metaphors as used in a popular science youth magazine called *Tunza* published by the United Nations Environment Program through a multilingual unidirectional parallel corpus of written texts. The languages implied are English, acting as a source language, together with Spanish and Korean as target languages.

According to a relevance theory approach to metaphor (Goatly, 1997; Dirven, 2002; Gibbs, 2003a; Sperber & Wilson, 1986, 2008; Wilson, 2009; Monti, 2010; Steen, 2011a; Johansson Flack, 2018), metaphors arise naturally in linguistic communication instead of considering that metaphors represent surface reflections of underlying conceptual mappings between different cognitive domains (Lakoff & Johnson, 1980; Lakoff & Turner, 1989; Ponton, 2015; Kapranov, 2017a, 2017b). In other words, literal talk, loose talk or, hyperbole and metaphor constitute a gradual continuum in which no clear divisions are perceived, and metaphors are situated at the end of this continuum. The distinction between literal and metaphorical in this dissertation would be a matter affected by the degree of relevance – that is to say, the greater the gap between the stated proposition and the intended meaning, the more metaphorical will the statement be, and vice versa.

Taking into account this theoretical background, this dissertation aims to investigate

the linguistic metaphors observed in the source texts (ST) and the target texts (TT) by means of a systematic methodology. The first step is the identification of keywords that are considered to be salient features of environmental discourse. In the next step, the Pragglejaz Group's procedure (2007) is applied to these keywords as to identify their metaphoricity in the ST. The identified keyword linguistic metaphors (KLM) are to be compared with their equivalents of translation in Spanish and Korean respectively in order to find out whether the identified KLM in the ST would somehow be preserved in the TT or whether there is any discernible pattern occurring with any regularity either specific to one target language or common to both.

The study shows that, on the basis of the degree of metaphorical relevance, KLM found in the environmental discourse required a full range of translation strategies that can be categorized into four different translation patterns (TP from now on). TP 1 involves a simple exclusion in the TT of source linguistic metaphors. TP 2 presents cases in which a source linguistic metaphor in the ST is left out and instead substituted for an explanation in the TT. In TP 3, a linguistic metaphor is preserved in the TT by closely following the morphological, semantic, lexical and syntactic features of the ST, whereas TP 4 adopts a different metaphorical linguistic expression in the TT.

In the Spanish translation, the most recurrently applied pattern was TP 3 with an overwhelming frequency, which gives the first indication that Spanish translators had a great tendency towards literal translation, hence the production of source-oriented texts. With a considerable margin, TP 2 came in second place, an indication that explanations were not always provided in translation. Thirdly, little attempts were made for TP 4 which points to the limited provision of alternative metaphorical expressions in the TT. Lastly, the least opted TP 1 indicates that the exclusion of source KLM was kept to a minimum.

In the same manner, the most recurrently opted strategy for the Korean translation

was TP 3. In other words, Korean translators were inclined to giving word-for-word exchanges. TP 2 came next. The difference in frequency between TP 2 and TP 3 was relatively small, which suggests that detailed accounts were provided more by Korean translators for the benefits of young target readers. The third place went to TP 4 through which translators' creative use of language could be observed. Nevertheless, the least common strategy of TP 1 still occupied an almost equal share as TP 4, which cautions against possible losses of information.

From the perspective of ecolinguistics (Fill, 2000; Clark, 2011; Steffensen & Fill, 2013; Alexander & Stibbe, 2014; Steffensen & Fill, 2014; Machielsen, 2019; Wiben Jensen & Greve, 2019; Stibbe, 2021), translators are an important part of the ecosystem in which they contribute to the translated languages. Eco-translation intends to raise awareness about environmental problems with an aim to move our society towards solving them while emphasizing the importance of the role that the translator plays (Resinger, 2008; Cronin, 2017). One of the distinguishing features of popularized texts - as in the case of the chosen *Tunza* magazine - from fully specialized texts is the target audience. Its primary purpose is to deliver accurate information about science and nature while making the language more accessible for non-specialists. In order to achieve the communicative purpose of such genre, the remodeling process is required; reformulation implies a process of adaptation to the appropriate conditions of our young target readers.

This study believes that a critical analysis of language plays an important role in addressing environmental issues through investigating and questioning the widely accepted translation culture and, more broadly, linguistic construction of current society. Momentous decisions need to be taken in view of potential future consequences of unchecked metaphor translation (Cronin, 2017, p. 2311). Shifting language will change the society around us and what translators need to do is to shift language in the right direction to build the more

ecological culture (Stibbe, 2021). In other words, future translators shall be more creative, but cautions, in their representation of the environment.

Keywords: linguistic metaphor, environmental discourse, translation pattern, contrastive analysis, neology

RESUMEN

Aunque la investigación sobre metáforas y traducción de metáforas se ha centrado principalmente en el lenguaje literario durante gran parte de la historia, existen otros ámbitos, como el del discurso ambiental, en el que la traducción de metáforas es el problema más importante que se le plantea al traductor profesional (Newmark, 1988). Si tenemos en cuenta que el discurso ambiental representa una de las preocupaciones educativas más acuciantes del mundo globalizado, hemos de pensar que los traductores juegan un papel esencial a la hora de trasladar las metáforas encontradas en el texto de origen al texto de destino; y por tanto hasta al público que es objeto del mencionado discurso, como son los lectores jóvenes. Esta tesis pretende examinar de manera comparativa y contrastiva las metáforas lingüísticas utilizadas en la revista juvenil de divulgación científica llamada *Tunza* que publica el Programa de Naciones Unidas para el Medio Ambiente, a través de un corpus paralelo unidireccional y multilingüe de textos escritos. Los idiomas involucrados son el inglés, que actúa como lengua de origen, junto con el español y el coreano, seleccionadas como lenguas de destino.

De acuerdo con la Teoría de la Relevancia (Goatly, 1997; Dirven, 2002; Gibbs, 2003a; Sperber & Wilson, 1986, 2008; Wilson, 2009; Monti, 2010; Steen, 2011a; Johansson Flack, 2018), la metáfora no se concibe como reflejo superficial de un conjunto de asociaciones sistemáticas entre diferentes dominios cognitivos (Lakoff & Johnson, 1980; Lakoff & Turner, 1989; Ponton, 2015; Kapranov, 2017a, 2017b), sino que surge naturalmente en la comunicación lingüística. En otras palabras, el lenguaje literal, el lenguaje laxo, la hipérbole y la metáfora constituyen de forma gradual un continuo en el que no se perciben divisiones claras; la metáfora se produce en un extremo de este continuo. Esta investigación se basa en la hipótesis de que la distinción entre literal y metafórico sería una cuestión que se ve influida por el grado de relevancia. Es decir, cuanto mayor sea la brecha entre la

proposición expresada y el significado pretendido, más metafórico es el enunciado, y viceversa.

Teniendo en cuenta estos antecedentes teóricos, esta tesis pone su foco de análisis en las metáforas lingüísticas observadas en el texto de origen (TO) y su traducción al texto de destino (TD) mediante una metodología sistemática. Así, partimos de la identificación en el TO de palabras clave que se consideran características destacadas del discurso ambiental. En la siguiente fase, se aplica el procedimiento del Grupo Pragglejaz (2007) a estas palabras clave para identificar su metaforicidad. Las palabras clave identificadas como metáforas lingüísticas deben compararse con sus equivalentes de traducción en español y en coreano para determinar si las metáforas lingüísticas que aparecen en el TO se preservarían, de alguna manera en el TD, o si se observa alguna tendencia regularmente discernible.

El estudio demuestra que, en función del grado de relevancia metafórica, las metáforas lingüísticas producidas en el discurso ambiental requieren la utilización de una gama completa de estrategias de traducción que se pueden clasificar en cuatro patrones de traducción (PT). El PT 1 implica la simple exclusión de las metáforas del TO en el TD. El PT 2 presenta casos en los que se omite la metáfora lingüística de origen y se sustituye por una explicación en el TD. En el PT 3, la metáfora lingüística se conserva siguiendo las formas textuales del TO, mientras que en el PT 4 se adopta en el TD una expresión lingüística metafórica diferente que la original del TO.

En la traducción al español, el patrón más recurrentemente aplicado fue el PT 3 con una frecuencia abrumadora, lo que da una primera indicación de que los traductores de español tuvieron una mayor tendencia hacia la traducción literal: el TD parece orientado hacia el TO. A una distancia considerable, el segundo lugar lo ocupó el PT 2. Es decir, en las traducciones no siempre se ofrecen suficientes explicaciones. En tercer lugar, encontramos algunos casos en que se utiliza el TP 4, lo cual apunta a la existencia de una limitada lista de

expresiones metafóricas alternativas en el TD. Por último, el TP 1 fue el patrón menos elegido, algo que parece indicar que la exclusión de metáforas lingüísticas del texto origen apenas se produce.

De la misma manera, la estrategia más recurrentemente elegida para la traducción al coreano es el PT 3. Es decir, los traductores de coreano se inclinaron por realizar intercambios simples, palabra por palabra. El PT 2 también ocupó el segundo lugar, pero en este caso, con una diferencia muy pequeña con respecto al PT 3. Esto sugiere que los traductores proporcionaron explicaciones detalladas a los jóvenes lectores. Con cierta relevancia, el tercer lugar fue para el PT 4, clara indicación de los intentos de los traductores por ser creativos. En último lugar, a un nivel cercano al PT 4 se encontró el PT 1, lo cual pone de manifiesto un nivel relevante de casos en que es posible que se produzca una falta de transmisión de información.

Desde la perspectiva ecolingüística (Fill, 2000; Clark, 2011; Steffensen & Fill, 2013; Alexander & Stibbe, 2014; Steffensen & Fill, 2014; Machielsen, 2019; Wiben Jensen & Greve, 2019; Stibbe, 2021), los traductores forman parte importante de un ecosistema en el que contribuyen a los idiomas traducidos. La ecotraducción pretende concienciar sobre los problemas medioambientales con el objetivo de impulsar a nuestra sociedad hacia un futuro mejor, al tiempo que enfatiza la importancia del papel que desempeña el traductor en la mejoría del medio ambiente (Resinger, 2008; Cronin, 2017). Uno de los rasgos destacados de la divulgación científica de textos especializados, como es el caso del discurso que caracteriza a nuestra revista *Tunza*, es el público. El propósito principal de la revista es brindar información precisa sobre la ciencia y la naturaleza al tiempo que hace que el idioma sea más accesible para los lectores no especialistas. Para lograr la finalidad comunicativa de dicho género, se requiere el proceso de remodelación; la reformulación implica un proceso de adaptación a las condiciones de nuestros jóvenes lectores que actúan como objetivo.

Este estudio mantiene que el análisis crítico del lenguaje juega un papel relevante al abordar los problemas ambientales, dado que cuestiona la tradición cultural de las traducciones comúnmente aceptadas y, de forma más amplia las preconcepciones lingüísticas de la sociedad actual. Parece necesario tomar decisiones adecuadas para evitar indeseadas consecuencias futuras de la traducción descontrolada de metáforas (Cronin, 2017, p. 2311). Modificar el lenguaje cambiará la sociedad que nos rodea y lo que los traductores deben hacer es modificarlo en la dirección correcta para construir una cultura más ecológica (Stibbe, 2021). Dicho de otro modo, los futuros traductores deberían ser más creativos y cautelosos en su representación del medio ambiente.

Palabras clave: metáfora lingüística, discurso medioambiental, modelos de traducción, análisis contrastivo, neología

CHAPTER 1. THE ENVIRONMENT, METAPHOR, TRANSLATION

This dissertation has seemingly unrelated, but closely connected three main keywords: the environment, metaphor, and translation. In this Chapter, the relationship between these three words will be revealed. First, tackling climate change suggests the need for improved scientific literacy, and that is a better understanding of how language and communication work in our lives. In other words, language plays a critical role in the understanding of how climate change alters the way people think, plan, argue, and act, and in doing so, ultimately prepare them for the future (Flottum, 2017, p. 7). Indeed, environmental problems have become known to the international audience by means of languages.

However, environmental texts have not received their due attention as a focal linguistic material despite the fact that these problems are as closely related to our lives as economy and politics. It is well-timed that an environmental discourse is placed in the center of a linguistic analysis; since the ramification of environmental problems that know no national borders, the due course of action shall include transnational linguistic research. To fill this lacuna, the *Tunza* Magazine from the United Nations Environment Program (UNEP) was chosen as an adequate corpus for the analysis of the present study. The target audience of the *Tunza* is young people with an aim to raise their awareness about environmental issues. Quantitative methods were applied to *Tunza* magazine available online of 75 volumes which include approximately 908,708 words. For a qualitative analysis, the corpus has been reduced to 15 volumes with about 160,000 words.

Another important pillar of the current dissertation is metaphor. Metaphor is, indeed, ubiquitous in climate discourse (Russil, 2010, p. 115): greenhouses, atmospheric blankets, carbon footprint, among many others. Despite the prevalence of metaphor in a variety of

written texts, research on metaphor has mainly focused on literary language for a large part of its history (Bassnett & Bush, 2006). When people hear the word *metaphor*, the first thing that most likely comes to their mind is the genre of literature. The significant role of metaphors in different types of specialized knowledge has been almost completely neglected until recently (Alshunnag, 2016, p. 2).

However, not just in literary works, but also in everyday conversation, we frequently use metaphors: thinking, speaking, and writing about environmental matters employ a vast range of metaphors (Harré, Brockmeier & Mühlhäusler, 1998, p. 93). This is because metaphors and what they mean depend on the nature of our bodies, our interactions in the physical environment, and our social and cultural practices (Lakoff & Johnson, 1980, p. 247). More recently, new metaphorical expressions in the area of the environment and technology have been conjured such as green growth, inclusive green recovery, green efforts, sustainable lifestyle, sustainable green revolution, carbon positive/negative, climate positive, carbon neutral, carbon sink, etc. The present dissertation starts with a question of whether the intended meaning of these expressions is sufficiently and effectively rendered to the target audience.

There has been a small number of studies of non-literary metaphor which have been based on some specialized corpora of naturally occurring language. These tend to be ideological in focus with corpora of political or economic texts taken from annual reports, journalism, or political speeches (Liu, 2021; J. G. Kim, 2017; Moreno Lara, 2008; López & Llopis, 2010; Schäffner, 2010; Atanasova & Koteyko, 2017; Kapranov, 2017a, 2017b, 2018). It was not until recently that studies on metaphor as occurring in economic and scientific texts became more frequent (Lee & Bae, 2011; Shin & Park, 2011; S. Y. Kim, 2005; Parkinson & Adendorff, 2004; Charteris-Black & Ennis, 2001; Rodríguez Márquez, 2010; Jiménez García, Coca, Francisco Carrera & Valero Matas, 2014; Ponton, 2015; Roldán-

Riejos & Cuadrado, 2015; Alshunnag, 2016; David & Matlock, 2018).

The current dissertation investigates not only the potentially significant metaphor in environmental discourse, but also its translation into different languages¹. The reason for this lies on the fact that information transcends national borders precisely through translation (Schäffner, 2004, p. 120). Along with the insatiable demands for translated data in globalized markets (Cronin, 2017, p. 636), internationally recognized publications are easily spread by means of translation. Tekgul (2018, p. 84), also, emphasized the role of translation in enabling greater access to information through digital media. Cronin felicitously summarizes this idea: “only foreign language acquisition or translation can make the connections real” (2017, p. 2365). When the original texts are delivered in another language, the readers most likely have no option, but to solely rely on the texts in their mother tongue; the translated versions would be the only, thereby important tunnel of receiving and acquiring information about the environmental problems that they face.

Moreover, it is important to pay attention to the argument of Cronin (2017, p. 3) that the practice and study of translation has profound implications in building a more prosperous and sustainable future. The relevance of metaphor and translation to our lives can be described in an effortless way: “we do not only live by metaphors: we live by translations too” (Samaniego-Fernández & Velasco-Sacristán & Fuertes-Olivera, 2005, p. 78). This quotation can be applied to our study: metaphors are not only prevalent in environmental discourse: metaphors are prevalent in metaphor translation too.

Despite the commonness of metaphor, it still poses a great deal of difficulties on translation; whilst the central problem of translation is the overall choice of a translation method for a given text, the translation of metaphor poses the most important problem to

¹ The present study is largely motivated by the author’s professional interests as a commissioned expert and an in-house Korean-English translator/interpreter at the Presidential Committee on Green Growth (PCGG) of the Republic of Korea from April 2011 to October 2012. PCGG, established in 2009, was the highest body for

translators (Newmark, 1988, p. 104). Although ideally, a metaphor should be transferred intact from the source language (SL) to the target language (TL), cultural and linguistic differences need be considered as preventing elements of such an intact transfer (Schäffner, 2004, p. 1256). The fact that there is not always a simple and clear correspondence between the source text (ST) and the target text (TT) suggests the significance and difficulty of metaphor in translation. It is widely acknowledged that even professional translators with years of experience find their work intractable. That is because translation is not a simple process of substitution, but rather the result of a complex text-processing activity (Schäffner, 2004, p. 1255).

A good translation of metaphors should examine multifarious aspects for the better understanding of the TT by the target readers, even more so when they are impressionable young audience. The young generation tends to have easier access to translated information thanks to their skillful searching ability on the web. However, not only for the young generation, but also for educators and translators and, more broadly, for our environment, translated materials are of essential and growing importance for the acquisition of a more extensive and deeper knowledge of the world. Thus, how the translations of international publications for the youth are carried out in the context of environmental awareness in practice is rightly raised in this dissertation.

To this purpose, a multilingual corpus of written texts has been gathered and analyzed. The languages implied are English, acting as a source language, together with Spanish and Korean as target languages. The language varieties of English and Spanish with their vast number of populations who speak either or both of them have an exceedingly influential role in the environmental awareness, and duly require a great deal of attention. While English is considered and used as a lingua franca in the international communication,

deliberation and coordination of the nation's green growth policies at all levels of the Korean government.

Spanish is the second most widely spoken language in the world with 480 million speakers (“List of languages”, 2019), and one of the official languages of the United Nations. The extensive population who speaks English or Spanish needs to be reflected as potential readers of the environmental discourse.

Although languages other than English have been given sporadic attention in the study of metaphor in translation, many studies have still been based on English data (Schäffner, 2010, p. 125). Thanks to the previous studies, the metaphorical schemes of English are shared, or at least largely overlap, along with those of most standard average European languages, but are absent or different in *exotic languages* (Mühlhäusler, 1995, p. 282). Much attention still needs to be paid to such understudied languages. By means of filling this discrepancy, Korean as a non-Indo-European language adds strength to this dissertation. A rapidly growing presence of Asia around the globe also needs to be taken into consideration for the sake of the environmental issues.

The Republic of Korea has been playing a leading role in advancing the global green growth agenda in the region and around the world since 2008 when the country declared the Low Carbon, Green Growth as its vision for mid-to-long-term development (2009-2050). Afterward, then Korean President made a state visit to Denmark in 2011 when the Korea-Denmark Green Growth Alliance was established. Since then, Korea was called the *fast mover* on green growth, while Denmark was the *first mover* (“Joint statement on”, 2011). Recently on May 2021, the Republic of Korea hosted the 2021 P4G Seoul Summit. P4G stands for Partnering for Green Growth and the Global Goals 2030. The Summit was a world-class multilateral summit on environment which was attended by 68 representatives of 45 countries as well as 42 leaders and 2 high-ranking officials from the EU and 21 global organizations.

Nowadays not just the top-down government policies set the course of environmental

issues, but also more and more young people around the world are influenced by what they read and hear on the Internet which then leads them to take collective actions. For example, young fans of the BTS, a K-pop boy band, launched a campaign in 2019 on social media to raise awareness of the fire in the Amazon rainforest². This new phenomenon of the youth's active participation in environmental issues further strengthens the validity of this study, a proof that our future generation is more than capable of identifying environmental problems and acting on them. Research interests in the use of Korean language in environmental discourse could not be timelier and more relevant. Having all this in mind, this research sets out to bridge the gaps in the emerging realms of the environmental discourse aimed at the youth and its translation.

1.1 Research hypotheses and questions

The advantage of using multilingual corpora is that it enables the researcher to focus on more universal aspects of translators' behavior within the specific area (Schäffner and Shuttleworth, 2013, p. 96). In doing so, this dissertation intends to find out if there are any discernible translation patterns by means of focusing on linguistic features. This study starts with the following hypotheses:

1) that highly creative/novel linguistic metaphors found in English environmental discourse constitute a notorious difficulty for translators;

² The Korean Wave refers to the increase in global popularity of the contemporary culture of South Korea since the 1990s. One of the most internationally known Korean pop groups is called the BTS. This K-pop boy band has been acting as global ambassadors of the ABB FIA Formula E to highlight the environmental advantages of electric cars. BTS members are known for publicly talking about social problems faced by young people. Inspired by the BTS, ARMY, the name for the BTS fan base, launched a campaign with a hashtag of

2) that the structural and linguistic differences existing between the two target languages might affect the type of strategies preferred by translators.

Having these hypotheses in mind, the present dissertation will therefore address the following research questions:

1) What keywords tend to be linguistic metaphors in English (SL) in environmental discourse? Are there any peculiar cases in which certain keywords are more metaphorical than others?

2) If only the SL has a certain metaphor, how will it be translated? a) literally and hence, a novel one in the TT, b) as an expression of a different metaphor, so as to, at least, retain its metaphorical nature, c) will it be preserved in some ways using other strategies, or d) will it disappear altogether?

3) If any option above-mentioned occurs with any regularity at all, is there any discernible translation pattern (TP)? Are they TLs specific? What are the implications for the given corpora?

1.2 Outline of the study

This thesis is divided into 10 chapters. Chapter 1 presented the background, motivation and research questions for this dissertation. Chapter 2 outlines the theoretical framework based on which the studies were conducted, and explains some of the main discoveries and concerns that those renowned scholars have expressed regarding the

understandings on metaphor and metaphor translation.

Chapter 3 gives a description of the corpus and its validation as an adequate source of investigation. Chapter 4 introduces five methodological steps to acquire a list of keywords in the ST and to identify the metaphoricity of each keyword. Chapter 5 consists of how this methodological procedure was applied to ten keyword linguistic metaphors.

Chapter 6 suggests four translation patterns (TP) classified according to the degree of metaphoricity. Chapter 7 and 8 confirm how these theoretical and methodological approaches can be put into practice by means of providing both quantitative and qualitative analysis of Spanish and Korean TP and its corresponding examples in the respective manner. Chapter 8, at the end, focuses on the keyword “carbon” and how it has introduced both into Spanish and Korean.

Chapter 9 draws conclusions and implications for metaphor translation in popular science genre and finishes with further research areas. Chapter 10 provides an extended summary in Spanish which is to fulfill the requirements of the Ph. D. degree in Theoretical and Applied Linguistics.

CHAPTER 2. THEORETICAL BACKGROUND

Chapter 2 aims to demonstrate the theoretical basis upon which the current research is established. In the contemporary field of interdisciplinary metaphor studies, cognitive linguistic theory of metaphor is the dominant perspective (Gibbs, 2013b), which is a starting point for the theoretical background throughout Sections 2.1, 2.2 and 2.3. These sub-sections include the contribution of a cognitive linguistic approach to the study of metaphor, contrastive metaphor and metaphor translation, respectively.

Yet, there are skeptical questions about conceptual metaphor theory from critics (Cameron, 2003; Kövecses, 2020; Semino, Heywood & Short, 2003; Casasanto, 2008 & 2009; Casasanto & Gijssels, 2015), which leads to the discourse analytical approach to metaphor in Section 2.4. The following Section 2.5 illustrates a delineation of the elements of the relevance theoretic approach to metaphor. Section 2.6 deals with the issue of metaphor translatability from a relevance theoretic approach to metaphor which will be mainly adopted in the current investigation.

Section 2.7 reviews previous studies of ecology from the perspective of translation and its lack of research interests so far. In Section 2.8, a phenomenon of neology driven by translation is touched upon. The final Section 2.9 runs through characteristics of popular science genre to which the chosen corpus of this study belongs.

2.1 Cognitive linguistic approach to metaphor

Lakoff and Johnson (1980) sketched out a cognitive-linguistic approach to metaphor,

enabling a deeper understanding of metaphor; linguistic metaphors are far from being merely rhetorical or ornamental devices, instead they are pervasive tools in ordinary uses of language. One of the principal assumptions of their framework is that metaphors are fundamentally conceptual, not linguistic, in nature. It is to say that linguistic metaphors are surface realizations of a more profound system of conceptual metaphors that structure the way we think and act. Along the same line, Lakoff and Turner (1989) view metaphors as a type of cognitive tool used for conceptual mapping rather than a merely linguistic strategy or a rhetorical device.

The research of Lakoff and Johnson (1980) is primarily concerned with the exploration of conceptual systems and only tangentially with the analysis of linguistic expressions. From this conceptual perspective, all metaphors are processed by cross-domain mapping, which means that the metaphor works by establishing sets of correspondence between different mental domains, showing certain tendencies to map clearly depicted concepts onto less readily accessible ones.

Take one of the examples presented by Lakoff and Johnson (1980, p. 4). The concept of *argument* within its conceptual metaphor “argument is war” is prevalent in our everyday language by a large number of linguistic expressions. The linguistic examples are as follows: “Your claims are *indefensible*”, “He *attacked every weak point in my argument*”, and “His criticisms were *right on target*”, among many others.

Another concept of *war* has been exemplified to demonstrate how its use could affect public perceptions of the search for cheap energy resources in the United States. With the use of the conceptual metaphor “the search for energy is war”, the existence of a hostile foreign enemy was inferred (Lakoff and Johnson, 1980, p. 156); by creating such inferences, the authors claimed that the *war* metaphor inflected the thoughts and behavior of politicians and the public, while an alternative metaphor might have created different inferences and led to

distinct courses of actions, which is an example of how conceptual metaphors can shape our cognition and actions.

Gibbs (2013b, pp. 15-16) highly acclaims the cognitive metaphor theory by pinpointing four significant impacts that this approach had on the humanities and cognitive sciences. First, a cognitive approach to metaphor has offered a new way of thinking about linguistic structure and behavior, explicitly seeking out connections between language and cognition. Second, cognitive metaphor theory has played a significant role in understanding the pervasiveness of metaphorical language and thought across a wide range of cognitive domains and cultural and linguistic environments. Third, the claim that significant parts of abstract thinking are motivated by metaphorical mappings between diverse knowledge domains has altered the scholarly understandings on the relationship between thought and language, broadening the research span of cognitive science. Forth, cognitive linguistic analyses of language have significantly enhanced the understandings of the dynamic links between bodily experience, pervasive patterns of thought, culture, and linguistic structure and behavior. All in all, cognitive metaphor theory has brought metaphor at the center stage of cognitive science (Gibbs, 2013b, p. 16).

More specifically, Kapranov (2017a, 2017b) and Ponton (2015) applied cognitive approach to metaphor to texts related to the environment. Kapranov (2017a) conducted a study on conceptual metaphors associated with climate change in corporate reports published between 2015 and 2016. Their findings showed that ExxonMobil (USA) interpreted its climate change discourse via conceptual metaphors in connection with natural gas and efficient energy consumption, while BHP Billiton (Australia) framed its environmental discourse by means of seeing climate change mitigation as a process which required knowledge and investment. In the case of the British Petroleum, Kapranov (2017b) revealed that the conceptual metaphors of *citizen* and *journey* in their climate change discourse

contained no change in position of the company prior to and following the Deepwater Horizon oil spill in the Gulf of Mexico in 2010. As such, the environment-related strategies of major companies have been thoroughly examined by means of conceptual metaphors found in their annual reports. Meanwhile, white papers from the British government were also analyzed by Ponton (2015, p. 109): 80% of the *nature* metaphors were found in the domain of business, which referred to the nature's contribution to the economy.

As demonstrated so far, the starting point of cognitive linguists is the presumption of the existence of conceptual metaphor. Their focus is on the concepts behind the language rather than the linguistic level of metaphor analysis; cognitive metaphor theorists have studied linguistic metaphors not for their sake, but as a means of discovering more about metaphor and thought. One of the great ironies about conceptual metaphor theory is its neglect of the power of language (Gibbs, 2013a, p. 323). The work of Lakoff and Johnson (1980), which is at the heart of the realm, has been criticized that their investigation relied on idealized cases which are disconnected from the context of actual use in natural discourse (Quinn, 1991, p. 91). By the same token, Cameron (2003, p. 22) argued that cognitive linguistic analysis of conceptual metaphors depends heavily on metaphorical expressions, which are usually a set of linguistic resources generalized across the speech community, rather than their actual use.

For this reason, Gibbs (2013b, p. 22) suggested that many metaphorical expressions may not always be motivated by embodied conceptual metaphor, calling for different theoretical explanations than what cognitive metaphor approach can offer. More recently, Kövecses (2020, p. 112) recognized the need for conceptual metaphor theory to provide a component that can explain the actual usages of metaphors and a more refined explanation on cognitive dimension.

Semino, Heywood and Short (2003, p. 1273) followed a similar tone, raising doubts

about the legitimacy of extrapolating too readily from language to cognitive structure since most claims about the existence of specific conceptual metaphors have been based on the lists of decontextualized sentences. Subsequently, these authors implicated the need to rethink about how already provided lists of decontextualized expressions under the headings of a particular conceptual metaphor can lead to a single interpretative route or a one-to-one mapping when others are also possible. Indeed, it is neither always so straightforward to assign linguistic metaphors to certain conceptual metaphors, nor to have a single linguistic metaphor realizing just one conceptual metaphor. Deignan (1998)'s attempt to answer the question of to what extent syntagmatic relations were preserved in the mappings from the source domain to the target domain did not result in a straightforward explanation. Thereby, it can be said that the cognitive metaphor theory may lack a fully explicit procedure to make the correspondence from linguistic metaphors to conceptual metaphors.

Taking a slightly different stance, Casasanto (2008, p. 1055) underscored the need to test conceptual metaphor theory in an experimental way and suggested that it was impossible to infer the relationship between the source and the target domain in people's nonlinguistic mental representations solely on the basis of patterns in metaphorical language. Indeed, the source domain representations were implemented only in particular modality specific systems, and there was very little evidence that metaphors were embodied in the brain's modality specific simulations (Casasanto & Gijssels, 2015, p. 334). All in all, Casasanto (2009, p. 127) claimed that the overwhelming majority of evidence for conceptual metaphor was linguistic in nature, denying one of the essential presumptions of the conceptual metaphor theory.

2.2 Cognitive linguistic approach to contrastive metaphor

This section will look into the previous studies whose theoretical framework is rooted in the cognitive linguistic approach towards contrastive metaphors. To start from the latest investigation, Atanasova and Koteyko (2017) examined how metaphors have been used in leading newspapers from Germany, the United Kingdom, and the United States. In editorials/op-eds about climate change published between 2006 and 2013, the authors identified that newspapers differed as to the most frequently used conceptual metaphors: ‘illness’ was the most preferred metaphor in German, ‘war’ in British and ‘journey’ in American newspapers (Atanasova & Koteyko, 2017, p. 80). These translinguistic and even intralinguistic differences between British and American English signified that the interpretation of conceptual metaphors is closely intertwined with national contexts, cultures and social/political identities.

Continuously, this section will look into the studies with a corpus written in English and Spanish. Roldán-Riejos and Cuadrado (2015) conducted a comparative metaphor study following the framework of the conceptual theory. The authors explored the interrelation of conceptual, linguistic and visual metaphor in a highly metaphoric engineering discourse, and concluded that there was no systematic linguistic correspondence between Spanish and English or vice versa.

Meanwhile, Crespo-Fernández (2013) used epitaphs as a rich source of death related euphemism along with conceptual metaphors. His approach started with selecting certain linguistic data and suggesting corresponding conceptual metaphors in two languages. The results revealed that the concept of ‘death’ in English and Spanish derived both from our common bodily experience, but the Spanish epitaphs had a clear preference for source domains in which Christian beliefs and political issues played a crucial role, whereas the

English epitaphs tended to portray a more optimistic attitude towards death (Crespo-Fernández, 2013, p. 99).

In the absence of comparable parallel corpora, Rojo López (2011) used the search engine *Webcorp* to obtain the occurrences of the English words ‘crisis’ and ‘recession’ and their translation equivalents in Spanish *crisis* and *recesión*. The results discovered the existence of subtle conceptualization differences between translation equivalents. Dynamic or dangerous events were more frequently classified as depicting ‘crisis’, whereas images of locations or directions were sorted as ‘recession’. Spanish speakers seemed to associate animate images with *crisis*, and inanimate images of locations with *recesión* (Rojo López, 2011, p. 310).

These findings are backed by López and Llopis (2010). They carried out a comparative study of conceptual metaphors based on a corpus of English and Spanish financial articles published during 2007 and the end of 2008 in the English journal *The Economist* and the Spanish newspaper *El Economista*. The analysis suggested two reasons why the same economic reality may be conceptualized in a different manner; not only linguistic constructions differed between languages, but also the same economic reality may be conceptualized very differently at different points of the given time (López & Llopis, 2010, p. 3311).

There are other relevant perspectives in conceptual mapping; Masegosa (2010, p. 190)’s analysis of proverbs recognized translinguistic differences between English and Spanish. The analysis revealed that postulating a single conceptual mapping was not enough for a fully-fledged interpretation; rather different sources had correspondences for the same target. In the same line, the comparison by Littlemore and Macarthur (2007) between the multiple senses of the English verbs *thread* and *wing* with the Spanish verbs *hilar* and *aletear* proved that although these verbs derived from nouns with similar or identical referential

content, their figurative extensions were different.

Another contrastive cognitive analysis which involved English and Spanish dealt with the concept 'anger'. Soriano (2003, p. 118) found that the cognitive model of 'anger' in Spanish and English was very similar because Spain and the United States were considered not to be so culturally and linguistically apart as other cultures and languages. However, language specific metaphors which seemed to be motivated by cultural preferences were also found. The same tendency was found in a contrastive study of Fontecha and Catalán (2002). Their results of analysis confirmed that semantic derogation for women was observed in both languages (Fontecha & Catalán, 2002, p. 792), however depending on the language, there were marked differences of derogation degree (p. 793).

While there have been a few contrastive studies which involved English and Spanish, very few studies involved a corpus in Korean language. A case study of Türker (2013) compared emotions related conceptual metaphors in Korean to universal metaphors. The Korean data demonstrated different specifications for three emotions: 'anger', 'happiness', and 'sadness'. The concepts 'anger' and 'happiness' in Korean seemed to share more aspects with other cross linguistically common or universal metaphors. However, the concept 'sadness' seemed to accommodate the fewest universally known metaphors which demonstrated that the emotion of 'sadness' in Korean required culturally specific metaphors.

Chay (2005) also pointed out the substantial effects of cultural norms for language use on the conceptualization of ideas depending on languages and cultures. For example, many articulation related expressions were conceptualized by means of 'mouth' in Korean and of 'tongue' in English. The account of Gibbs (2013a, p. 330-331) was once again confirmed: "different historical, cultural, social, cognitive, linguistic and neural forces work together as a dynamical system to create in-the-moment, and contextually sensitive metaphoric concepts".

Then, it is necessary to see if the same results would be obtained with texts that contain minimal cultural elements. The corpus selected by Slabakova, Cabrelli Amaro and S. K. Kang³ (2013, pp. 27-28) is not culture sensitive which was intended from the beginning; these researchers specifically avoided situations that could pertain to one culture but not the others. From the readers' perspective of novel metonymy, Slabakova, Cabrelli Amaro and S. K. Kang (2013) conducted previously prepared off-line comprehension tasks written in English and discovered that the participants treated novel and regular metonymy in a different manner depending on their mother tongue. English native speakers made the clearest distinction between regular and novel metonymy, whereas the Spanish speakers treated regular metonymy much more like novel metonymy. The Korean speakers seemed to be more prone to accepting novel metonymy than English and Spanish speakers were (Slabakova, Cabrelli Amaro & S. K. Kang, 2013, p. 30).

The accounts mentioned so far in this section have demonstrated that there seem to be both universalities and specificities of each conceptual metaphor and, in some cases, no systematic conceptual mapping could be specified. There were also sets of ways in which metaphorical schema may operate to varying degrees depending on the given language. For these reasons, Türker (2013, p. 73) rightly argued that the universality of conceptual metaphors continued to be a controversial topic in cognitive linguistics. It can be deduced that in place of a top-down conceptual metaphor approach, a more of a bottom-up approach – translinguistic and language-specific – studies may be further required.

³ When more than one author has the same last name, all the authors' first initials will be included even if the year of publication differs e.g., B. M. Kang (2019), S. K. Kang (2013) / H. Y. Kim (2018), S. Y. Kim (2018), J. G. Kim (2017), C. K. Kim (2008), S. Y. Kim (2008), C. K. Kim (2007), S. M. Kim (2002).

2.3 Cognitive linguistic approach to metaphor translation

With a growing attention to translation studies, the cognitive linguistic approach has expanded to metaphor translation. The previous section dealt with a naturally occurring data in English, Spanish and Korean, but they are not translative equivalents. One of the most representative scholars who attempted to incorporate cognitive linguistic theory into the translation of metaphors is Schäffner (2004, 2013).

Schäffner (2004, p. 1254) underlined the contribution of the cross-linguistic and cross-cultural perspective of translation to metaphor theory. The author emphasized that thanks to the cognitive linguistic approach, the issue of translatability was no longer a question of the individual metaphorical expression, as identified in the ST, but it became linked to the level of conceptual systems in the source and the target culture. However, although cognitive metaphor theory has aroused interests from scholars of other fields, the number of studies which were carried out within translation studies based on a parallel and multilingual corpus is highly limited (Schäffner, 2010, p. 26).

Schäffner (2004, pp. 1265-1267)'s parallel and comparative analysis of translations on a few political documents revealed that the commonly used conceptual metaphor both in English and German occurred with a concept 'movement'. In their linguistic realizations, the 'path' metaphor in English texts was usually more elaborate, whereas this was not necessarily the case in German. In this study, Schäffner (2004) went further from the conceptual approach of Lakoff and Johnson (1980) to the implications of metaphor translation. That is, translations can make differences in conceptual metaphors and metaphorical expressions explicit. In doing so, they may indeed trigger controversial debates in intercultural communication.

There is also Matarredona (2005, p. 273)'s contrastive analysis of translation from

Spanish to English. The selected corpus was written texts about civil engineering. The results revealed two key aspects: firstly, linguistic metaphors had to be grouped into various conceptual metaphors, and secondly, one target domain had several source domains. One of the most significant discoveries that Matarredona (2005, p. 287) made was the absence of translation in the TT; when a metaphor was of particular difficulty for translation, descriptions was provided, or, in extreme cases, the metaphor was simply omitted in the TT.

Such a problem which occurred in the process of translation was also touched upon by Samaniego-Fernández, Velasco-Sacristán and Fuertes-Olivera (2005). These Spanish researchers applied a cognitive linguistic approach to metaphor translation to newspaper texts which were initially published by *The Guardian* and subsequently translated and published in *El Mundo*. The results suggested that a more open and realistic approach to translation needed to be encouraged as opposed to a merely literal translation which in reality was a commonly accepted paradigm in English to Spanish translation.

Gerding, Cañete and Adam (2017, p. 183) refer literal translation to the use of some syntagmatic units formed with an integral loan, although an equivalent in Spanish had already been coined e.g., ‘televisor *smart*’, instead of ‘televisor *inteligente*’. These syntagmatic units are relatively easy to be detected by neologists compared to semantic units coined by means of literal translation which requires more in-depth analysis, e.g., ‘*dispositivo vestible*’ from ‘wearable device’. (2017, p. 184).

To continue, more previous studies on literal translation will be reviewed. By means of retracing novel metaphors in the TT back to the ST, Samaniego-Fernández (2002) indeed found that novel metaphorical expressions which were inexistent as such in the TL came from literal translation of metaphoric materials. In other words, the translations’ tendency to isomorphism was confirmed. In this respect, Samaniego-Fernández (2002, p. 213) warned against the practice of literal translation; whether it was intentional or unintentional,

translators were in fact introducing new metaphorical mappings into the target culture. The short-term impact of this tendency on the target system would be a contribution to intercultural terminological and conceptual standardization.

The actual impact of translation on the TL was studied by Porto-Requejo (2007). Porto-Requejo (2007, p. 206) focused on how the Internet was differently conceptualized as a result of some partial or even impossible translations: “The Internet is a city” as one of the most productive conceptual metaphors in English, whereas “the Internet is a sea” as the most common conceptual metaphor for Spanish speakers. Samaniego-Fernández, Velasco-Sacristán and Fuertes-Olivera (2005) rightfully emphasized the essential influence that translators, through their translations, had on the TL by introducing new linguistic expressions and new conceptual structures in the long run, and in doing so, obscuring the readers’ comprehension of a given text.

To continue, there has been a small number of studies with Korean language involved. J. G. Kim (2017, p. 5) called for more studies to be conducted with English and Asian languages, because most of the studies examining linguistic and cultural differences of metaphors in economic texts were analyzed in English, European language or Chinese, and it was difficult to find studies examining the differences between Korean and English texts.

Korean language-based studies have mainly focused on newspapers or economic texts. The first study to introduce was conducted by J. G. Kim (2017) who analyzed how metaphorical expressions were translated from Korean to English, focusing on five conceptual metaphors: ‘war’, ‘water’, ‘illness’, ‘organism’, and ‘mechanics’. The results showed that two Korean editorials, *Donga Ilbo* and *Joongang Ilbo*, employed a large number of conceptual metaphors in a negative frame, and English translation differed significantly; metaphorical expressions in *Donga Ilbo* were mostly translated into the same conceptual metaphor, while more diverse translation strategies were used for *Joongang Ilbo*.

Nevertheless, the study is limited to be descriptive and lacks the reasons that can explain analysis results (J. G. Kim, 2017, p. 26).

Lee and Bae (2011) also examined English news texts from *Newsweek* magazine and corresponding translated texts in Korean to investigate how the target domain ‘abstract complex systems’ was mapped onto various source domains such as ‘human body’, ‘plant’, ‘building’, ‘machine’. The most prevalent translation was the parallel mapping technique. In other words, the ST and the TT shared identical source domains, and metaphorical expressions of the ST were translated literally in the TT.

Another study with economic texts was carried by Shin and Park (2011). They investigated English-to-Korean translation of metaphorical expressions found in economy related texts. Their study revealed that the conceptual metaphor ‘living organism’ was used most frequently both in the ST and the TT. The investigators added non-translated Korean texts for comparison purpose: ‘physical movement’ was the most commonly found, which indicate that the English-Korean translators inclined to transfer the source conceptual metaphors to the TT without making adjustments (Shin & Park, 2011, p. 151).

In a study conducted by S. Y. Kim (2008), the conceptualization of ‘sadness’ and ‘anger’ metaphors in the literacy Korean texts and their translation in English were compared. The findings showed that both languages shared certain conceptual metaphors to express ‘sadness’ and ‘anger’, while at the same time some differences were found in the conceptualization of ‘anger’: in Korean the conceptual metaphor “anger is plant” interpreted as passive status, whereas English conceptual metaphor “anger is a captive animal” conceptualized as ‘animal’, calling for a need to study each conceptual metaphor in literary texts (S. Y. Kim, 2008, pp. 15-16).

With a parallel corpus of ‘love’ related conceptual metaphors from Korean contemporary poetry and its translation in English, contrary to Noh (2007, p. 14)’s

expectation, the most frequently used translation method was also literal translation. The author's presumable explanation reads that the differences between love-related conceptual metaphors, which is a universal emotion, between the ST and the TT has become less obvious between two language cultures to a considerable degree where translators easily rely on literal translation (p. 14).

As in the case of cognitive linguistic approach to contrastive metaphor, the same approach to metaphor translation proved a similar tendency of having both commonness and differences of each conceptual metaphor. Since translation studies utilized a parallel corpus in the present section, the distinctive features of individual language might have appeared more accentuated than the accounts of the previous section which dealt with contrastive metaphors. Another point that was commonly observed with conceptual metaphors was the Spanish and Korean translators' inclination toward literal translation and yet, cognitive linguistic theorists do not seem to dispose of explanation or reasoning.

2.4 Discourse analytical approach to metaphor

One of the criticisms about the cognitive linguistic view on metaphor claims that the metaphorical sense of many words may have become the most salient to contemporary language users so that the basic sense is no longer involved in the stage of concept activation or may activate the intended target domain concept instantaneously. Glucksberg, Brown and McGlone (1993) presented a wealth of psycholinguistic evidence in which conceptual analogy played only a small role particularly in idiom comprehension unless people had the time to make deliberate judgments. This phenomenon has later been called *the paradox of metaphor* (Steen, 2010, pp. 49-50). In order to resolve this paradox, a three-dimensional

discourse-analytical approach was presented by the same author. Steen (2007, 2008, 2010, 2011a, 2011b) accorded with the view generally held in cognitive linguistics and based his theory on the principle that metaphor is primarily a matter of thought; the two dimensions of *language* and *cognition* are the starting point for Steen's three-dimensional model of metaphor.

The addition of a third dimension is *communication*. This communicative dimension can be usefully employed for the distinction between the deliberate and nondeliberate use of metaphor (Steen, 2011a, p. 86). According to the discourse analytical approach to metaphor, the power of metaphor may reside not in its unconscious use, as conceptual metaphor theory claimed, but in its conscious and, more generally, in its deliberate use (Steen, 2013, p. 180). In other words, the deliberate use of metaphors is intimately connected to an awareness of metaphoricity, which is thought to prompt a comparison process in a way that the audience is expected to view a conceptual domain from the perspective of another conceptual domain, and to set up a cross-domain mapping from the source domain to the target domain (Steen, 2008, p. 223). Deliberate metaphor requires certain features which alert the addressee that it is intended to be realized as a metaphor (Steen, 2010, p. 58). Such features may come in the form of a lexical sign such as *like*, additional relevant meaning or direct linguistic expression of the conceptual source domain. On the other hand, a non-deliberate metaphor lacks this particular communicative aim of changing an addressee's conceptual perspective on the current local topic of a discourse event (Steen, 2011b, pp. 11-12).

Glucksberg and Keysar (1990) argued that metaphors are not to be understood by transforming them into similes (e.g., *My job is like a jail*). Instead, metaphors are processed by *categorization* or *class-inclusion* statements, in which the topic of the metaphor (e.g., *my job*) is assigned to a diagnostic category (e.g., entities that confine one against one's will, are unpleasant, or difficult to escape from). In these statements, the metaphor's vehicle (e.g., *jail*)

refers to a newly created category and, at the same time, is a prototypical example of that category. *Jail* can belong to any number of ad hoc categories, namely to the more general category of *punishments* or to the subordinate category of *human-made structures*, so can *jobs*.

Cameron (2003) also makes a distinction between deliberate and conventionalized metaphors; deliberateness lies in the use of the linguistic metaphor in its discourse context for a particular purpose on a particular occasion, whereas conventionalized metaphors are part of participants' shared language resources to refer to the particular topic. As a minimal indication of deliberate use, a linguistic metaphor had to occur on only one occasion in the discourse data. In this case, concordance and other corpus software offer measures of frequency which help to rate the novelty or conventionality of a metaphor (Cameron, 2003, pp. 101-102).

The current dissertation argues that the notion of being *deliberate* or *non-deliberate* in a discourse analytical approach to metaphor can be applied to translation studies of metaphor. The deliberateness and non-deliberateness can be interpreted as *intentional* or *unintentional* decisions made by translators. The general assumption is that when it comes to metaphor translation from the communicative dimension (Steen, 2011a) which requires extra/deliberate attention due to its complex cognitive and linguistic nature, translators would put conscious efforts in order to deliver the intact message of the ST to their target audience.

2.5 Relevance theoretic approach to metaphor

The three-dimensional model of *language*, *thought* and *communication* has similarities to an approach elaborated within the framework of relevance theory. According to

Steen (2011a), relevance theory equally makes a distinction between these three levels of analysis. While cognitive linguists see that linguistic metaphors are treated as surface reflections of underlying conceptual mappings between different cognitive domains and have their roots in cognition rather than communication, relevance theorists (Goatly, 1997; Sperber & Wilson, 1986, 2008; Dirven, 2002; Wilson, 2009; Johansson Flack, 2018), on the other hand, argue that metaphor arises naturally in linguistic communication and cross-domain conceptual mappings such as “good is up” and “bad is down” may result from repeated use of linguistic metaphors. In a similar way, Ning (2020, p. 12) suggested that “linguistic manifestation of conceptual metaphors in characteristic patterns are not just a simple consequence of conceptual mappings in thought”. The same author went further to argue that characteristic linguistic patterns consolidated by external forces, such as English, also influence its speakers’ way of viewing the world.

According to this relevance theory approach, Liu (2021, p. 83) categorized six types of metaphors: *dead*, *cliché*, *stock or standard*, *adapted*, *recent* and *original metaphors*, and added that classifying a metaphor in one of these previously mentioned six types is almost impossible, because a degree of metaphoricity depends, to a certain degree, on subjective criteria e.g., knowledge, experience, exposure to culture, etc.

Liu (2021)’s concept can be interpreted as Sperber and Wilson (2008, p. 97)’s continuum of cases between literal talk, loose talk, hyperbole and metaphor with no sharp cut-off point between them, and, thereby, metaphors are simply situated at one end of a range of cases. Dirven (2002) call it a ‘figurative continuum’ on which word senses may be located from purely literal senses, through metonymic senses, to metaphorical ones. In a similar vein, Goatly (1997, p. 32) put forward five degrees of metaphor conventionality in different terms: active, inactive (tired or sleeping), buried and dead metaphor.

In other words, language is loosely used in an attempt to convey complex thoughts

which may be vague, but need not themselves to be metaphorical, and none of which is necessarily a surface reflection of any pre-existing conceptual mapping (Wilson, 2009, p. 42). Relevance theorists, thereby, claim that the distinction between literal and metaphorical is a matter of degree of relevance: an utterance can be more or less metaphorical. The larger the gap between the proposition expressed and the meaning intended, the more metaphorical the utterance will be, and vice versa (Goatly, 1997, p. 15).

In respect of the role of relevance in cognition and communication, relevance theory is based on two general claims: the *cognitive principle of relevance* and the *communicative principle of relevance* (Wilson, 2009, pp. 47-48). According to the former cognitive principle of relevance, human cognition tends to be geared to the maximization of relevance, so that a listener can understand a speaker's utterance by making interpretive assumptions about the speaker's informative intention. Based on the latter communicative principle of relevance, the communicator is assumed to want his/her communication to succeed, which reflects the communicator's intention of making the utterance as relevant as possible to the audience. This tendency to maximize relevance is summarized as follows: "every act of inferential communication conveys a presumption of its own optimal relevance" (Sperber & Wilson, 2008 p. 104).

Wilson (2009, p. 43)'s first ingredient of relevance theory assumes that hearers want to understand linguistic metaphors by using their linguistic and contextual clues and, to do so, they create new *ad hoc* concepts which are broader than the encoded lexical meaning. The concept of *ad hoc* can be termed as *categorization* or *class-inclusion* in discourse analytical approach to metaphor. It might then be reasonable to assume that the repeated use of linguistic metaphors which link items from distinct cognitive domains, when repeated sufficiently, might set up patterns of conceptual activation similar to those that cognitive linguists view as characteristic of conceptual metaphor. To put it differently, as in the

statement by Johansson Flack (2018, p. 81), speakers' experiences of specific concepts by means of different lexical items that they use play an important role in their conceptualization. This stance goes in the same line with Gibbs (2003a, p. 331): "both conceptual metaphors and specific linguistic metaphors are always dynamically linked and cannot be fully characterized without reference to the other systems with which they are connected."

Wilson's example of *flower* metaphor can facilitate a better understanding. From a cognitive linguistics perspective, a set of linguistic metaphors related to the concept of *flower* might be seen as surface reflections of an underlying conceptual metaphor of "women are flower", which is based on systematic correspondences between the domains of *women* and *flower*. From a relevance theory perspective, however, these linguistic metaphors would be seen as creative uses of language for opportunistic communicative purposes, which, if repeated often enough, might lead to the setting up of systematic correspondences between the domains of *women* and *flower*.

The second essential ingredient of the relevance theory is that human's perceptual mechanisms provide access to an ordered array of *encyclopedic information* about linguistic metaphors (Wilson, 2009, p. 48). This encyclopedic information yields enough implications to satisfy the audience's expectations of relevance without any relevant or previously required information about linguistic metaphors. Take Wilson's example: marriage is *on the rocks* (ruined or about to be ruined) is encountered for the first time by someone whose encyclopedic information contains no conceptual metaphor such as "marriages are journeys". According to a relevance approach to metaphor, this person would be expected to activate some encyclopedic features of *marriage* and, with the help of surrounding contexts, they are expected to achieve relevance by carrying implications that *on the rocks* would apply not only to voyages but also to marriage. When this *ad hoc* is successfully established, it is assumed that the optimal relevance has been achieved.

2.6 Relevance theoretic approach to metaphor translation

The present dissertation considers the metaphoricity of linguistic metaphors along a continuum whose end poles are from the least metaphorical to the most metaphorical. In consideration of many dimensions simultaneously at play, figuring translatability of metaphors in terms of a continuum rather than discrete categories seems a profitable way of tackling the issue (Monti, 2010, p. 204). The suggestion of the relevance theory, in which metaphor expresses one form of *loose talk*, rests on a distinction between *descriptive* and *interpretive* representations. From a relevance theory viewpoint, translation falls naturally under the interpretive use of language. This is how *interpretive resemblance* of relevance theory (Smith, 2002) can be applied to translation. The communicator in Wilson and Sperber's term can be represented as translators (Gutt, 1993), as they are the ones who first read and understand the original texts and then translate with clear objectives to effectively communicate with their potential readers.

Smith (2002) states that the primary contribution by Gutt (1993) is a greater entitlement given to translators that they can make the right decisions. His argument is still valid, despite it was written back in time. Translators are assumed to anticipate whether the ST to be translated is communicable in the given context of the target audience. The secondary contribution of Gutt (1993) is the interpretation on the translation from the perspective of the implicit information, especially with regard to the figurative language use. The TT should be the way in which the readers put as little effort as possible to be able to enjoy the reading at a minimal processing cost.

The audience in Wilson (2009)'s term can be interpreted in translation as readers. According to relevance approach applied to translation, readers would yield their previously acquired encyclopedic information to try to understand new linguistic metaphors found in

translated materials. Following the rule of *optimal relevance*, there is an expectation on the part of the reader that his/her attempt at interpretation of a given text will yield adequate contextual effects. This is how Wilson and Sperber (2008)'s concept of *optimal relevance* can be reached in translation in both ways: translators' intention to effectively communicate with readers and readers' strong will to understand the given text.

From a relevance theory viewpoint, Gutt (1993) distinguishes a *direct translation* from an *indirect translation*; a direct translation corresponds to the idea that translation should convey the same meaning as the original and that includes syntactic/morphological features, while indirect translation involves looser degrees of faithfulness to the ST. Here, relevance theory distinguishes two kinds of assumptions: a writer can convey, namely, *explicatures* and *implicatures*. Explicatures consist of all information linguistically encoded in the text, while implicatures are composed of all assumptions that the author intends the readers to infer from the context. Since it is not always possible to explicate metaphorical language without sacrificing some of the assumptions that the ST convey, providing some forms of explication of figurative language is acceptable in an indirect translation. The way a translation is produced can also activate different inferential processes depending on whether the reader uses similar or different linguistic patterns (Mateo Martínez, 1998, p. 173). In this context, the writer or translator may express concepts and ideas which will carry a different informative load depending on the addressee's language. In a direct translation, on the other hand, translators must strive to retain all the details of the figurative language.

There are subtle differences between the interpretative mechanisms of standardized metaphor and creative metaphor. The sorting process of the creative metaphor involves weak implicatures which need to be exploited from the extensions of context, while the standardized metaphor always involves the dominant or conventional assumptions. Specifically, highly standardized metaphors give relatively easy access to an encyclopedic

schema with one or two dominant and highly accessible assumptions for the majority of readers. Creative metaphor, on the other hand, involves bringing together not only the encyclopedic entries, but also a wide array of contextual implications.

Another topic that has been touched upon by relevance theorists and discourse-analytic theorists is to do with the deliberateness of metaphors. Metaphors may be judged as deliberate not only if they were intentionally produced, but also if they are perceived by readers as having been deliberately produced (Nacey, 2013, pp. 169-170). The primary proposal at issue here is that the possibility that writers and readers can have creativity thrust cannot be overlooked. There must be an awareness on the part of the writer about the act of creation of novel linguistic metaphors, and so are the cases for readers. This metaphorical creativity can be interpreted as the granting of legitimacy to less faithfulness in translation. Thus, metaphor and creativity seem to go hand in hand. Likewise, relevance theory accounts for relative creativity and the relative success of metaphor translation.

Relevance theory supplies the theoretical validity of the freedom of target-oriented translation, which is sustained by the following three grounds. First, in order to avoid the breakdown of the communication caused by different contexts, context sensitive and target oriented translation is called for. Second, weak implicatures, as the unique features of creative metaphor, need to be maintained in target-oriented translation. Third, broadly speaking, the interpretive feature of translation also supports the practice of target-oriented translation. In order to achieve the optimal relevance, translators could erase the metaphoricity of the ST and elaborate further the source concept in the TT. Then, the readers would achieve this optimal relevance at a minimal processing cost.

The process of metaphor in the SL is probably different from that of the TL. For that reason, literal translation of a metaphor does not contain the same assumptions as those of the SL. Thus, contexts are crucial determinants to comprehend linguistic metaphors. The

immediate context of a metaphor is the same in both the ST and the TT, yet by the influence of broader contexts, the contextual effects in metaphors of the ST and the TT are most likely different. In a direct translation, the implication of a metaphor is hard to achieve, and the communication weakens or may even lead to a break-down. Then, the target readers will be uncertain what the author, through translation, is trying to convey, and even might think that the metaphor is irrelevant to them.

Few studies have been conducted from the relevance theoretic approach to metaphor translation. The most recent study was conducted by Liu (2021) on the Chinese-Korean metaphorical translation in the news headlines. Liu (2021, p. 110) found that ‘literal translation’ with the same metaphor was used with the highest frequency, followed by ‘description’ which seemed to have paid more attention to the meaning of metaphors. The results also showed that ‘adding explanation’ was rarely practiced.

S. Y. Kim (2005) used news texts from *Newsweek* to investigate metaphor translation from English (SL) to Korean (TL). The results showed that the metaphoricity of the ST was frequently lost while keeping only the meaning in the TT, resulting in the missing of complexly imbedded image of the ST (S. Y. Kim, 2005, pp. 98-99).

Jing (2010) investigated how puns were translated from English to Chinese. The author proposed several strategies for pun translation, namely punning correspondence, separate explanation, change of the image, the sacrifice of secondary information and editorial means. Even though not all the puns included metaphors, looking at the translation patterns of puns provided useful implications in which the change or the sacrifice of the original texts to a certain extent or the addition of editorial explanation were very much necessary for the sake of an effective comprehension for the target readers.

It is important to note that the relevance theory account for metaphor translation offers greater freedom for the translator; there are no fixed norms for good translation. The

communicative perspective conditioned by the principle of relevance provides openness and a much broader scope for metaphor translation (Jing, 2010). Based on relevance theory, the central concern of the translator is not to achieve a fixed standard of equivalence, but to make a successful communication.

In the same vein, the role of the translator is to become a decision-maker that makes a balance between the contextual and linguistic information that the target reader is expected to gain with a minimum of cognitive process effort that they have to invest, so that the resultant cognitive stimuli deployed across the different border would ease the reader's job in gaining similar cognitive response (Al-Jarrah, Abu-Dalu & Obeidat, 2018, p. 30). To achieve this, the translator can adopt various accommodative and creative means in their translation to recreate the intended effects of metaphors in the ST which will then be appreciated by the target readers with the lowest possible processing efforts.

2.7 Linguistic ecology and translation

Ecolinguistics, also known as language ecology, linguistic ecology, the ecology of language or ecological linguistics is a relatively new paradigm of linguistic research which emerged in the early 1970s (Steffensen & Fill, 2014, p. 6). Ecolinguistics concerns a linguistic choice or constraint which involves the interaction between language and environment. The basic idea is that language shapes how we see the world (Alexander & Stibbe, 2014; Stibbe, 2021). Within the framework of ecolinguistics, Clark (2011, pp. 46, 54) defined a language as a material environment that we cannot choose to step out of and a decisive environment out of which we define ourselves. Steffensen and Fill (2013, p. 21) effortlessly put the relationship among ecology, language and man as follows: "ecology is

nature, language is culture, and man is a cultural being that exploits nature.”

One important pillar of the current study concerns with metaphor in language use. Several authors (Machielsen, 2019; Wiben Jensen & Greve, 2019; Stibbe, 2021) explored metaphors relevant to ecolinguistics. Machielsen (2019, p. 106)’s dynamical view of metaphor starts with a norm that all metaphor use is not merely embedded in a physical, but also a social and cultural sense. In the same manner, Wiben Jensen and Greve (2019, p. 1) viewed “metaphor as part of our active doings that equally involve cognitive, social and linguistic dimensions”.

One representative example given by Stibbe (2021, Chapter 4) is the construction of foot and mouth disease (FMD). In 2001, politicians and the press used ‘war’ related words such as ‘battle’, ‘enemy and ‘combat’. This setting up of a conceptual metaphor of “dealing with FMD is war” led to drastic solutions of killing thousands of animals. The same author suggested an alternative way of conceptualizing FMD would have been to use medical terminologies like ‘cure’, ‘illness’ and ‘care’, etc. The importance of metaphors can be summed up as follows: it matters which metaphor we choose to live by; because if we choose unwisely or fail to understand their implications, we will die by them (Stibbe, 2021, Chapter 4). To continue the discussion on the significance of metaphors, Crespo-Fernández & Luján-García (2018) and Crespo-Fernández (2021) investigated how sexual anglicism works in the Internet, a space where a spontaneous mode of communication, which is close to informal oral communication, favors the appearance of intimate issues. Their study revealed that the use of lexis of English origin of a metaphorical nature used in Spanish virtual space helped to reveal the intentions behind.

One of the main streams of ecolinguistics is the anthropocentric paradigm whose belief is that human beings have the utmost importance in the universe. A dichotomous representation of the world is common to metaphors across climate change discourse:

environment versus economy or climate versus growth (Shaw & Nerlich, 2015, p. 38). Against this background, Fill (2000, p. 67) presented that there are more and better ways in which ecological ideas such as the interrelatedness between human and nature can be expressed. As a tool, the grammatical resources of language, especially transitive and ergative clause, nominalization and grammatical metaphor, may be utilized to understate anthropocentrism, and these structures need be developed to be less anthropocentric (Goatly, 1996, p. 537).

The real relationships that exist in the world can be more clearly represented, so that patterns of social interaction and the behavior of institutions that negatively affect the environment should be more effectively evaluated and eventually change with the use of *green* grammar that reveals the real forces and the power of institutions behind the environmental destruction. Especially in the West, human-centered language and anthropocentric modes of thought and perception still contain hidden resources and possibilities for some writers and thinkers to exploit (Clark, 2011, p. 54). In doing so, better and deep ecologization of language contributes to more ecological thinking and greater awareness of ecological facts and problems in the long run.

For example, Kapranov (2018) focused on the climate change discourse of Statoil, a Norwegian-based energy corporation. One of the main frames that the company employed was conceptual metaphor of environmental awareness according to which the manmade causes of climate change were expressed in an explicit manner. As shown above, the research in ecolinguistics has been highly focused on anthropocentrism and its syntax and rather philosophical than practical features.

Another research area of ecolinguistics is threatened languages and language varieties. It goes without saying that English is at present unchallenged as the most widely used language in the globe. The ecology involves not just economic influence, but also an

implicit linguistic hierarchy, and at the top of the hierarchy, there is English as the most widely used language everywhere including Europe, Latinamerica and Asia both in education and its informal and formal use (Denison, 2001, p. 80). The adoption of languages of higher prestige and broader currency and plurilingualism inevitably lead to the influence from more reputable language varieties, possibly replacing other European national languages and undermining native linguistic productivity. Also, our world is increasingly dominated by many large scale transnational corporations for whom the principal language is English, and naturally globalization has an overarching influence on our daily use of languages (Phillipson, 2010, p. 29).

Because of modern means of communication combined with the international mobility of capital and labor, the considerable and growing internal uses of English in other language communities has displaced their national languages, which leads to global homogeneity or linguistic internationalism of, in particular, scientific terminology (Denison, 2001, p. 80). Given the current state of the European linguistic ecology, an extra attention needs to be dedicated to a phenomenon in which the invasion of terminology from prestige language sources - which happens, to some extent, regardless of counter measures – can be considerably enhanced (Denison, 2001, p. 79).

Besides, once introduced anglicism can be further spread out especially among young people. After analyzing Spanish digital magazines whose target audience is adolescents, Sánchez Fajardo (2021) demonstrated that the youth played an important role in the spread of anglicism. Among four different categories - adapted and unadapted anglicism, pseudo-anglicism and calque – unadapted anglicism was found to be the most commonly employed. One exemplary case is cool to express something modern. Crespo-Fernández and Luján-García (2018, p. 41), in a similar vein, opted for the classification of pure anglicism, adapted anglicism, hybrid anglicism, pseudo-anglicism and calque.

The cumulative effect of such influence can produce adverse reactions at least in some language speakers. Resinger, H. (2008, p. 141) presented such cases in genre of science: under the influence of English and its corresponding translations, the word *evidencia* (evidence) has acquired in Spanish the meaning of an *indicio* (indication) or *prueba* (proof), which compete with the original meaning of *clear* and *manifest certainty*. It can cause confusion especially when used outside the scientific community. The word *evidencia* (evidence) has a lot of similarities with an invasive species in ecology that causes damage to the recipient ecosystem.

Such phenomenon can be avoided by advocates of laissez-faire linguistic attitudes (Denison, 2001, p. 79). This would be one of the points at which language planning and educational policy might intervene in the interests of national language conservation. Denison (2001) goes on to call for a better understanding of the dynamic nature of language proposed by the temperamental purists. At the same time, however, the total rejection of the purist reaction by the linguistic progressives needs to be cautioned.

A number of research pieces on linguistic diversity and the dangers of its disappearance or grammatical aspects of environmental discourse have been conducted, but very few were published in the area of the language of ecology and translation. In other words, the research on multilingualism from a contrastive point of view of interaction is lacking. For example, *eco-translation* covers all forms of thinking and practice that knowingly engage with the challenges of human-induced environmental change, emphasizing that the radically changing environmental circumstances of humanity have to be of concern to debates around language and translation (Cronin 2017, pp. 162, 186). Bearing in mind that translators are important part of ecosystem in which they contribute to the translated languages and their environment, some new theorization as well as innovative ideas concerning empirical investigation is required (Fill, 2001, p. 51).

This area of research can be variously termed such as language and ecology, eco-translation and ecolinguistic approach to translation. Under whatever name it may be called, the principal idea is that eco-translation intends to raise awareness about environmental problems with an aim to move our society towards solving them while emphasizing the importance of the role that the translator plays. Translation is to provide the environment with intentional underlying meanings and awareness in order to influence the audience's standpoint on the issue. The use of translation needs to be viewed as an instrument to mediate between authors, texts and the readers' points of view with regard to the presence of nature put as the central element in texts.

Cronin answered to the question of how to view translation in the ecolinguistic perspective: we need to think about translation as an essential part of resolving all the wrong reasons and to revisit a large number of fundamental assumptions about what it is to be human and what it is to live in and be part of the world (2017, pp. 2303-2304). To do so, Cronin calls for momentous decisions taken in the present in view of potential future consequences or mostly innocent and innumerable individual ramifications that the translation might bring about. This phenomenon can be summed up by saying that what was *new* and *outside* yesterday can be *common* and *inside* today. In the same manner, Resinger (2008, p. 142) emphasized that translators, researchers and language teachers alike are in a position where they can make a very valuable contribution to linguistic habits of our society by gradually adapting them to a new environmental and social awareness

Needless to say, translation is a powerful tool which has influence on the perception of the ST and its acceptance or rejection in the receiving community (Resinger, 2008, p. 141). In relation to its potential consequences, the world in which we are living can be described as follows: we live in the era of unintended consequences of translation (Clark, 2011, p. 245). In other words, language is not a mere tool, but an environment itself that shapes the very

psyche of people (Clark, 2011, p. 50). For example, ordinary individual bloggers regularly upload green living-related texts in English using a journey metaphor and present themselves as travelers who are still on the road to emphasize the positive aspects of journeying. In doing so, these bloggers create an English-driven pattern which inspires and empowers readers to adopt green living practices. (Atanasova, 2020, p. 15).

As seen in the case of blogs, computer mediated communication (Luján-García, 2021) has now come to shape the inner life of modern people in ways far deeper than they usually realize, enabling a change in human attitudes and perception about the environment. Eventually, “how cultural and linguistic diversity are portrayed will have inevitable consequences for how an ecological sensitivity develops around language and translation” (Cronin, 2017, p. 278).

2.8 Translation and neology

The adoption of English as a language of higher prestige and its replacement of other less powerful languages have been touched upon in the previous section. This section is dedicated to translation and English neology. Neology means the creation of new words and terms (Díaz Rojo, 2001, p. 1), while Guerrero Ramos and Pérez Lagos (2021, p. 143) consider neology as the principal process of evolution of languages: the creation formed in the process of the evolution of each language including loanwords and semantic neology.

Díaz Rojo (2001) distinguishes between general neology and specialized neology to refer the former to the common or general language and the latter to the specialized field. Following the definition of Díaz Rojo (2001, p. 1), in scientific terminology, there are two types: primary and secondary neology. Primary neology is the creation of a term to designate

a new concept resulting from scientific and technical innovation within the same language, that is *intralinguistic secondary neology*. Secondary neology refers to the creation of a new term in a language to substitute or translate the existing linguistic precedent, then it is called *interlinguistic secondary neology*. The latter is placed in the focal point of the current investigation.

Neology can be presented in different names: loanwords, loan translation, alien word, alienism, foreign word, foreignism, foreignization and borrowing. Linguists, lexicographers, neologist, translators, and language teachers sometimes use these words interchangeably and there is no consensus on a single term to name neology (Gerding, Fuentes, Gómez and Kotz (2014, p. 42). In lieu of this diversity, the term *neology* in this dissertation will be used to refer to lexical units used in the ST which may be adopted or adapted in the TT.

Neology occurs in every language as a consequence of language contacts. The influence of English on other languages is evident and of interest for linguists, neologists and translators. Guerrero Ramos and Pérez Lagos (2021, p. 146) said that most of the time it is up to translators who decide, to a great extent, on whether to coin a new expression for a given term in the ST. Hormigo and Moreno (2018, pp. 61-63) also demonstrated the applicability of the study of neology in the field of traductology. At the same time, as Hormigo and Moreno (2018, p. 61) argued, the translation of new lexical units and neology are considered one of the greatest challenges that translators have to face. The spread of English as the language of the era of the Internet and the emphasis placed on English in schools and education suggest that more and more English-driven neology will be imported and passed onto other languages.

Guerrero Ramos and Pérez Lagos (2021, p. 149) cautioned against this anglicisms because if we want to help our language to reach a position as a scientific language, we are obliged not only to translate, but also to provide terminological equivalents for imported objects, products, concepts, etc. in all languages. García Palacios, (2021, p. 138-139) pointed

to neural machine translation as a source of neology or scientific *Spanglish*. One of the weak points of its use is that the machine translation sometimes invents impossible terms that are not used, or its rendering is not the mostly used term. In order to acquire a quality and contextualized terminology, there must be specialized texts in the language in question, which are often only, if not mostly, available in English. In other words, without texts in non-translated language, the machine cannot learn (García Palacios, 2021, p. 137-138).

According to Hormigo and Moreno (2018, p. 62), many translators, indeed, choose to transfer directly the new expressions from the ST to the TT either via a loan without adaptation, transcription or transliteration. In a review on a series of articles about anglicism in different varieties of the Spanish language - Latin American, European, and U.S. Spanish -, Núñez Nogueroles (2017) confirmed the pervasive incorporation of English expressions into Spanish which appeared in a wide range of fields from mass media, economy, sports, fashion, advertisement to computer science. Claros Díaz (2016, p. 13) explained that one of the hardly noticed translation problems with scientific texts from English to Spanish occurred when translators tried to achieve asymmetry between the ST and the TT.

Gerding, Fuentes, Gómez and Kotz (2014) also found a very high portion of anglicism in the Chilean newspapers. Most English loanwords belonged to business and trade, ICTs, and leisure in which there was a clear influence of American culture in Chile. Likewise, Sánchez Ibáñez and García Palacios (2014, p. 171) pointed out a unidirectional transfer of specialized denominations from English to Spanish in the domain of Alzheimer's Disease. In doing so, they all confirmed the status of English as a privileged language for the transfer of specialized knowledge, which in turn conditions the creation of new lexical units in Spanish.

A corpus-based contrastive study of Sanz Vicente (2012) described how multiword terms were formed in English and transferred into Spanish with a focus placed on identifying patterns among these units and their language equivalents. The results showed that translation

– particularly literal translation – was the most important procedure in transferring English multiword terms to Spanish.

In the process of translation, it can be demonstrated that other languages, namely Spanish, rely more and more directly on English. It is highly likely that these new linguistic units would become integrated into the TL as its own components, and eventually penetrate its conceptual structures. In other words, new concepts and terms, consequently new cognition could enter the linguistic system of the recipient language. Particularly the practice of literal translation poses great concerns because its results are often a source of semantic opaqueness (Denison, 2001, p. 79). It is desirable to manage and monitor these exchanges to a particular level so as to ensure their correct accommodation within the general system of the TL as well as its cognition.

The same applies to the Korean language. In South Korea, English is not widely spoken, yet plays a key role in educational and economic opportunity in both global and local contexts (Bacon & Kim, 2018, p. 10). A quantitative study of B. M. Kang (2019) on borrowed expressions in Korean provides a valuable insight. His analysis involved a big corpus of news articles published between 1920 and 2011 which showed that the adoption of English passive forms in Korean newspapers peaked from the 1950s to the 1970s. Then its use has decreased since the 1990s, which indicates that its alien syntactic form has not been successfully integrated into Korean (B. M. Kang, 2019, p. 711). On the other hand, the prepositional phrases such as *about* and *through* along with the conjunction *and* have firmly established as parts of the modern Korean language (p. 717). These Korean expressions are certainly attributable to the direct translation from English (B. M. Kang, 2019, pp. 712-713).

H. Y. Kim (2018, p. 138)'s study confirmed the same translation tendency: the translation practice in the game industry was highly inclined to retain original pronunciation

of English and to adopt loan translation such as *la-in* (line⁴), *Jeong-geul* (jungle⁵) and *bu-si* (bush)⁶. The frequent use of loan translation, according to Won, Gu and Kim (2018), was due to the history of games originated in America and for the sake of the effective communication within the game.

Meanwhile, a list of morphological neologies was provided by Son and Lee (2011, p. 11). The following examples are English loan adjectives in combination of the Korean verb *ha-da* (do): *da-i-nae-mic ha-da* (be dynamic), *deu-la-ma-tic ha-da* (be dramatic), *di-tae-il ha-da* (detail), etc. The issue at hand is that these expressions have the same synonymic relation with the existing adjectives in Korean language. In particular, young people tend to adopt more English loanwords even when an equivalent Korean expression is available (Koh and Cheon, 2013, p. 12).

J. O. Lee (2010, p. 178) expressed concerns about the neology found in Korean because it is often adopted and adapted due to literal translation. The author provided a long list of Korean terms that were taken over “as is” or slightly modified in the Korean style: *no-ha-u*⁷ (know-how), *keu-lim* (ceam), *bi-po-mo-del* (before model), *e-peu-teo mo-del* (after model), *li-eo-ka* (rear car), *ol-deu mi-seu* (old miss), etc. (J. O. Lee, 2010, p. 175). The phonological neology becomes more significant in specialized areas.

In the area of football, for example, Chang (2005, p. 181) found a huge influence of English on the Korean language; English loanwords adopted in Korean occupied a whopping 79%, whereas in the case of German its share stood at only 12.88% which was possible thanks to the government language policy. The critical reason behind this big portion of

⁴ Lanes are the main paths that creatures follow in the game ‘League of Legend’. In Korea, it is commonly known as *lines* instead of *lanes*. There are three lines: top, middle and bottom.

⁵ Jungles are regions which exclude headquarters and lines of each camp. There are four jungle areas surrounded by a mid, top and boom line and a river where neutral monsters inhabit.

⁶ Bush refers to wild and uncultivated parts where a player cannot be seen from the outside, but can see each other inside. However, a player can be seen from the outside when the attack occurs from the inside.

⁷ For the purpose of romanizing Korean, Korean Romanization Converter was used. It has been jointly developed by AI Lab in Pusan National University and Nara Info Tech Co., Ltd. with consultation from

English neology in Korean is due to the common practice of direct translation (Chang, Y. I., 2005, p. 182).

On a different account, a survey conducted by Koh and Cheon (2013) revealed how this type of neology was perceived by young people. The survey was carried out with Korean university students to find out their perception in English borrowing in the Korean language. All participants answered that they were using English vocabulary or English expressions on a daily basis; 67% of them considered impossible to substitute these loanwords; 20% of them answered that *beo-seu* (bus) and *taek-si* (taxi) were loanwords that English adopted from Korean, not the other way around (p. 12). In short, some expressions have become so familiar with young people to the point in which they were not aware of the origin of English borrowing.

J. O. Lee (2010, p. 175) cautioned: “in translation, borrowings can be annoying, and so lead to misunderstanding if used for the first time without any reference”. The first-time or one-time neology, in particular, requires an extra attention from translators. At least, as Chang (2005, p. 183) stated, the use of unnecessary loanwords needs to be avoided when equivalent words exist.

Against the overuse of literal translation, Santamaría Pérez (2021, p. 274) said that the problem is not simply a question of if there is an equivalent lexical unit or not, rather how to make the general principles concrete in order to incorporate neology. Sánchez Manzanares (2021, p. 253) proposed as a general principle for neology to create an equivalent in the TL as far as possible instead of a word-for-word literal translation which is often observed.

Santamaría Pérez (2021, p. 274) acknowledged that there is an open attitude toward neology in general, and the role of official institutions of language and its restrictive policy are limited to be prescriptive; it is up to language users who determine the norms for neology.

At least for the technical or scientific texts, Ramos and Pérez Lagos (2021, pp. 150-152) advised that planning be necessary which would allow, especially translators, who are the most involved persons in neology, in order to make the most suitable decisions. Gerding, Fuentes, Gómez and Kotz (2014) also recommended language teachers and translators to help students and readers to be aware of the impact that this linguistic transfer has on other languages.

The relevance that the anglicism has for translation would lie on the dilemma facing translators: either to choose anglicized units to accept the flow of information ubiquity by using loan translation or loanwords, and, thus, consequently neology, or translate them in the Spanish or Korean way to comply with the TLs' standards and, in doing so, defend or enrich its linguistic specificity. The fear of innovating, taking risks, and even a lack of self-confidence may prevent translators from generating proper translation. The paradox is that a translator makes an effort to find translations that few ask of him and even less value him, and that many even reject, and while so much competes with specialist translation that are dedicated to importing Anglicisms 'by sack' (Claros Díaz, 2016, p. 14).

2.9 Popular science genre

Most people do not pursue scientific information directly from scientific articles because these scientific papers can be too academic and challenging to digest without a relatively extensive scientific background. People without such a background tend to encounter scientific information through intermediate sources such as popular science texts. Popularizing science for a general audience involves presenting specialized knowledge within a specific scientific field in a simplified manner that allows non-specialists to easily gain

access to information about advances and theories related to the field (Alshunnag, 2016).

In the same manner, Gotti (2014) also defined that the concept of popularization has often been referred to as the spread of specialized knowledge for the purpose of education or information. As opposed to typical instruction manuals or textbooks whose aim is to train non-specialist readers in terms of topic, concepts and specific terminology, the primary purpose of this particular genre is to deliver accurate information about science and nature while making the language more accessible. Despite the extensive use of popular science discourse, however, the relevant literature dealing with its linguistic aspects is lacking.

Another function of popularized texts is entertaining their readers. For that purpose, commonly chosen procedures are metaphors and everyday experience which certainly help the readership to facilitate comprehension of abstract information and distant situations in a reader friendly way (Gotti, 2014, p. 23). The force of metaphors comes not from providing new information about the world, but rather from a redefinition of information that is already available to the reader (Clouse, Goodin, Aniello, McDowell, N. & MaDowell, D., 2013, p. 90).

It needs to be highlighted that Fredriksson and Pelger (2018, p. 917)'s textual analysis of popular science articles written by students in physics revealed that the use of adequate metaphors in their writing is a reflection of a better understanding of the given subject matter. It is the case of the chosen corpus *Tunza*, a popularized youth magazine about the environment. Its purpose is to facilitate the interpretation of the science and the nature for a general readership in a fun and easy way.

Often in these days of the Internet, popular science discourse is freely available online. Besides, Tekgul (2018, p. 76) timely pointed out the accessibility of translated materials in digital media. Indeed, many popular science articles, as in the case of our *Tunza* magazine, are freely accessible on the Internet for those – especially young people with good

digital literacy skills – seeking to combine education with leisure. One of the distinguishing features of popularized texts from fully specialized texts is the target audience (Gotti, 2014, p. 16). Since the *Tunza* magazine is mainly intended for youth, the susceptibility of young people to the digital world of the immediacy and the rapid spread of knowledge requires our special attention. This is because the young generation's way of processing new information is different than that of the older generation.

Bellés-Fortuño (2016) proved the pedagogical effectiveness of popular science genre; as opposed to scientific articles, popular science articles are recommended for educational materials for undergraduate students in the field of Health Sciences as they are more easily understandable. Yoo, Kim and Hong (2007, p. 226) examined the effects of using public science magazines in science class; high school students' attitude toward science and scientists, after using science magazines in class, has changed positively which would benefit those who have not yet decided their future academic plan. The authors recommended the use of science magazine in science class especially for students who major in liberal arts thanks to its life-related materials since they are, in nature, interesting contents.

To add more evidence to the usefulness of popular science communication, Cassata-Widera, Kato-Jones, Duckles, Conezio and French (2008, p. 147) highlighted those young children learn not just elements of scientific language, but also lifeworld language which is also incorporated in the science discourse; this integration of science and lifeworld languages allows children to make connections between their ideas and scientific thought. Their conclusion was that the use of science discourse serves as a vehicle for language and cognitive development, providing young children with new ways of representing, organizing and interpreting daily experiences (p. 141).

C. K. Kim (2007) touched upon the cultural side of popular science. Eventhough the genre of popular science both in British and Korean societies was basically for the diffusion

of scientific knowledge to general readers, the writers of the two cultures seemed to view the genre in a different way; the English writers were likely to regard it as a space open for introducing wide-ranging discussions of new scientific knowledge to the reader, whereas the Koreans tended to consider the genre as a place constrained for educating the reader with already proved scientific knowledge (p. 36). The difference can be explained with cultural differences; writer's different discursive preferences is a reflection of the different orientations to human relations: equality-orientation in Britain and hierarchy-orientation in Korea (C. K. Kim, 2008, p. 49).

As evidenced, in order to achieve the communicative purpose of popular science genre, the remodeling process is required: suited to the target audience. In a highly popularized presentation of scientific results, as in the case of textbooks in higher education, Engebretsen, M. (2020, p. 262) stated that one must expect to find a higher degree of verbal and visual simplifications. For that purpose, Gotti (2014, p. 19) used the term *reformulation* to describe the concept of popularization; reformulation implies a process of adaptation to the appropriate conditions of the target readers. For the present dissertation, reformulation needs to be favored by the widespread use of metaphor, which would make the context easier to identify by establishing a direct – or, at least easily accessible – link with the young public's general knowledge and experiences.

CHAPTER 3. CORPUS

3.1 Material

In February 2003, the Governing Council of the United Nations Environment Program (UNEP), which is an agency of the United Nations that coordinates its environmental activities, adopted a long-term strategy for engaging the young population in environmental activities and in the work of UNEP. This strategy was entitled the *Tunza Youth Strategy*. One of the important by-products of this strategy is a quarterly *Tunza* magazine which has been selected as the corpus of texts for the present research. One of the principal features of this corpus is that *Tunza* magazine represents naturally occurring data. Since this study intends to analyze the educational-environmental materials from one of the most influential international organization, it is safe to assume that the translations are presumed to be optimally relevant.

Tunza was published from 2003 until 2014 with a vision to foster a generation of environmentally conscious young citizens, disposed to executing positive actions toward the environment. The word *Tunza* means “to treat with care or affection” in Kiswahili which is a sub-regional language of Eastern Africa. This initiative is meant to strengthen young people’s environmental awareness and engage children and youth in environmental issues worldwide. Given growing concerns about the environmental crisis along with the greater participation of young generation in social issues, the environmental discourse for the youth produced by one of the highest UN bodies duly requires our attention.

The editors of *Tunza* have various international backgrounds, from the United Kingdom, the United States, Europe, Africa, Latin America and the Caribbean, North America to Asia and the Pacific. Indeed, distinct features of both American and British

English are found, namely a few: *organize, emphasize, civilization, argument* (American), *colour, behaviour, neighbour, favourite* (British). In addition, the *Tunza* magazine published by one of the most important international organizations invites active participation of numerous contributors from diverse countries, which makes the SL of the chosen magazine highly neutral from any specific language variety.

Tunza magazine represents a parallel corpus of translation texts in three chosen languages of the investigation: English (SL) & Spanish⁸ and Korean⁹ (TLs). One of the major problems facing contrastive linguists is the availability of suitable and equivalent corpus. Seo (2010, p. 85) presented four benefits of a parallel corpus. First, a parallel corpus provides insights that could be overlooked in a corpus of one language. Second, the comparison nature of a parallel corpus sheds light on universal qualities of languages as well as differences specific to individual languages. Third, it also helps to reveal differences between the ST and the TT as in the native language and non-native language. Forth, practical fields such as lexicography, language teaching, and translation can make good use of a parallel corpus.

The significance of a parallel corpus was also touched upon by Cho (2012). According to the author, linguistic researchers with a parallel corpus tend to proceed their study in a comprehensive manner, having in mind not only translation issues at point, but also its context. On the other hand, when the research is solely based on corpus, the access to the text could be indirect; the results are often in the form of statistical data which is absent of contextual information (Cho, 2012, pp. 228-229).

⁸ An elevated level of writing skills in the publications of the United Nations is a well-known fact. Also, it is widely acknowledged that language competitive examinations to become a translator at UN require an exceptionally advanced language skills which applies to all official languages of UN, being Spanish one of them.

⁹ As for the Korean language, translation studies in South Korea have gained much prestige due to the globalization. Only a small group of well-prepared students can enter the Master's program in the translation/interpretation of the language pair of English and Korean and it becomes even more challenging to graduate in two years, as expected.

Especially in the case of the Korean language, finding a parallel corpus has been a challenge. Apart from literary works, most of English-Korean contrastive or translation studies that have been touched upon so far have focused on either newspapers or economic magazine, namely *Newsweek*, which is an indication that the topic of investigation has been limited to economy and there are few parallel corpora available for this specific pair of languages.

Furthermore, since Korean language is not part of the six official languages of the United Nations, only a much more restricted range of materials is available compared to Spanish. Finding a parallel Korean corpus whose equivalents are available in official languages of the U.N. poses an obstacle. The case becomes more accentuated when the target audience is young people. Due to this particular difficulty that Korean language has, *Tunza* magazine was a pleasant discovery as a result of numerous days of search.

The Korean version of the *Tunza* magazine is provided by the UNEP Committee of the Republic of Korea, which was established in February 1996 as the 13th UNEP National Committee. This public entity has been contributing to addressing domestic and global environmental problems in partnership with the UNEP Headquarter. It aims to advocate and implement the UNEP's policies, guidelines, and programs in South Korea in cooperation with diverse stakeholders such as government, private sector and civil society. Also, the Korean UNEP Committee has provided environmental education with children and adolescents in South Korea as to encourage a global eco-leadership through which they see environmental problems from the international perspective as part of reaching the objectives of the *Tunza* magazine.

It is also important to note that the materials from international organizations as compared to translated news articles or literature are relatively free of individual variation in

translation. It is worth mentioning that media reports on political events are always forms of recontextualization¹⁰, and any recontextualization involves transformations determined by goals, values and interests (Schäffner, 2010, pp. 2-8). The same author demonstrated that this applies to translation as well. All in all, the *Tunza* magazine can be considered a good source of investigation for linguistic and translational issues.

3.2 Corpus size and time span

The corpus compiled for this study contains only written texts since the present research concerns with translation. The compiled corpus consists of 25 issues of the English *Tunza* magazine, from 2007 to 2014, which is freely available online to which the Spanish and Korean translated versions are to be added (see Appendices 1 & 2). Hence, the corpus for analysis comprises 75 volumes in total. Volume 11 Number 3 (2014) is the most recent magazine available on the web page. The English magazines include approximately 322,524 words, while the Spanish version has around 374,547 words, and the Korean version takes up about 211,637 words. All of these volumes in three languages make up a total of 908,708 words (Appendices 3 & 4), to which quantitative methods will be applied for the identification of keywords.

The subject for the classification of translation pattern (TP) is limited to the following five volumes: Vol 5 No 2, Vol 5 No 3, Vol 5 No 4, Vol 6 No 1, Vol 6 No 2. In total, 15 volumes of the magazine are subject to a qualitative analysis since Spanish and Korean versions are to be added to the English ST. As mentioned in Chapter 3, the chosen magazine

¹⁰ The concept of recontextualization has gained importance in translation studies. Greenall and Løfaldi, E. (2019, p. 240) denoted the notion of recontextualization as the process of introducing a set of levels - medial, generic, cultural, ideological, and linguistic – when inserting an element from one context into another.

is a parallel corpus for three languages of investigation. However, the Korean version falls short of an easy access to the contents on the homepage. A majority of Korean magazines are not provided in pdf on the Internet (see Appendix 3). The chosen volumes of analysis are the ones available in pdf format in all three languages.

Initial magazine issues ranging from the first edition in 2003 to those published in the middle of 2007 had to be excluded due to a difficult access to the contents. During this period both English and Spanish early volumes of the *Tunza* magazine are divided into every single entry of contents on the webpage which have to be browsed by individual clicks (Appendix 5). This means that each volume is not provided as a whole in pdf, making it impossible to have a look at one general view. The same applies to the Korean version. This disorganization of the digital magazine in all three languages is supposedly attributed to the initial adjusting stage of the publication.

In addition, since the corpus needed to be a parallel corpus for the purpose of comparison, the volumes which are not provided in either one of any three languages (English, Spanish, Korean) had to be ruled out. For example, the first issue titled “TUNZA” and the Volume 10 No 3 titled “Food” had to be ruled out due to the homepage error. The Spanish version is also missing on the web page, as in the case of French or Chinese. Thereby, it can be assumed that it is due to the internal translation matter. Upon the contact with the UNEP Publications team about the factual reasons, no answer was obtained.

Potentially good sources for contrastive studies are multilingual documents in several languages, which are produced in parallel, so that their analysis can shed some light on similarities and differences in languages (Schäffner, 2004, p. 1265). In this vein, the chosen source is considered most appropriate as to meet this criterion. The selected three sources are highly comparable; the Spanish version is identical in its contents, design and format to the original English one, while the same applies to the Korean edition. In the case of the Korean

version, after the translated parts, the UNEP Committee of the Republic of Korea invited some young editors to write their own opinion or articles about environment. This added part by the Korean Committee is excluded from our corpus since it is not the subject of this dissertation.

CHAPTER 4. METHODOLOGY

The use of naturally occurring discourse is one of the major developments in metaphor research in the last several years (Pragglejaz Group, 2007, p. 1). Wikberg (2008) and Deignan (2008) also have highlighted the importance of corpus linguistic research techniques, i.e., the use of a computer program like *WordSmith Tools*, which can yield facts about language use that might otherwise remain hidden. The main advantage that corpus linguistics brings to the study of metaphor is the very central idea behind the methodology that the use of real language makes the linguistic study more scientific. A computerized corpus can enable the researcher to detect general patterns of usage more quickly than either the use of intuition or the analysis of individual texts by helping the researcher to have a broader view. However, it is not possible to use the corpus to proceed from general principles through linguistic realizations, as there is currently no way of accessing general rules of language from a corpus. Computer programs, nonetheless, can organize language data swiftly and accurately on orthographic principles, but cannot work from a list of conceptual metaphors to identify their linguistic realizations.

This is why still some manual work is required. Once the quantitative data is collected, the information has to be processed manually. The corpus researcher who attempts to develop valid generalizations about language meaning and use has to sift through a large amount of linguistic data, looking for regularities and patterns. This bottom-up approach does not focus on pre-defined conceptual metaphors; instead, it intends to detect all possible metaphorical units in individual texts.

With the above in mind, the Methodology section starts with 4.1 the collection of corpus, 4.2 the collection of keywords corpus and 4.3 of a keywords databases followed by

4.4 identification of linguistic metaphors and 4.5 extended metaphor identification procedure for translation. In doing so, a combination of quantitative and qualitative methods has been chosen in an attempt to conduct a more comprehensive research.

4.1 Collection of corpus

There were several impediments while collecting the corpus. Unlike the Spanish version, the Korean corpus is virtually not available in pdf as a whole. Only four volumes are obtainable in pdf as a whole magazine, and the rest 21 editions are inconveniently scattered. At least, however, there is a table of contents for these volumes presented in one page on the web, which, then, requires a click on every entry, impeding an overall look of the magazine (Appendix 2). This makes not only the investigation tricky, but also would pose a considerable difficulty for the access to information online and readability among any readers.

The next challenge was to sort out the texts. The present research uses *WordSmith Tools 4.0* as to identify lexical items. To that end, all the texts need to be converted into txt format which was particularly challenging, because as mentioned earlier many volumes are not provided in pdf. Besides, when converting the format of the files from pdf to txt, an unnecessary space was created in the middle of many words (e.g. “per cent”, “fi le”, “refl ect”). To make the case even worse, an apostrophe (e.g. ’s, ’t, ’ve, ’ll) was not converted properly which afterwards led to distorted results. For example, before clearing up the texts, “per” derived from “percent” turned out to be the most salient keyword. In order to resolve this seemingly minor but critical problem, the entire text had to be run through and corrected in txt format, which was painstaking and time-consuming work.

4.2 Collection of keywords corpus

Three main functions that have been heavily used for metaphor identification procedure in *WordSmith Tools* were *WordList*, *KeyWords* and *Concord* (Rodríguez Márquez, 2010, p. 43). First, *WordList* can generate a word list or frequency list indicating the frequency of each word occurring in a text or a set of texts. Second, the lexical units presented by the function of *KeyWords* are distinguishing lexical traits of the chosen/specialized corpus since the term “keyword” is defined as a word which occurs with unusual frequency in a given text, or with unusual frequency by comparison with a reference corpus of some kind (Scott, 1997 & 2006). Third, *Concord* data shows the researcher the linguistic contexts in which a lexical item is used (Cho, 2012, pp. 237-238).

Going back to *KeyWords*, in this investigation the resulting list of keywords is to be considered as a set of lexical units that are potential vehicles of linguistic metaphors. The analysis of keywords allows the researcher to analyze a vast data resource, as well as to focus on those words that are salient features of a particular genre or a particular data resource. The list of keywords requires i) to have a wordlist from a given text or a set of texts, ii) to set a minimum frequency, and iii) to have access to a wordlist from a reference corpus. This reference corpus is referred to the word list of the *British National Corpus (BNC)* which is freely available online.

In order to generate the list of keywords in a text, the program *KeyWords* performs a statistical probability procedure. Apart from defining a minimum frequency, in this step it is also necessary to determine the p-value and the statistical test or the Log Likelihood test which helps to overcome skewed data giving more accurate results, particularly if the p-value is below .05. In other words, more reliable results are likely to be acquired with a lower p-value. Scott (2006) suggests a p-value of 0.000001 for the purpose of obtaining fewer

keywords.

However, despite the fact that in this research the p-value was set at 0.000001, the resulting keyword list turned out to be very large and problematic to analyze. For instance, the word list generated from the set of English source texts compared with the BNC word list produced a result of 2,408 keywords, which is a very large number bearing in mind that those words were to be analyzed to determine their metaphoricity. Another disadvantage was that a word might be included in the list of keywords, though it only occurred in a few texts.

4.3 Collection of a keywords database

One possible way to resolve this issue is to create what Scott (2006) calls a key keywords database. One of the functions of *WordSmith* program called *KeyWords Database* provides a list of words that “are most frequent over a number of files” (Scott, 2006, p. 123).

To generate this keywords database, it is necessary i) to produce a frequency list for each one of the texts in a batch, ii) to produce a batch of keywords lists, and iii) to set two parameters in *KeyWords* when computing the *KeyWords Database*. Batch processing in *WordSmith Tools* is to create separate wordlists or keywords lists for each one of the texts in the corpus. It is important to mention that the resulting frequency or keywords lists are not to be merged, but kept separate. After the batch of word lists is generated, the batch of keywords lists can then be produced.

In order to obtain the keywords database, two parameters need to be set: i) a minimum frequency of texts in which the word appears, and ii) a minimum number of keywords per text. Table 1 shows the settings for a keywords database for the ST. Given that the total number of English volumes is 25 and that a word to be considered typical of the

texts in each sub-corpus should occur at least in more than a half of the total number of the English volumes, the minimum frequency has been set at 12. Regarding the minimum number of keywords per texts, it was decided to set at 1, thereby including all the texts regardless of whether any of those texts contain only one keyword.

Table 1. Settings for a keywords database

Procedure	Log likelihood
p-value	0.000001
Database total files	25
Minimum frequency for database	12
Minimum keywords per text for database	1

Table 2 in the next page shows the resulting 20 keywords database for the ST. These keywords are ranked according to the cumulative frequency or overall frequency indicated on the very right part. The results clearly represent the *Tunza* magazine's objectives and main focuses which are closely related to environmental issues.

Table 2. A keywords database

N	KW	Texts	%	Overall Freq.
1	AND	4	80.00	1,903
2	PEOPLE	4	80.00	230
3	WORLD	5	100.00	199
4	FOOD	3	60.00	148
5	ENERGY	4	80.00	140
6	UNEP	5	100.00	111
7	TUNZA	5	100.00	107
8	ENVIRONMENT	4	80.00	102
9	CARBON	3	60.00	99
10	PERCENT	4	80.00	89
11	ENVIRONMENTAL	4	80.00	86
12	CLIMATE	5	100.00	84
13	UNITED	4	80.00	80
14	WASTE	5	100.00	80
15	COUNTRIES	4	80.00	78
16	WORLD'S	4	80.00	77
17	YOUTH	5	100.00	77
18	GLOBAL	5	100.00	65
19	NATURAL	3	60.00	63
20	VOL	5	100.00	56

Still, Table 2 needs to be sorted out by two means. First is to take out several parts of speech that are irrelevant to the purpose of our study: conjunction (AND), proper nouns (UNEP; TUNZA) and unit bound noun (PERCENT; VOL). Second is to put together the keywords and their derivatives: (WORLD; WORLD'S; WORLDS'; UNDERWORLD), (ENVIRONMENT; ENVIRONMENTAL; ENVIRONMENTALLY; ENVIRONMENTALISM), (CARBON; DECARBONIZE), (SUSTAINABLE; UNSUSTAINABLE; SUSTAIN; SUSTAINABLY; SUSTAINABILITY) and (GLOBAL; GLOBALLY).

Table 3 is the results obtained after the above-mentioned sorting process. Table 3 puts forward a keywords database ranked according to the overall frequency. These listed

keywords of the *Tunza* magazine clearly reflect the UNEP’s values and directing points. The most salient top three keywords are: WORLD, PEOPLE and ENVIRONMENT.

Table 3. Potentially linguistic metaphor keywords in English ST

No	Potentially metaphor keywords	Overall frequency
1	WORLD; WORLD’S; WORLDS’; UNDERWORLD; THE WORLD	309
2	PEOPLE; PEOPLES	283
3	ENVIRONMENT; ENVIRONMENTAL; ENVIRONMENTALLY; ENVIRONMENTALISM	238
4	CARBON; DECARBONIZE	113
5	WASTE; WASTES; WASTEFULNESS	94
6	CLIMATE	88
7	SUSTAINABLE; UNSUSTAINABLE; SUSTAIN; SUSTAINABLY; SUSTAINABILITY	87
8	YOUTH; YOUTHFUL	80
9	GLOBAL; GLOBALLY	73
10	PLANET	58
	TOTAL	1,423

Each of the keywords shown in Table 3 is considered as a lexical unit that is potentially metaphorically-used. Those lexical units, then, need to be analyzed as for their metaphoricity, according to the following fourth step of metaphor identification procedure.

4.4 Identification of linguistic metaphors

The Pragglejaz method aims “to find metaphorically-used words in usage in such a way as to be maximally compatible with research into thought operationalized as conceptual structure, but it deliberately does not cross the line into that area of research” (Steen, 2007, p. 90). In this dissertation, the Pragglejaz method has been chosen as a means to find linguistic forms of metaphor in usage since the possible usefulness of employing this procedure was validated even by non-believers in conceptual metaphor theory (Steen, 2007, p. 91). For example, the reliability and transparency of the Metaphor Identification Procedure (MIP) has been confirmed by Nacey (2013, p. 123) and Kaal (2012, p. 59).

Before applying the MIP¹¹, the entire text needs to be thoroughly read first as to establish a general understanding of the corpus, and, then, some relevant lexical units need to be determined. The Pragglejaz Group’s MIP starts with finding lexical units (Steen, 2007, p. 25). This dissertation complies with the guidelines set up by Steen and his colleagues (2010, p. 27) who follow most of the BNC practices in deciding what counts as a lexical unit. The basic unit of analysis is the word, typically represented in writing by letter, or a series of letters, surrounded by spaces, with three exceptions: phrasal verbs, compounds and polywords. The debate about whether such exclusion is valid is irrelevant to this study since this study focuses on keywords, not function words such as prepositions or determiners.

After identifying lexical units, the next step is to study its contextual meaning. Deciding whether a particular metaphorical meaning is conventionalized can be done by consulting a publicly available, up-to-date and independently produced record, more

¹¹ MIP was expanded into MIPVU (see Steen et al, 2010). In MIPVU, a more specific operationalization is offered to demarcate as one lexical unit for multi-word units such as phrasal verbs, compound nouns and polywords (Kaal, 2012, p. 62). The present study will apply the MIP as no multi-words were found in the selected keyword corpus.

specifically, a dictionary as a concrete norm of reference (Steen, 2007, p. 97). In the same line, a helpful tool to ascertain whether a certain metaphor should be classified as original or conventional is also a dictionary (Giora, 1997, p. 185). For example, if the metaphorical sense of a lexical item is listed in the dictionary, the lexical item can reliably be defined as conventional (Way, 1994, p. 240).

This dissertation is to consult external resources such as renowned dictionaries and other corpus materials as to reduce the degree of errors and inconsistency and increase the reliability of the outcome. For the analysis of English lexical units, *the Macmillan English Dictionary: For Advanced Learners of American English* (MED 2008) has been selected since it is a corpus-based dictionary, as recommended by the Pragglejaz Group. *The Longman Dictionary of Contemporary English* is to be consulted for supplementary information.

For each lexical unit in the corpus, its meaning in context needs to be established by taking into account what is written in the surroundings (contextual meaning). Cho (2012, p. 241) rightfully said that a list of keywords alone is not conclusive evidence, calling for a corpus-based translation research to also consider context as one of the most important ingredients of analysis. *Concordance*, the third program of *WordSmith Tools 4.0*, is a critical part since it allows to study on the contextual meaning of a selected lexical unit. The function *Concordance* is used to look at a keyword in the context where it occurs as suggested in Table 4 in the following page.

Table 4. An extract of the concordance for “environmental”

N	Concordance	File
112	a lot about how closely economic and environmental concerns are linked; I plan	Vol 7 No 3 EN.txt
113	in environmental activism for as long as environmental concerns have been	Vol 6 No 4 EN.txt
114	fans arrive. And in order to ensure that environmental concerns are taken into	Vol 10 No 1 EN.txt
115	years. It's good to find out about the environmental concerns and youth	Vol 7 No 3 EN.txt
116	moisture retention in the soil, improving environmental conditions on a long-term	Vol 10 No 4 EN.txt
117	and the world warms, making environmental conditions less predictable,	Vol 11 No 3 EN.txt
118	have been exposed to a broad range of environmental conditions, so they have	Vol 8 No 2 EN.txt
119	plants. Go to the sites of local environmental conflicts and learn what	Vol 9 No 3 EN.txt
120	so that the economic benefits and environmental consequences stay close	Vol 8 No 3 EN.txt
121	about sustainable consumption and the environmental consequences of	Vol 8 No 1 EN.txt
122	a hopelessly expensive luxury. The environmental consequences There's no	Vol 10 No 4 EN.txt
123	relationship between traditional culture and environmental conservation. Daniel	Vol 5 No 4 EN.txt
124	hope to get first-hand experience of local environmental conservation projects, and	Vol 5 No 2 EN.txt
125	Every individual, young or old, can make environmental conservation part of their	Vol 10 No 1 EN.txt
126	by teaching them the importance of environmental conservation. In the	Vol 7 No 1 EN.txt
127	by stressing the importance of environmental conservation (if I	Vol 9 No 2 EN.txt
128	is yes. The fact is, hunters were pioneer environmental conservationists long	Vol 10 No 1 EN.txt
129	put the question to you to find out how environmental considerations are	Vol 10 No 2 EN.txt
130	are the first Games to explicitly include environmental considerations. 1987 The	Vol 10 No 1 EN.txt
131	to promote this concept at my office, an environmental consultancy in Kuala	Vol 7 No 1 EN.txt
132	be given a chance to sign international environmental conventions and make	Vol 7 No 1 EN.txt
133	corks and sign up to our campaign! The environmental cost of cork relative to	Vol 9 No 1 EN.txt

Table 5 illustrates a concordance of “environmental”, a keyword from the set of English source texts. It shows an extract of the concordance of “environmental” sorted alphabetically by the word immediately to the right, then by the word to the left and thirdly by the word in the second position to the left. The concordance patterns are useful to find out the tendency of the words right next to and before the chosen lexical unit according to its accumulated frequency. Looking at the keyword and its concordance lines in corpus contexts contributes to determining its contextual meaning which is a crucial step in the MIP.

Table 5. The concordance patterns for “environmental”

N	L2	L1	Centre	R1
1	BAYER	YOUNG	ENVIRONMENTAL	ISSUES
2	OF	AND		ENVOY
3	YOUTH	IN		AWARENESS
4	YOUNG	THE		PROTECTION
5	THE	YOUTH		NETWORKS
6	TO	OF		PROBLEMS
7	CONFERENCE	AN		ENVOYS
8	A	PEOPLE'S		AND
9	CONFERENCES	FOR		IMPACT
10	AND	WITH		EDUCATION
11	SOCIAL	ON		DEGRADATION
12	FOR	TO		SUSTAINABILITY
13	AS	INTERNATIONAL		MOVEMENT
14	HEALTH	ABOUT		BENEFITS
15	IN	GLOBAL		FOOTPRINT
16	IS	ITS		CRISIS
17	HUMAN	AS		ENGINEERING
18	ECONOMIC	REDUCING		LEADERS
19	AWARENESS	LOCAL		GOVERNANCE
20	BE	MANY		ACTION
21	HELP	TACKLE		WORK
22	REDUCE	THEIR		AGREEMENTS
23	CAN	OTHER		CONCERNS

Even with the help of *Concordance*, applying the MIP was one of the most difficult and time-consuming process of qualitative research. Identifying whether there was contrast between the contextual meaning and basic meaning frequently required the author of the current thesis to go back to the ST to delve into the context. Consulting dictionaries for 1,423 cases of each keyword was challenging. Continuously in the sub-section, how the MIP was applied will be presented: 4.4.1 a case of being non-metaphorical and 4.4.2 a case of being metaphorical.

4.4.1 A case of being non-metaphorical

For each lexical unit, if it has more basic contemporary meanings in other contexts than the one in the given context it needs to be determined. This comparison procedure requires three stages. First, the basic meaning is to be consulted with dictionaries. Second, the basic meaning of the lexical unit is to be contrasted with the contextual meaning. When the basic meaning is different from the contextual meaning, it is necessary to determine if the basic meaning helps to understand the contextual meaning. Third, if there is no contrast between the contextual meaning and the basic meaning, the given lexical unit is not metaphorical.

(Example A) *Besides, trees produce oxygen and help prevent global warming by absorbing carbon dioxide.*

(a) The basic meaning of “global” found in MED is:

- including or affecting the whole world
- complete, including all parts of something

(b) The contextual meaning of “global” refers to:

- affecting the whole world

(c) Metaphorical? No

In the case of “global” from Example A, there is no contrast between the contextual meaning and the basic meaning. As there is no contrast between the two meanings,

consequently “global” is not used metaphorically.

4.4.2 A case of being metaphorical

As the computer can only search for word forms, not metaphors, in order to find the instances of metaphorical use, the researcher has to hand-search concordance lines. If the contextual meaning contrasts with the basic meaning but can be understood in comparison with it, the given lexical unit is marked as potentially metaphorical. The way in which the MIP is applied to the lexical unit “environmental” is presented hereinafter:

(Example B) *Now, the world is wrestling with a financial and economic crisis, a crisis of indebtedness. The discussions, however, are largely about the short term rather than about our reliance on fossil energy sources, our diminishing resources and overconsumption, which are building up massive environmental debts.*

(a) The basic meaning of “environmental” found in MED is:

1. relating to the natural world and the effect that human activity has on it

(a) intended to help or protect the environment

(b) Contextual meaning of “environmental” combined with “debts” refers to:

- The lexical unit “environmental” in Example B is not fully comprehensible by itself without the contextual clues. In other words, “environmental debts” alone is not explicit enough. With the help of context, only then, it can be understood in

comparison with its basic meaning “the effect that human activity has on it”.

(c) Metaphorical? Yes

The contextual meaning of “environmental” in Example B contrasts with the basic meaning; either the latter helps to understand the meaning of “environmental” in certain contexts or it can be understood in comparison with its basic meaning. It can be decided that when “environmental” modifies “debts”, it is used metaphorically.

4.5 Extended metaphor identification procedure for translation

Up to this point, cases of metaphorically used lexical units in the set of the ST have been examined. Since the other important pillar of this study is translation, two further steps are required in the extended metaphor identification procedure. The first step is to identify the translations of the source linguistic metaphors by aligning the ST together with the TT. The next step requires investigating whether the translation equivalents are metaphorical by using reference dictionaries in Spanish and Korean respectively. If they are used metaphorically, how they are realized is up to the follow-up investigation.

For the Spanish corpus, *the Dictionary of Spanish Language of the Royal Spanish Academy* (DRAE) is a suitable reference, since it is prepared by the Real Academia Española (Royal Spanish Academy), which is the official royal institution responsible for overseeing the Spanish language. The Royal Spanish Academy (RAE) was founded in 1713 with the purpose to fix the voices and vocabularies of the Castilian language with propriety, elegance and purity. The RAE began establishing rules for the orthography of Spanish in 1731. Its

mission is to ensure the stability and common standards and to promote linguistic unity of the Spanish language within and between various territories.

According to Santamaría Pérez (2021, p. 268), the RAE's new dictionary, throughout the years, has shown a relatively open-minded policy when it comes to incorporating new words, especially technical or foreign words that do not have equivalent lexical units in the Spanish language. It can be said that the fact that a dictionary includes neology makes it descriptive, to a varying degree, of the actual language use. Santamaría Pérez (2021, p. 268)'s comparative analysis of the DRAE 2001 and its latest version, showed that the DRAE has been more descriptive and persisted its tendency.

For the Korean corpus, *the Standard Korean Language Dictionary* has been chosen. It is published by the National Institute of the Korean Language, which was created in 1991 by the Presidential Decree. It was founded to establish national language policies, which encourage the Korean people to use their language in a correct and appropriate manner. This public institution collects and conducts scientific research on various linguistic and cultural data, publishes research findings and provides guidelines on orthography, standard Korean usage, and other related matters which are to promote the dignified use of the Korean language.

CHAPTER 5. ANALYSIS: KEYWORD LINGUISTIC METAPHOR

The analysis so far is carried out by closely referring to Krennmayr (2008)'s practical guide of how to apply the MIP. After Step 1, which is to establish a general understanding of the meaning of the given texts, the lexical units in each sentence are to be identified at Step 2 with slashes, indicating the boundaries between individual lexical units. At Step 3, the keywords in bold are to be examined if the unit is used metaphorically in the contexts. In doing so, a referential tool used in the MIP is the *Macmillan English Dictionary for Advanced Learners* which is based on a relatively recent corpus of contemporary texts. *Longman Dictionary of Contemporary English* is consulted as a second additional dictionary which is also corpus-based. Continuously, cases of being metaphorical and non-metaphorical for each ten keywords will be presented.

5. 1 World

5.1.1 A case of being non-metaphorical

The world

(1) / **The world's** / standby / products, / using / up / to / 10 percent / of / household / energy / consumption, / are / together / estimated / to / be / responsible / for / 1 percent / of / global / CO2 / emissions. /

(a) *contextual meaning*: In this context, **the world** refers to the planet.

(b) *basic meaning*: The basic meaning of the noun *world* in *Macmillan* is **the world** (in bold) the planet that we live on as cited *We observe changes in the world's climate*. As a second opinion, *Longman* was consulted. The first entry of the search for *world* directly leads to a different link which can be accessed by click: **the world** the planet we live on, and all the people, cities and countries on it.

(c) *contextual meaning versus basic meaning*: There is no contrast between the contextual meaning and basic meaning. **The world** is regarded as a single linguistic unit indicating that a 'world' and 'the world' need to be treated separately.

Metaphorically used? No

5.1.2 A case of being metaphorical

World

(2) / Technology / is / one / of / the / things / that / separates / humans / from / animals /, and /
it / has / increasingly / shaped / our / **world**. /

(a) *contextual meaning*: In this context, **world** refers to a particular kind of place or situation that, as opposed to animals, human beings live in.

(b) *basic meaning*: The basic meaning of the noun *world* in *Macmillan* is **the world** the planet that we live on as cited *We observe changes in the world's climate*, and 2 [SINGULAR] society in general, in all countries as cited *We want to guarantee our children a safer world*.

(c) *contextual meaning versus basic meaning*: In this context, **world** refers to the *Macmillan's* second definition. Krennmayr (2008:106)'s explanation in which having two separate senses automatically annotates the analyzed words as metaphorical leads to the assertion that the keyword **world** is a linguistic metaphor.

Metaphorically used? Yes

World

(3) / Tree / planting / and / other / environmental / measures / feature / among / the / many / projects / undertaken / by / the / world's / tens / of / thousands / of / Scout / groups / to / build / a / better / **world**, / often / linked / to / furthering / to / the / Millennium / Development / Goals. /

(a) *contextual meaning*: In this context, **world** refers to our society in general.

(b) *basic meaning*: The basic meaning of the noun *world* in *Macmillan* is **the world** the planet that we live on as cited *We observe changes in the world's climate*, and 2 [SINGULAR] society in general, in all countries as cited *We want to guarantee our children a safer world*.

(c) *contextual meaning versus basic meaning*: In this context, **world** is close to the

Macmillan's second definition and can be understood in comparison with the first definition. Having two separate senses also helps to annotate **world** as metaphorical.

Metaphorically used? Yes

5.2 People

5.2.1 A case of being non-metaphorical

People

(4) / When / young / **people** / work / together, / you / are / capable / of / achieving / great / things. /

(a) *contextual meaning*: In this context **people** refers to humans in general.

(b) *basic meaning*: The basic meaning of the noun *people* found in *Macmillan* is 1 the plural of person as in *young/old people, a group/crowd of people*.

(c) *contextual meaning versus basic meaning*: There is no contrast between the contextual meaning and basic meaning.

Metaphorically used? No

5.2.2 A case of being metaphorical

People

(5) / Birds / are / like / **people**. / They / stick / to / TV, / not / to / miss / the / news. / Actually, / animals / have / adapted / to / human / circumstances / and / use / equipment / that / is / left / over / by / us. /

(a) *contextual meaning*: In this context, the noun **people** refers to humans in terms of their habitual behavior.

(b) *basic meaning*: The basic meaning of the noun *people* found in *Macmillan* is 1 the plural of person as in *young/old people, a group/crowd of people*: 1a [PLURAL] used for referring to humans in general as in *People tend to think that doctors know everything*, 1b [PLURAL] men and women who work for the same organization, do the same type of work, or share the same interests as in *military/religious/financial people, scientifically-minded people*.

(c) *contextual meaning versus basic meaning*: The contextual meaning of **people** is close to *Macmillan* definition 1a, but not fully comprehensible only with the basic meaning. The excerpt is part of the explanation of a photo which is presented right next to the text. With the help of the photo, only then, the sentence is finally understood.



Metaphorically used? Yes

5.3 Environment / Environmental / Environmentally / Environmentalism

5.3.1 A case of being non-metaphorical

At Step 1, the given phrase below is written at the beginning of the article to introduce the author. At Step 2, the lexical units are compartmentalized by slashes being **environmental** in bold a keyword.

Environmental

(6) / By / Fred Pearce / , **environmental** / author / and / correspondent / of / *New Scientist* /

(a) *contextual meaning*: In this context **environmental** refers to dealing with environment-related or environment-protecting topics.

(b) *basic meaning*: The basic meaning of the adjective *environmental* found in *Macmillan*

is 1 [USUALLY BEFORE NOUN] relating to the natural world and the effect that human activity has on it, and more concretely 1a [ONLY BEFORE NOUN] intended to help or protect the environment, as cited *Some environmental groups have declared a boycott of tourism on the island.*

(c) *contextual meaning versus basic meaning*: Krennmayr (2008:100) wrote that sense descriptions that are subsumed under one single sense are regarded as manifestations of the same meaning, which is the present case. *Longman* was also consulted as a second opinion: 1 concerning or affecting the air, land, or water on Earth as cited *an environmental group (=group of people who want to protect the environment)*. *Longman*'s definition falls into the first single entry without subordinate numbering with the same cited phrase *environmental groups*. Thus, the contextual meaning does not contrast with the basic meaning. What initially looked like a possible linguistic metaphor *environmental author*, after thoroughly examining two dictionaries, turns out to be non-metaphorical, which stresses the legitimacy of using dictionaries in MIP.

Metaphorically used? No

Environmentally

(7) / Labels / empower / people / who / want / to / make / **environmentally** / friendly / choices, / and / provide / incentives / to / producers / and / manufacturers / to / go / green. /

(a) *contextual meaning*: In this context **environmentally** refers to affecting the environment.

(b) *basic meaning*: The single entry of the basic meaning of the adverb *environmentally* found in *Macmillan* is in a way that affects the environment or is related to it, as cited *Everybody has some scope for doing their job in a more environmentally responsible way.*

(c) *contextual meaning versus basic meaning*: The contextual meaning equals to the basic meaning. What initially looked like a possible linguistic metaphor *environmentally friendly choices* turns out to be non-metaphorical, which again stresses the necessity of consulting dictionaries.

Metaphorically used? No

The environment

(8) / There / are / many / Scout / groups / run / on / a / religious / basis / which / help / the / young / learn / about / the / importance / of / caring / for / **the environment** /, while / learning / fire-making / and / night /- away / badges. /

(a) *contextual meaning*: In this context **the environment** refers to the natural outdoor world.

(b) *basic meaning*: First, the definition of the noun *environment* was sought in *Macmillan*: 1 [COUNTABLE] the place in which people live and work, including all the physical conditions that affect them, and 2 **the environment** the natural world, including the land, water, air, plants, and animals, especially considered as something that is affected by human

activity as cited *Industrial development is causing widespread damage to the environment*. *Longman* needed to be consulted as a second opinion. The first single entry for the noun **environment** in *Longman* directs to a separate link for **the environment** which can open by click: the air, water, and land on Earth, which is affected by man's activities. Thus, here **The environment** is regarded as a single linguistic unit, not two.

(c) *contextual meaning versus basic meaning*: The contextual meaning of **the environment** does not contrast with the basic meaning. It also indicates that *an environment* and *the environment* need to be treated separately.

Metaphorically used? No

5.3.2 A case of being metaphorical

Environment

(9) / A / present / medical / study / claims / people / can / boost / their / mental / health / by / spending / time / outdoors / and / getting / active / in / a / green / **environment**. / Walks / in / the / countryside / are / good / for / you! /

(a) *contextual meaning*: In this context, the noun **environment** refers to natural features of an outside place.

(b) *basic meaning*: In this case, *Longman* is referred to since it treats *an environment* and

the environment in a separate manner which gives a more precise division of meanings. The basic meaning of the noun *environment* in *Longman* is 1 the environment, and 2 [COUNTABLE, UNCOUNTABLE] the People and things that are around you in your life, for example, the buildings you use, the people you live or work with, and the general situation you are in as cited *The company had failed to provide a safe environment for its workers*, and 3 [COUNTABLE] the natural features of a place, for example its weather, the type of land it has, and the type of plants that grow in it as cited *a forest environment*.

(c) *contextual meaning versus basic meaning*: The contextual meaning is close to *Longman* definition 2 contrasting with the basic meaning and being understood by comparison with the more basic meaning 1. In *Longman*, the contextual and the basic sense are listed as two separate-numbered sense descriptions. Following Krennmayr (2008:106)'s explanation of having two separate senses automatically annotates the analyzed words as metaphorical, *environment* is classified as a linguistic metaphor.

Metaphorically used? Yes

Environmental

(10) / 'We / must / move / environmentalism / from / being / the / philosophy / of / a / passionate / minority / to / a / way / of / life / that / automatically / integrates / ecology / into / governmental / policy / and / normal / living / standards. / We / are / entering / an / **environmental** / age / whether / we / like / it / or / not.'

(a) *contextual meaning*: In this context, **environmental** refers to a mainstreaming

movement which accompanies significant spatial/political/social/behavioral changes.

(b) *basic meaning*: *Macmillan* has a single entry for the adjective *environmental*: 1 [USUALLY BEFORE NOUN] relating to the natural world and the effect that human activity has on it. *Longman* needs to be consulted for the purpose of confirmation: 1 concerning or affecting the air, land, or water on Earth, and 2 concerning the people and things around you in your life, for example the buildings you use, the people you live or work with, and the general situation you are in.

(c) *contextual meaning versus basic meaning*: The contextual meaning is close to *Longman* definition 2 contrasting with the basic meaning and being understood by comparison with it. Separately-numbered list also points to annotating the analyzed word *environmental* as metaphorical.

Metaphorically used? Yes

Environmental

(11) / He / made / 11th Hour / – which / he / produced, / co-wrote / and / narrated / - to / try / to / move / **environmental** / thinking / into / the / mainstream. /

(a) *contextual meaning*: In the latter paragraph, *environmental thinking* is further elaborated: “They offer insights into the history of humanity’s relationship to Earth, the state of the oceans, land and air, and the political, social and technological challenges – as well as hopes – that lie ahead.” In this context, **environmental** refers to a highly comprehensive

concept that involves not only the problem that the nature faces but also human-Earth relationship.

(b) *basic meaning*: *Macmillan* has a single entry for the adjective *environmental*: 1 [USUALLY BEFORE NOUN] relating to the natural world and the effect that human activity has on it. *Longman* needs to be consulted for the purpose of confirmation: 1 concerning or affecting the air, land, or water on Earth, and 2 concerning the people and things around you in your life, for example the buildings you use, the people you live or work with, and the general situation you are in.

(c) *contextual meaning versus basic meaning*: The contextual meaning encompasses more comprehensive ideas than the basic meaning which can be understood by comparison with it.

Metaphorically used? Yes

Environmental

(12) / Tourism / and / **environmental** / well-being / rarely / go / hand / in / hand, / and / the / pressures / are / particularly / great / on / islands. /

(a) *contextual meaning*: In the following sentence, *environmental well-being* is further elaborated: “Tourism, one of the world’s fastest growing industries, does have a significant impact on the environment. However, responsible tourism can promote conservation and local cultures, and contribute to sustainable development.” In this context, **environmental** refers to not only the physical surrounding features but also local cultural circumstance.

(b) *basic meaning*: *Macmillan* has a single entry for the adjective *environmental*: 1 [USUALLY BEFORE NOUN] relating to the natural world and the effect that human activity has on it. *Longman* needs to be consulted for the purpose of confirmation: 1 concerning or affecting the air, land, or water on Earth, and 2 concerning the people and things around you in your life, for example the buildings you use, the people you live or work with, and the general situation you are in.

(c) *contextual meaning versus basic meaning*: The contextual meaning encompasses more comprehensive ideas than the basic meaning which can be understood by comparison with it.

Metaphorically used? Yes

Environmentalism

(13) / 'We / must / move / **environmentalism** / from / being / the / philosophy / of / a / passionate / minority / to / a / way / of / life / that / automatically / integrates / ecology / into / governmental / policy / and / normal / living / standards. /

(a) *contextual meaning*: In this context, **environmentalism** refers to an integrated thinking of the environment from politics to social and daily life.

(b) *basic meaning*: Neither *Macmillan* nor *Longman* has an entry for **environmentalism**. Two other dictionaries were consulted: *Merriam-Webster* and *Cambridge Dictionary*. The definition found in *Merriam-Webster* is 1. a theory that views environment rather than heredity as the important factor in the development and especially the cultural and intellectual

development of an individual or group, 2 advocacy of the preservations, restoration, or improvement of the natural environment; *especially*: the movement to control pollution. The single entry for **environmentalism** in *Cambridge Dictionary* reads: an interest in or the study of the environment, in order to protect it from damage by human activities.

(c) *contextual meaning versus basic meaning*: **Environmentalism** has yet to be formally accepted in *Macmillan* and *Longman*. The contextual meaning can be understood by comparison with the first entry of *Merriam-Webster*.

Metaphorically used? Yes

5.4 Carbon

5.4.1 A case of being non-metaphorical

Carbon

(14) / Five / months / later, / he / announced / that / he / would / give / a / \$25- / million / reward / to / the / person / or / organization / who / produces / the / best / commercially / viable / way / of / removing / manmade / **carbon** / dioxide / from / the / atmosphere. /

(a) *contextual meaning*: In this context, **carbon** refers to a chemical compound.

(b) *basic meaning*: The basic meaning of the noun *carbon* in *Macmillan* is 1 [UNCOUNTABLE] CHEMISTRY a chemical element that is found in all living things, and can also exist as diamonds or coal, and 2 [UNCOUNTABLE] CHEMISTRY the gases carbon dioxide and carbon monoxide. As a second opinion, *Longman* was consulted: 1 [uncountable] a chemical substance that exists in a pure form as diamonds, graphite etc, or in an impure form as diamonds, graphite etc, or in an impure form as coal, petrol etc. It is a chemical element: symbol C. *Macmillan*'s definitions of 1 and 2 are subsumed under one entry of *Longman*'s definition.

(c) *contextual meaning versus basic meaning*: There is no contrast between the contextual and the basic sense.

Metaphorically used? No

Carbon footprint

(15) / Kenyan / produce / still / has / a / lower / **carbon footprint** / than / much / European / produce / – even / when / shipping / is / included / in / the / equation. /

(a) *contextual meaning*: In this context, **carbon footprint** refers to the amount of carbon dioxide that people in Kenya produce.

(b) *basic meaning*: In *Macmillan*, there is an independent definition entry for **carbon footprint**, that is, the amount of carbon dioxide a person, organization, building, etc produces, used as a measure of their effect on the environment. *Longman*, too, has a

separate entry for **carbon footprint**, which reads that the amount of carbon dioxide that a person or organization produces by the things they do, used as a way of measuring the amount of harm they do to the environment as cited *There are lots of ways you can reduce your **carbon footprint**.*

(c) *contextual meaning versus basic meaning*: Having an independent and separate entry in both dictionaries signifies that **carbon footprint** is recognized as a fixed-term by the general public which excludes from being used metaphorically¹².

Metaphorically used? No

5.4.2 A case of being metaphorical

Carbon

(16) / CUTTING / the / **carbs** /

/ Does / your / kitchen / need / to / go / on / a / **carbon** / diet? / Ovens, / tryers / and / hotplates / guzzle / fuel. / Many / traditional / cooking / methods / are / kinder / to / the / planet... /

(a) *contextual meaning*: The first line of *Example 16* is the title of an article which explains about carbon reduction options in comparison with kitchen and diet. In this context, **carbs**

¹² As proven with the independent entry of dictionary, the fixed expression of “carbon footprint” has been normalized in English as a dead metaphor. However, for other languages it may not be the case. For this reason,

refer to both dietary carbohydrates and carbon.

(b) *basic meaning*: The basic meaning of the noun *carbon* in *Macmillan* is 1 [UNCOUNTABLE] CHEMISTRY a chemical element that is found in all living things, and can also exist as diamonds or coal, 2 [UNCOUNTABLE] CHEMISTRY the gases carbon dioxide and carbon monoxide, 3 [COUNTABLE] a piece of carbon paper, and 4 carbon emissions as cited *We're trying to cut down on our carbon*. As a second opinion, *Longman* was consulted: 1 [uncountable] a chemical substance that exists in a pure form as diamonds, graphite etc, or in an impure form as diamonds, graphite etc, or in an impure form as coal, petrol etc. It is a chemical element: symbol C, 2 [countable, uncountable] carbon paper, and 3 [countable] a carbon copy.

(c) *contextual meaning versus basic meaning*: In neither dictionary, **carbon** in terms of dietary carbohydrates was mentioned, and thus, it is considered as a one-time used expression in a metaphorical manner.

Metaphorically used? Yes

5.5 Waste

5.5.1 A case of being non-metaphorical

Waste

“carbon footprint” will be included for analysis.

(17) / Above / all, / there / is / tremendous / scope / for / dramatically / cutting / the / **waste** / of / energy. /

(a) *contextual meaning*: In this context **waste** refers to failing to use in an efficient manner.

(b) *basic meaning*: The basic meaning of the noun *waste* found in *Macmillan* is 1 [SINGULAR/UNCOUNTABLE] The failure to use something valuable in an effective way, so that it does not produce the benefits that it could as in *a waste of young talent*.

(c) *contextual meaning versus basic meaning*: The contextual meaning is the basic meaning.

Metaphorically used? No

5.5.2 A case of being metaphorical

Waste

(18) / Their / project / ‘Useful / **Waste** / for / a / Better / Future’ / has / won / the / \$10,000 / first / prize: / ‘In / our / small / way, / we / have / tried / to / change / perceptions / and / improve / our / local / environment.’ /

(a) *contextual meaning*: In this context **waste** refers to the useless materials left to be used

in an effective way.

(b) *basic meaning*: The basic meaning of the noun *waste* found in *Macmillan* is 1 [SINGULAR/UNCOUNTABLE] The failure to use something valuable in an effective way, so that it does not produce the benefits that it could: 1a [SINGULAR] a situation in which time, money, or energy is used without bringing any useful result.

(c) *contextual meaning versus basic meaning*: Understanding the contextual meaning requires the contrast with the basic meaning and the context.

Metaphorically used? Yes

5.6 Climate

5.6.1 A case of being non-metaphorical

Climate

(19) / 'Adapting / a / building / to / the / **climate** / is / better / than / adapting / the / **climate** / to / a / building,' /

(a) *contextual meaning*: In this context **climate** refers to a particular type of weather.

(b) *basic meaning*: The basic meaning of the noun *climate* found in *Macmillan* is

[UNCOUNTABLE] 1 the type of weather that a country or region has.

(c) *contextual meaning versus basic meaning*: The contextual meaning is the basic meaning.

Metaphorically used? No

Climate

(20) / Realistically /, what / are / the / changes / that / we / will / be / able / to / keep / **climate** / change / under / the / 2°C / threshold / over / the / next / 50 years? /

(a) *contextual meaning*: In this context, **climate** refers to temperature.

(b) *basic meaning*: The basic meaning of the noun *climate* found in *Macmillan* is [UNCOUNTABLE] 1 the type of weather that a country or region has as cited *Mexico is renowned for its hot climate and spicy food*. Apart from the entry of *climate*, *Macmillan* has another entry for *climate change* which reads the changes that are thought to be affecting the world's weather so that it is becoming warmer. Thus, the keyword *climate* as in *climate change* is excluded from metaphorical use.

(c) *contextual meaning versus basic meaning*: The contextual meaning is equal to the basic meaning.

Metaphorically used? No

5.6.2 A case of being metaphorical

Climate

(21) / They / call / it / the / ‘other / CO₂ / problem /– and / it / is / something / that / the / dwindling /, but / noisy /, band / of / **climate** / skeptics / never / talk / about. /

(a) *contextual meaning*: In this context, **climate** is being used as a short-hand for the *climate change* given that *climate skeptics* believe that climate change is a natural process and deny the consequences of anthropogenic climate change.

(b) *basic meaning*: *Macmillan* has a separate entry for *climate change*: the changes that are thought to be affecting the world’s weather so that it is becoming warmer. Thus, the keyword *climate* as in *climate change* is excluded from metaphorical use.

(c) *contextual meaning versus basic meaning*: In this context, **climate** is a metonymy for *climate change*.

Metaphorically used? Yes

Climate

(22) / **Climate**- / friendly / food: / Encouraging / school / cafeterias / and / restaurants / to / serve / locally / produced, / vegetarian / food. /

(a) *contextual meaning*: In this context, **climate** refers to a local area where vegetarian food is available.

(b) *basic meaning*: The basic meaning of the noun *climate* found in *Macmillan* is [UNCOUNTABLE] 1 the type of weather that a country or region has a hot/cold/mild/warm climate, and [COUNTABLE] 1a an area that has a particular type of weather as cited *Many northern Europeans spend their holidays in warmer climates.*

(c) *contextual meaning versus basic meaning*: The contextual meaning and the basic meaning contrast but can be understood in comparison with each other and with the help of the following context.

Metaphorically used? Yes

5.7 Sustainable

5.7.1 A case of being non-metaphorical

Sustainable

(23) / My / long-/ term / aim / is / to / specialize / in / **sustainable** / development / and / to / make / the / right / technologies / available / where / they / are / needed / most. /

(24) / When / Annik / Dollacker / from / Bayer / CropScience / presented / ways / in / which / the / company / is / trying / to / improve / nutrition / and / yields / in / crops, / Ruchi / Jain, / who / works / on / **sustainable** / agriculture / projects / in / India, / pointed / out / that / intensive / farming / techniques / have / left / her / country's / small / farmlands / infertile / and / farmers / impoverished. /

(25) / IN / ETHIOPIA, / one / of / the / world's / most / deforested, / desertified / and / drought- / ridden / countries, / they / are / planting / and / caring / for / 50,000 / indigenous / trees, / and / teaching / people / about / the / importance / of / trees / and / the / **sustainable** / use / of / fuelwood. /

(26) / Some / people / in / rural / areas / of / Argentina / live / **sustainable** / lives / without / ever / knowing / what / the / word / means – / they / simply / live / off / the / land, / make / compost, / and / waste / very / little. /

(a) *contextual meaning*: In this context, **sustainable** refers to a way that does not damage the environment.

(b) *basic meaning*: The basic meaning of the adjective *sustainable* in *Macmillan* is 1 capable of continuing for a long time at the same level as cited *sustainable economic growth*, and 2 using methods that do not harm the environment as cited *sustainable agriculture*. As a second opinion, *Longman* was consulted: 1 able to continue without causing damage to the environment of which cited examples are *sustainable agriculture*, *sustainable use of rainforest resources*, *sustainable form of transport*, *environmentally sustainable development*, and 2 able to continue for a long time as cited *sustainable economic growth*.

The numbering in *Macmillan* is reversed in *Longman*.

(c) *contextual meaning versus basic meaning*: The reverse position of two different definitions implies that they both are widely used.

Metaphorically used? No

5.7.2 A case of being metaphorical

Sustainable

(27) / Mollison / has / spent / the / last / three / decades / teaching / and / encouraging / people / to / establish / permaculture / communities, / encompassing / eco-villages / and / **sustainable** / housing: / he / himself / lives / in / one / he / founded / in / Tasmania. /

(a) *contextual meaning*: The title of this article in which the keyword **sustainable** is found is 'the wild'. After reading the entire article only then, the contextual meaning of **sustainable** can be inferred. It refers to a way that people live in the wild environment by making use of scarce natural resources such as land and water to attain self-sufficiency in a simple and possible way.

(b) *basic meaning*: The basic meaning of the adjective *sustainable* in *Macmillan* is 1 capable of continuing for a long time at the same level as cited *sustainable economic growth*, and 2 using methods that do not harm the environment as cited *sustainable agriculture*.

(c) *contextual meaning versus basic meaning*: In this context, **sustainable** can be understood in contrast with the *Macmillan*'s first definition.

Metaphorically used? Yes

Unsustainable

(28) / Annik / Dollacker / conceded / that / for / small / and / subsistence / farmers, / organic / farming / makes / sense, / but / added / that / to / feed / all / the / world's / people / using / organic / farming / would / take / up / much / more / land, / leading / to / **unsustainable** / practices / like / deforestation. /

(29) / Yet / **unsustainable** / logging / – especially / for / the / plywood / industry / and / to / clear / land – / is / threatening / all / this. /

(a) *contextual meaning*: In this context, **unsustainable** refers to a way that causes damage to the environment.

(b) *basic meaning*: The basic meaning of the adjective *unsustainable* in *Macmillan* is 1 not capable of continuing for a long time at the same level as cited *unsustainable economic growth*, and 2 unsustainable farming methods, industries etc damage the environment because they use up more energy, wood, coal etc than can be replaced naturally. As a second opinion, *Longman* was consulted. The single entry of *Longman* reads unable to continue at the same rate or in the same way with the same citation as *Macmillan unsustainable economic growth*.

(c) *contextual meaning versus basic meaning*: In this context, **unsustainable** refers to the *Macmillan*'s second definition. From the comparison of *Macmillan* and *Longman*, it can be confirmed that the second definition in *Macmillan* is not as common as in the case of **sustainable**.

Metaphorically used? Yes

5.8 Youth / Youthful

5.8.1 A case of being non-metaphorical

Youthful

(30) / These / are / high / in / collagen / protein – / meant / to / promote / **youthful** / skin – / low / in / fat, / and, / according / to / Asian / tradition, / good / for / bronchitis, / high / blood / pressure / and / a / variety / of / other / ailments. /

(a) *contextual meaning*: In this context, the adjective **youthful** refers to young.

(b) *basic meaning*: The basic meaning of the noun *youthful* found in *Macmillan* is 1 typical of young people as in *youthful enthusiasm/rebellion*.

(c) *contextual meaning versus basic meaning*: There is no contrast between the contextual

and the basic sense.

Metaphorically used? No

5.8.2 A case of being metaphorical

Youth

(31) / The / world / is / watching. / The / **youth** / are / rising. / Join / us. /

(a) *contextual meaning*: In this context, **youth** refers to young people.

(b) *basic meaning*: The basic meaning of the noun *youth* found in *Macmillan* is 1 [UNCOUNTABLE] the time in someone's life when they are young, 1a the quality of being young or of looking young, 2 [COUNTABLE] a male teenager, especially one involved in violent or criminal activities, 2a [UNCOUNTABLE] young people in general. *Longman* was also consulted: 1 [UNCOUNTABLE] the period of time when someone is young, especially the period when someone is a teenager as in *Many of these people had used drugs in their youth*, 2 [COUNTABLE] a teenage boy – used especially in newspapers to show disapproval, 3 [UNCOUNTABLE] young people in general as in *The youth of today are the pensioners of tomorrow*.

(c) *contextual meaning versus basic meaning*: Having separate senses leads to the decision of being metaphorical.

Metaphorically used? Yes

5.9 Global / Globally

5.9.1 A case of being non-metaphorical

Global

(32) / It / is / now / 100 / years / since / Scouting / first / started /, and / so / today /, with / 28 / million / youth / members / worldwide /, they / certainly / represent / an / important / force / in / **global** / environmental / action. /

(a) *contextual meaning*: In this context, **global** refers to covering the whole world.

(b) *basic meaning*: The basic meaning of the adjective *global* found in *Macmillan* is 1 including or affecting the whole world.

(c) *contextual meaning versus basic meaning*: There is no contrast between the contextual and the basic sense.

Metaphorically used? No

Global

(33) / *Whale Rider* / managed / to / touch / **global** / audiences / with / its / universal / themes / of / family / struggle /, gender / equality / and / the / role / of / tradition / in / changing / world. /

(a) *contextual meaning*: In this context, **global** refers to including the whole world.

(b) *basic meaning*: The basic meaning of the adjective *global* found in *Macmillan* is 1 including or affecting the whole world.

(c) *contextual meaning versus basic meaning*: There is no contrast between the contextual and the basic sense.

Metaphorically used? No

Global

(34) / While / action / like / ours / helps /, it /'s / not / enough. / Recycling / e-waste / should / be / mandatory /, **global** / and / sustainable. /

(a) *contextual meaning*: In this context **global** refers to occurring/practicing all over the world.

(b) *basic meaning*: The basic meaning of the adjective *global* found in *Macmillan* is 1

including or affecting the whole world as cited *There is no obstacle to making our company truly global.*

(c) *contextual meaning versus basic meaning*: There is no contrast between the contextual and the basic sense. A possible linguistic metaphor *global* at first glimpse turns out to be non-metaphorical, which proves once again the legitimacy of applying MIP.

Metaphorically used? No

5.9.1 A case of being metaphorical

The following *Examples (11)* and *(12)* are presented together given that they are similar cases.

Global

(35) / Many / Cuban / youth / organizations / understand / the / need / to / look after / the / present / in order to / have / a / better / future /, and / adopt / it / as / a / guiding / principle /, inspiring / a / new / generation / to / ‘think / **global** /, act / local’ . /

Globally

(36) / With / islands / dotted / around / every / continent / and / so / many / as / yet / unspoiled /, ecotourism / may / entail / thinking / **globally** /, but / visiting / locally. /

(a) *contextual meaning*: In this context, **global / globally** refers to considering all the parts of a problem or situation together.

(b) *basic meaning*: This step requires to find a meaning that is more basic than the contextual meaning. Such a more basic meaning in *Macmillan* is 1 including or affecting the whole world, and 2 complete, including all parts of something, as cited *We must take a global view of children's needs*.

(c) *contextual meaning versus basic meaning*: The contextual meaning and the basic meaning contrast but can be understood in comparison with each other. Having two separate senses automatically leads to the decision of being metaphorical.

Metaphorically used? Yes

5.10 Planet

5.10.1 A case of being non-metaphorical

The planet

(37) / They / must / help / develop / the / recognition / that / **the planet** / is / a / gift / to / us / all, / and / every / person / 's / actions / have / an / impact / on / society / as / a / whole. /

(a) *contextual meaning*: In this context, **the planet** refers to the planet Earth.

(b) *basic meaning*: The basic meaning of the noun *planet* in *Macmillan* is 1 [CONTABLE] a very large round object that moves around the Sun or another star. There is a second entry: **the planet** (in bold) the planet Earth and everyon and everything on it: used, for example, when you are talking about the environment as in *policies to protect the future of the planet*. As a second opinion, *Longman* was consulted. The third entry of the search for *planet* in *Longman* directly leads to a different link which can be accessed by click: -> **the planet** (in bold) the world – used especially when talking about the environment as in *a safer future for the planet*.

(c) *contextual meaning versus basic meaning*: In both dictionaries, **the planet** is regarded as a single linguistic unit indicating that a planet and the planet need to be treated in a separate manner. The majority of the cases was found to be non-metaphorical.

Metaphorically used? No

5.10.2 A case of being metaphorical

Planet

(38) / 'I / feel / all / adults / have / a / duty / to / pass / on / a / pristine / planet / to / our / children. /

(a) *contextual meaning*: In this context, **planet** refers to the Earth as one of many stars that moves around in the space.

(b) *basic meaning*: The basic meaning of the noun *planet* in *Macmillan* is 1 [CONTABLE] a very large round object that moves around the Sun or another star. In *Longman* that was consulted as a second opinion is as same as that of *Macmillan*: 1 a very large round object in space that moves around the Sun or another star.

(c) *contextual meaning versus basic meaning*: In this context, **planet** can be understood in contrast with the first definition of both *Macmillan* and *Longman*.

Metaphorically used? Yes

5.11 Results

The metaphor identification in large amounts of texts indeed involves an eternity of hours of concentrated work in front of a computer screen (Nacey, 2013, p. 113). The Pragglejaz Group also admits that the MIP requires hard work and must be done slowly (2007, p. 36). This is because when determining distinctness of meaning, it is inevitable that ambiguous cases still arise¹³.

A dilemma is how to deal with these uses of lexical units which seem to have

¹³ For example, to determine the metaphoricity of “sustainable lives” in the ST, of which “sustainable” is the keyword, two dictionaries required to be consulted; both *Macmillan* and *Longman* dictionaires present two meanings, but their orders are reversed. In this case, both meanings were considered to be widely used and, thus, counted as both being basic meanings.

different meanings, but also share some semantic relatedness in their contexts. For example, MacArthur (2015) attempted to identify metaphorical and non-metaphorical uses of language in speaking verbs such as *say*, *tell*, *contradict*, *argue* and *speak* in a conversation using the dictionary recommended by the Pragglejaz Group. The conclusion was that the dictionary definitions were not complete, and thereby the decision on metaphoricity remained unsolved.

The solution to this can be found in the relevance theory. According to the relevance account to metaphor, metaphors are considered to be a gradable phenomenon. If judgments are made on a scale from metaphor to non-metaphor in a very strict manner, quantifying metaphor becomes fuzzy and is difficult to control. For example, a researcher would have to decide on the number of increments on a scale. It is moreover doubtful whether different coders would make the same judgments when determining the metaphorical status of an expression on a scale. Against this backdrop, MacArthur (2015) pointed out the importance of the researcher's intuition which guides to see the forest/discourse rather than the trees/words in deciding whether the meaning of that lexical unit in context is sufficiently and relatively metaphorical.

It does not need to be this much complex in this study, firstly, due to the use of the second dictionary as a reference source and, secondly, thanks to the non-existence of such particular cases, i.e., speaking verbs within the keyword list of potentially linguistic metaphors. When there were dubious grounds, the additional use of the *Longman Dictionary of Contemporary English* was indeed useful and needed. This complementary use of secondary dictionary has helped to clarify when treating cases that could not be solved with the sole use of the *Macmillan Dictionary for Advanced Learners*. Table 6 demonstrates the results of identified keyword linguistic metaphors (KLM) and their corresponding frequency.

Table 6. Results of linguistic metaphor identification

No	Potential metaphor keywords	Overall Frequency (No)	Linguistic Metaphor (No)	Metaphor Percent (%)
1	WORLD; WORLD'S; WORLDS'; UNDERWORLD; WORLDWIDE; THE WORLD	309	44	14.2
2	PEOPLE; PEOPLES	283	2	0.7
3	ENVIRONMENT; ENVIRONMENTAL; ENVIRONMENTALLY; ENVIRONMENTALISM	238	16	6.7
4	CARBON; DECARBONIZE	113	28	24.8
5	WASTE; WASTES; WASTFEULLNESS	94	6	6.3
6	CLIMATE	88	12	13.6
7	SUSTAINABLE; UNSUSTAINABLE; SUSTAIN; SUSTAINABLY; SUSTAINABILITY	87	28	34.5
8	YOUTH; YOUTHFUL	80	7	8.8
9	GLOBAL; GLOBALLY	73	6	8.2
10	PLANET; THE PLANET	58	5	8.6
	TOTAL	1,423	154	10.8

In total 1,423 occurrences of ten keywords of the chosen environmental texts were found among which 156 cases were identified to be metaphorically used, accounting for 10.8% (see Table 6). The keyword that came out to be the most metaphorical was SUSTAINABLE; SUSTAINABLY; SUSTAINABILITY with a 34.5%. The second place went to CARBON

(24.8%), followed by WORLD (14.2%). The keyword with the least possibility to be metaphorical was PEOPLE (0.7%).

CHAPTER 6. TRANSLATION PATTERNS

Up to this point, keyword linguistic metaphors (KLM) in the ST have been identified. Chapter 6 will look into how to classify translation patterns (TPs). To do so, related previous studies will be reviewed as a reference in a chronological order. Most recently, Sánchez Fajardo (2021) presented four different types of categories for anglicism: adapted and unadapted anglicism, pseudo-anglicisms and calque. Liu (2021, p. 110) identified six metaphor translation strategies: (1) literal translation with the same metaphor, (2) replacement with another metaphor, (3) description with a non-metaphoric expression, (4) adding explanation to the metaphor, (5) omitting the metaphor, and (6) changing to symbol.

Jang (2018, p. 278) followed the relevance theory to examine Chinese-Korean translation of metaphorical expressions in literary texts and provided five specific methods of metaphor translation: (1) translating metaphor into the same metaphor, (2) translating metaphor into another metaphor, (3) Changing metaphor by using a non-metaphorical device, (4) translating metaphor with additional explanations, (5) adding a description while keeping metaphor.

Gerding, Cañete, and Adam (2017) focused on anglicized neological phrases in Spanish, namely calques and loanwords, and divided them into four types: (1) literal lexical calque, (2) approximate lexical calque, (3) non-paronymic semantic calque, (3) paronymic semantic calque.

S. Y. Kim (2008, p. 25)'s cognitive thematic approach to translation revealed that the metaphors were conceptualized and translated in the following three manners: (1) mapping onto the same source domain as the ST, creating the same metaphorical image; (2) mapping onto different source domain, creating different metaphorical image; and (3) translating into

paraphrases instead of using the conceptual source domain.

Noh (2007, pp. 5-13) categorized translation strategies into five: (1) addition of conceptual metaphors in the TT, (2) elimination of conceptual metaphors of the ST, (3) replacement of the source conceptual metaphors with an equivalent conceptual metaphor in the TT, (4) conservation of conceptual metaphors of the ST as in literal translation, (5) replacement of the source conceptual metaphors with a different conceptual metaphor in the TT.

In an attempt to address the question of how to translate conceptual metaphors, Kim, S. (2002) classified five translating techniques: (1) existence of the same metaphorical expressions in the TT, (2) transfer of only meaning, (3) replacement of the source conceptual metaphor with an equivalent target conceptual metaphor, (4) conversion to a simile, (5) omission.

Although differences have been found in metaphor translation strategies, it can be summed that, in general, four strategies are observed: literal translation with the same metaphor, substitution with a different metaphor, and description in expressions other than metaphor and omission. Having this in mind, the current study presents the classification of four TPs on the basis of their relative degree of metaphORIZATION.

Initially, translations have been divided into two main groups depending on whether linguistic metaphors are kept or not in TT: non-linguistic metaphor vs linguistic metaphor. Subsequently, these two subordinate types are further categorized into two subgroups respectively based on its level of metaphorical relevance as proposed in relevance theory. Table 7 gives an overview of use-related categorization which gives the first indication that metaphors in environmental discourse indeed render a full range of translation strategies from omission and explanation with no preservation of metaphoricity to literal and non-literal translations where linguistic metaphors are kept.

Table 7. Translation patterns (TP) of linguistic metaphors

Non-linguistic metaphor		Linguistic metaphor	
TP 1	TP 2	TP 3	TP 4
Omission	Explanation	Literal preservation	Non-literal preservation

Translation pattern 1 (TP 1) involves a simple exclusion of source linguistic metaphors in the TT, which situates at the extremity of metaphoricity continuum. *Translation pattern 2* (TP 2) presents cases in which a source linguistic metaphor in the ST is left out and substituted instead with an explanation in the TT. Both *Translation pattern 3* (TP 3) and *Translation pattern 4* (TP 4) incorporate a linguistic metaphor in the TT. In the former, a linguistic metaphor is preserved by closely following the stylistic forms of the SL which exhibits a higher degree of relevance compared to previous translation patterns, whereas the latter adopts a different metaphorical linguistic expression in the TT.

Chapter 7 and 8 will show how these four translation strategies were classified with examples in Spanish and Korean, respectively.

CHAPTER 7. ANALYSIS: ENGLISH-SPANISH

Chapter 7 starts with presenting quantitative data, which will demonstrate Spanish translators' preferred strategy for KLMs used in the chosen popular science texts. For more details, the frequency and percentage of each TP for ten keyword linguistic metaphors will also be provided. What needs to be considered when it comes to applying these four TPs in practice, a statement could be classified as more than one TP. As relevance theorists mapped out, no clear divisions among these four patterns can be made as translation is a complex task. When the TT is deemed as a result of various strategies at play, all possible TPs will be marked as valid ones.

After presenting the results of quantitative analysis, TP 1, TP 2, TP 3 and TP 4 will be further discussed with corresponding examples. The illustrated examples may overlap, only to highlight the most distinctive features in point.

7.1 Spanish TP frequency for each keyword linguistic metaphor

In total 161 occurrences of TPs were found for Spanish subcorpus (see Table 8). The most recurrently applied translation strategy opted for KLMs was TP 3 with an overwhelming take-up of 91.3%, which gives the first indication that Spanish translators of the chosen popular science discourse had a great tendency toward literal translation, and hence, could lead to the production of the ST oriented texts.

With a considerable margin, the second place went to TP 2 with 6.2%, an indication that explanations were not always provided in Spanish translation. The use of TP 4 and TP 2

were kept to a minimum. Little attempts were made for TP 4 with only 1.2% which points to the limited provision of alternative metaphorical expressions in the TT. The least opted TP 1 of omission formed also 1.2%.

Table 8. Spanish frequency of TP 1, TP 2, TP 3, TP 4

No	KW	Total N	TP 1		TP 2		TP 3		TP 4	
			N	%	N	%	N	%	N	%
1	WORLD	46	1	2.2	3	6.5	40	87.0	2	4.3
2	SUSTAINABLE	30	0	0	2	6.7	28	93.3	0	0
3	CARBON	28	0	0	2	7.1	26	92.9	0	0
4	ENVIRONMENT	18	0	0	2	11.1	16	88.9	0	0
5	CLIMATE	12	1	8.3	0	0	11	91.7	0	0
6	WASTE	7	0	0	1	14.3	6	85.7	0	0
7	YOUTH	7	0	0	0	0	7	100	0	0
8	GLOBAL	6	0	0	0	0	6	100	0	0
9	PLANET	5	0	0	0	0	5	100	0	0
10	PEOPLE	2	0	0	0	0	2	100	0	0
	TOTAL	161	2	1.2	10	6.2	147	91.3	2	1.2

For the first keyword linguistic metaphor of WORLD, TP 3 accounted for 87% as a dominant strategy opted by Spanish translators. The use of other strategies was kept to a minimum. A whopping 93.3% of the second keyword of SUSTAINABLE was translated literally. Likewise, the third keyword of CARBON was mainly translated in a literal manner with almost 93%. In a similar manner, TP 3 took up 88.9% for the fourth linguistic metaphor of ENVIRONMENT. The same applied to the keyword CLIMATE with 91.7%.

In the following section, each translation strategy will be further elaborated with examples focusing mainly on those keywords with high probability of being metaphorical.

The classification of TPs is not solely limited to the keywords but extended to the words right next to and before the chosen lexical unit.

7.2 TP 1: Omission of metaphor

In this category, the source linguistic metaphor is not translated in the TT. The deletion of linguistic metaphor occurred when the metaphor was considered to be redundant or deemed to serve no practical purpose. It is unlikely that the source KLMs was omitted by mistake, because both the overall translation of the magazine and the nearby text to these omitted parts are translated almost word-for-word. Assumedly, it was a conscious omission made by translators thinking that the omitted parts did not hold much importance or was simply repetitive. Also, as long as the omission does not make an important change in the TT, it may occur for the purpose of preventing a long length of the sentence from being even longer.

Table 9 shows extracts from the parallel concordance of English-Spanish TP 1. The keyword linguistic metaphor “world” in Example 1 is not translated in the TT; probably this is due to the translator’s decision upon which this particular metaphor was of little importance and, thereby, could be left out while preventing the TT from being all too lengthy. In Example 2, the keyword linguistic metaphor of “climate” is not found either in the TT; in this case its content can be deduced from the nearby context. Given the similar length of the ST and the TT in Table 9, the translators’ attempt to keep the length of the TT equivalent to that of the ST is also observed.

Table 9. An extract from the parallel concordance of TP 1: World, Climate

Ex	SS	TT
1	Nobody likes invasions of rats, but islanders have more reason than most to fear them. Blamed for half the world's extinctions since the 1600s, they wreak especial havoc when they arrive at islands where they have no natural predators.	A nadie le gustan las invasiones de ratas, pero los habitantes de una isla tienen más razones que la mayoría para temerlas. Culpadas por la mitad de las extinciones [φ] desde los años 1600, causan estragos severos cuando llegan a islas en las cuales no tienen predadores.
2	Since it was founded last year, the Project has taught over 1,500 people from around the world (including Australia, Mexico, Puerto Rico, Thailand, Uganda and the United States) about climate issues , and sent them home to deliver 10 or more of their own presentations.	Desde su fundación el año pasado, el Proyecto ha entrenado a 1.500 personas de todas partes del mundo, incluso Australia, los Estados Unidos de América, México, Puerto Rico, Tailandia y Uganda [φ]. Todas volvieron a su propio país para dar otras diez presentaciones más.

All in all, in the case of the translation from English into Spanish, TP 1 hardly occurred not as a mere matter of the translators' preference, but as a legitimate resource for being redundant, and, also practical means to obtain the length adjustment in the TT.

7.3 TP 2: Explanation of metaphor

TP 2 does not preserve a linguistic metaphor of the ST; instead, it provides the addition of an explanation elaborated by translators. According to Liu, S. Y. (2021, pp. 100-101), adding an explanation in order to deliver the intended meaning of the ST could be an

inevitable choice for translators especially in cases in which there is a possibility that target readers are not in possession of an information that is required to make inference from the given text. In doing so, TP 2 would help readers to put as little effort as possible in processing the TT, which also will lead to a good readability.

Table 10 illustrates examples of English-Spanish TP 2. The metaphorical expression of “environmental activism” in Example 3 is expatiated further in translation; by means of removing its metaphoricity, the TT describes the referent as an “activista dedicada a asuntos ambientales”. The same applies to Example 4. The keyword linguistic metaphor of “world” is not translated in the TT. Instead, the phrase is depicted in a non-metaphorical way due to an explanation provided by the translator, e.g., the addition of “dado que” and the comparison of “en el futuro” with “hoy día”.

Table 10. An extract from the parallel concordance of TP 2: Environment, World

Ex	ST	TT
3	For his environmental activism , like his film stardom, is well over a decade old, even though he is still only 33.	ha sido activista dedicada a asuntos ambientales desde casi dos décadas, aunque solo tiene 33 años de edad.
4	So how can humanity possibly hope to produce what it is going to need in an increasingly water-constrained world ?	¿cómo puede esperar la humanidad que será posible producir lo <u>que</u> hará falta en el futuro, dado que el agua ya es cada vez más escasa hoy día ?

Examples presented in Table 10 demonstrated representative cases in which the extra explanatory piece of information that is not present in the ST is expatiated in the TT, which tends to create longer sentences. However, TP 2 could facilitate what is implicit in the ST explicit in the TT. Even though there is no linguistic metaphor preserved in the TT, translators’

intervention of explanation (recontextualization) may not only serve its purpose of delivering the intact message, but also keep a natural flow of reading the TT which will eventually facilitate the readers' understanding of the given text.

The purpose of TP 2 can be explained by the communicative principle of relevance theory, according to which, the translator is assumed to want his/her communication to succeed. TP 2 is an indication that the translator wants the readers to see his/her utterance as relevant as possible even if it involves obviating KLMs of the ST. The process of what is implicit in the ST less implicit or explicit in the TT could be valued for popular science genre with a clear purpose of education. Despite these merits, the use of TP 2 remains very limited by Spanish translators. This avoidance of TP 2 is most likely attributable to the non-preference toward TP 2 in the Spanish translation and the practical reason of space limit could also be at play.

7.4 TP 3: Preservation of literal metaphor

By means of English-Spanish TP 3, the TT preserves the metaphoricity of the ST and its linguistic forms as well which can be manifested in two ways: word-for-word or borrowing. The practice of word-for-word translation includes the preservation of semantic and/or syntactic features of the ST, while borrowing implies that the TT is phonologically analogous to the ST. First, word-for-word translation will be discussed and afterwards, cases of borrowing will follow.

Table 11 demonstrates how the word-for-word translation practiced with the following KLMs: "world" and "global". The Spanish expressions in Example 5 and 6 have been conjured up to match the English morphosyntactic aspects by means of TP 3: "feeding

the world” (“alimentar al mundo”), “world on a plate” (“el mundo en un plato”). Also, Example 7 and 8 are well-known catchphrase in English: “think globally” (“pensar globalmente”). Instead of “pensar en forma global”, the translator chose a full assimilation of morphosyntactic features of the ST. As a result, the affected utterances could be difficult to decode without sufficiently reading through the article and the surrounding context.

Table 11. An extract from the parallel concordance of TP 3: World, Global

Ex	ST	TT
5	‘ Feeding the world must remain humanity’s top priority.’	“ Alimentar al mundo debe seguir siendo la prioridad absoluta de la humanidad.”
6	Pizza Earth – the world on a plate	Planeta-pizza – el mundo en un plato
7	Many Cuban youth organizations understand the need to look after the present in order to have a better future, and adopt it as a guiding principle, inspiring a new generation to ‘ think global, act local ’.	Muchas organizaciones juveniles cubanas comprenden la necesidad de cuidar el presente a fin de tener un futuro mejor, y la adoptan como un principio de guía, inspirando a una nueva generación a “ pensar globalmente y actuar localmente”.
8	With islands dotted around every continent and so many as yet unspoiled, ecotourism may entail thinking globally , but visiting locally.	Con tantas islas salpicadas alrededor de cada Continente y tantas de ellas con su belleza natural aún intacta, el ecoturismo bien podría implicar la idea de pensar globalmente , pero visitar localmente.

To continue, Table 12 presents extracts from the parallel concordance of KLM “environment”. The lexical units of “environmental well-being” (“el bienestar del medio

ambiente”), “environmentalism” (“ambientalismo”), “environmental age” (“una edad mediomambiental”), and “environmental thinking” (“el pensamiento medioambiental”) may not be fully comprehensible by themselves alone without the nearby contexts. For example, “environmental” combined with “well-being” (“el bienestar del medio ambiente”) alone in Example 9 may not be explicit enough for our young target readers; only with the help of the contexts and the readers’ previous encyclopedic knowledge, can it be understood in comparison with its basic meaning of “the effect that human activity has on it”.

Example 10 is also a result of morphological mirroring of the ST; the already abstract concept of “environmentalism” in the ST may transmit or even aggravate the understanding of the TT. In the same line, Example 11 and 12 show a full assimilation of morphosemantic features of the ST, which could result in a failure of the optimal relevance for our young target readers.

Table 12. An extract from the parallel concordance of TP 3: Environment

Ex	ST	TT
9	Tourism and environmental well-being rarely go hand in hand, and the pressures are particularly great on islands.	El turismo y el bienestar del medio ambiente rara vez van de la mano, y las presiones son especialmente fuertes en las islas.
10	‘We must move environmentalism from being the philosophy of a passionate minority to a way of life that automatically integrates ecology into governmental policy and normal living standards.	“Es necesario que cambiemos el ambientalismo para que deje de ser la filosofía de una minoría apasionada y se convierta en un modo de vida que automáticamente integre la ecología a la política gubernamental y a los estándares de vida normales.”
11	We are entering an environmental	Queramos o no, estamos entrando en

	age whether we like it or not.’	una edad medioambiental.”
12	He made <i>11th</i> Hour – which he produced, co-wrote and narrated - to try to move environmental thinking into the mainstream.	El deseo de llevar el pensamiento medioambiental a la corriente dominante fue lo que motivó a DiCaprio a filmar <i>La Última Hora</i> , que él produjo, y cuyo guion también fue coescrito y narrado por él mismo.

The same tendency was shown with KLM “sustainable” as presented in Table 13. The basic meaning of “sustainable” is ‘capable of continuing for a long time at the same level’. The definition of “The green revolution” in Example 13 is ‘the increase in production of crops that has been made possible by improved farming methods and equipment’. To successfully understand this given example, one needs to have encyclopedic knowledge on the definition of both expressions which can be challenging for some people, even more so for our young audience. Example 14 is another sample of word-for-word translation which may fail to reach the optimal relevance.

Example 15-18 involves the nominalized form of “sustainability” which has two definitions: 1) ‘the ability of something to continue for a long time at the same level’, 2) ‘the use of methods that do not harm the environment’. Example 15, “sustainability movement” (“el movimiento de la sostenibilidad”), could be classified to the second definition. In the case of Example 16, 17 and 18, even with the help of context, decodifying the intended message can be very difficult: “thrust for sustainability” (“el empeño de lograr la sostenibilidad”), “principle of sustainability” (“principio de sostenibilidad”), “ensure its full sustainability” (“asegurar su sostenibilidad total”).

Table 13. An extract from the parallel concordance of TP 3: Sustainable

Ex	ST	TT
13	To increase production as rapidly as we must, we need a new and sustainable green revolution, and biotechnology can provide some of the necessary tools.	Para aumentar la producción tan rápidamente como estamos obligados a hacerlo, nos hace falta una nueva revolución verde, que además sea sostenible , y la biotecnología puede proporcionar algunos de los instrumentos necesarios.
14	It's becoming smart to be sustainable , cool to be carbon-neutral.	Hoy día es de buen tono actuar de manera sostenible , y estar en la onda mostrándose “carbono-neutro”.
15	A campaign, 11th Hour Action, aims to ‘engage and activate youth in taking leadership in the sustainability movement’.	Una campaña –Acción Última Hora– trata de “atraer y activar a los jóvenes para emprender el liderazgo en el movimiento de la sostenibilidad ”.
16	Anderson insists that the thrust for sustainability is at the heart of the company's success, and says it might not have survived a recent recession without it.	Anderson insiste en que el empeño de lograr la sostenibilidad se encuentra en el mello del éxito de la empresa, y dice que sin ese empeño tal vez hubiera sido incapaz de sobrevivir una reciente recesión.
17	Failure to observe this simple principle of sustainability has already made our task much harder.	La falta de observar este simple principio de sostenibilidad ya ha hecho mucho más difícil nuestra tarea.
18	More needs to be done to minimize the impact of aquaculture on the environment, and to ensure its full sustainability .	Es necesario hacer más para minimizar el impacto de la acuicultura sobre el medio ambiente, y asegurar su sostenibilidad total.

In particular, the keyword linguistic metaphor “carbon” in Table 14 requires our

attention since its translation tends to be highly literal, and, in doing so, leads to the creation of novel linguistic metaphors in the TT. In Example 19, the linguistic metaphor units of “a carbon footprint” is literally translated into “una pisada de carbono”, while, at the same time, the TT kept the ST’s metaphoricity and morphosemantic attributes. At least in the last few years, however, the expression “huella de carbono” has become conventional in peninsular Spanish. Thus, Example 19 could possibly cause confusion in terminology.

Examples 20, 21 and 22 also represent cases of the complete preservation of morphosemantic features of the ST: “high-carbon infrastructure” (“infraestructura de alto carbono”), “carbon habit” (“hábito del carbono”), “zero-carbon city” (“ciudad de cero-carbono”). For the understanding of these new linguistic metaphors in the TT, the readers’ good use of context cues and relatively high level of reading comprehension might be essential. Previously-acquired scientific knowledge about “carbono” would also be required.

Example 23, 24 and 25 commonly shares the expression of “carbon neutral” whose definitions reads as follows: ‘a carbon-neutral activity, company etc balances the amount of carbon dioxide and carbon monoxide it produces with actions that are designed to protect the environment, for example planting trees or using less electricity’. To be able to fully understand the given text, one needs to have a great knowledge of “carbon neutral”¹⁴.

Example 26 of “decarbonize” means ‘to reduce the amount of gaseous carbon compounds released into the atmosphere as a result of human activity’. Example 27 of “carbon positive” is not found in the Macmillan Dictionary nor in Longman Dictionary. “Carbon positive” means that you are actively doing something to better the environmental problem. A long list of “carbon” in Table 14 requires a good deal of encyclopedic and scientific information that needs to be acquired previously. Also, to be able to fully grasp the TT one would need to be familiar with these terms.

¹⁴ The prevalent use of TP 3 for “Carbon neutrality” will be further investigated in Section 8.6.

Table 14. An extract from the parallel concordance of TP 3: Carbon

Ex	Source text	Target text
19	a typical TV on standby has a s big as a carbon footprint over the year as a typical person in Burundi.	un aparato de TV típico en standby deja una pisada de carbono tan grande a través de un año como una persona típica en Burundi.
20	the high-carbon infrastructure is perpetuated for the many decades of its future useful life.	la infraestructura de alto carbono es perpetuada por los muchos decenios de su futura vida útil.
21	What practical things can everyone do to kick the carbon habit ?	¿Qué cosas prácticas puede hacer cualquier persona para dejar el hábito del carbono ?
22	Imagine a zero-carbon city with all its power provided by the sun, the wind and recycled waste -	Imaginen una ciudad de cero-carbono en que toda la energía es proporcionada por el sol, el viento y residuos reciclados,
23	becoming the world's first energy-independent, carbon-neutral island .	convertirse en la primera isla energéticamente independiente y carbono-neutral del mundo .
24	Norway is aiming to be carbon neutral by 2030.	Noruega se ha propuesto alcanzar la neutralidad de carbono para 2030.
25	Four countries from three continents – New Zealand, Norway, Iceland and Costa Rica - are racing to be the first to achieve national carbon neutrality .	Cuatro países de tres Continentes – Nueva Zelanda, Noruega, Islandia y Costa Rica- están compitiendo para ser el primero en lograr la neutralidad nacional de carbono .
26	there has to be a bigger effort to decarbonize national and regional infrastructures.	hace falta un esfuerzo mayor para descarbonizar infraestructuras nacionales y regionales.
27	And France has gone further, deciding that all buildings must be carbon positive – producing more renewable energy than they	Y Francia ha ido más allá todavía, con la decisión que para 2020, todos los edificios deben ser carbono-positivos -

	consume – by 2020,	produciendo más energía renovable de la que consumen-
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This tendency continues with the following KLMs: “waste”, “climate”, “planet” and “people” as presented in Table 13. All Examples in Table 13 contain cases of KLMs being as proper names or titles. Example 28 and 29 are project names: “Useful Waste” (“Basura útil”). Example 30 is also a name of the UNEP’s project: “Climate Neutral Network” (“Red de Clima Neutral”). Example 31 is a title of a report: “Living Planet Report” (“Informe Planeta Vivo”). Example 32 is a title of a film: “Water Planet” (“Planeta de Agua”). In the case of Example 33, “PEOPLE MOVERS” is a subheading of an article written in capitals whose title is “Green cities”, and it deals with the city’s vehicles such as traditional cars, electric cars, bicycles, buses and horse-drawn carriages in different cities around the world. Without this context, the subheading of “Moviendo a la gente” could be challenging to understand fully.

Table 15. An extract from the parallel concordance of TP 3: Waste, Climate, Planet, People

Ex	Source text	Target text
28	Their project ‘ Useful Waste for a Better Future’ has won the \$10,000 first prize: ‘In our small way, we have tried to change perceptions and improve our local environment.’	Su proyecto “ Basura útil para un futuro mejor” acababa de ganar el primer premio: “En nuestra modesta manera hemos tratado de cambiar las percepciones de la gente y mejorar nuestro medio ambiente local,” agregaron.
29	Useful waste	Basura útil
30	UNEP has also started the Climate Neutral Network to help countries, cities and corporations	el PNUMA inició la creación de la Red de Clima Neutral para ayudar a países, ciudades y corporaciones

31	The 2006 Living Planet Report identified it as my home, Cuba.	El Informe Planeta Vivo 2006 lo identifico como mi patria: Cuba.
32	It is his third environmental documentary, preceded by two short films for a web audience: <i>Global Warming</i> in 2001 and <i>Water Planet</i> in 2004, both still available on his site.	Ya había producido dos cortos para una audiencia en la web: El Calentamiento de la Tierra en 2001 y Planeta de Agua en 2004, que ambas todavía pueden verse en su sitio.
33	People movers	Moviendo a la gente

Table 16 continue to exhibit word-for-word translation of proper names. In the case of Example 34 and 35, the choice for translation has been to retain the terms of the ST in the TT, adding its Spanish literal translation in parenthesis as a reference: “The Climate Project” (“El Proyecto Clima”), “Waste for Life” (“basura-por-vida”). On the contrary, Example 36 illustrating “sustain” as a KLM demonstrates the translation tactic of borrowing; no attempt was made to translate the ST since it is a proper name.

Table 16. An extract from the parallel concordance of TP 3: Climate, Waste, Sustain

Ex	Source text	Target text
34	The concept of creating environmentally educated and empowered communities led Al Gore to create The Climate Project .	El concepto de crear comunidades ambientalmente educadas y potenciadas llevó a Al Gore a Crear The Climate Project (El Proyecto Clima) .
35	Dr Caroline Bailie, however, sees them as a way of tackling poverty. A professor of materials engineering at Queen’s	Sin embargo, la Dra Caroline Baillie las ve como una manera de tratar de resolver el problema de la pobreza.

	University in Canada, she is the brains behind Waste for Life , a network of people seeking solutions that help the environment and empower local people.	Profesora de ingeniería de materiales en la Universidad de Queen’s en Canadá, Caroline Baillie es el cerebro detrás de “ Waste for Life ” (basura-por-vida), una red de personas que buscan soluciones que ayudan al medio ambiente y habilitan a los habitantes locales.
36	‘We can act as a moral conscience,’ said Richard Graves, of SustainUS , a US youth organization.	“Podemos asumir el papel de conciencia moral,” afirma Richard Graves, de SustainUS , una organización juvenil estadounidense.

It can be observed from Table 15 and 16 that the translation strategies of word-for-word and borrowing occurred frequently, particularly with KLMs, “sustainable”, “carbon”, “environment” and “world”. When it comes to proper names and titles, the frequent use of TP 3 was observed in the chosen environmental texts which indeed is a widely used/accepted practice within the translation community.

This may happen for two reasons: i) equivalent linguistic metaphors in the ST are inexistent in the TL, or ii) word-for-word translation is considered a commonly accepted paradigm in the translation market. However, translators’ search of novel linguistic materials in the TT – whether it is intentional or unintentional – casts a question upon how the young readers could comprehend the TT and what its persistent use would bring about: it might dampen the readability or even the understanding of the TT. It is worth emphasizing that the translation is directed at the youth education, and thus, the TT needs to be guided by the corresponding addressee-orientation.

If these translators’ pursuit of literal faithfulness to the ST or seek for linguistic innovation persist, it is likely that new linguistic metaphors will be introduced from the SL

into the TL in the long run (Samaniego-Fernández, Velasco-Sacristán & Fuertes-Olivera, 2005, p. 62). It is important to remember that all conventional linguistic metaphors must have been new and innovative at some point in history. It has long been recognized that metaphor plays an important role in the development of new lexical items. These literal metaphorical uses of language, which, if repeated often enough, might result in the establishment of systematic linking. In other words, native speakers can acquire the underlying conceptual patterns through their linguistic experience of using characteristic linguistic expressions whose repeated use which forms salient linguistic patterns is at least partially responsible for the corresponding elements in the conceptual systems of the native speakers (Ning, 2020, p. 28). Thus, it is critical to notice that by making a conscious or unconscious use of TP 3, translators are, in fact, introducing new metaphorical expressions in the TL, and in the end, these images will affect the way that the target readers think about the environment.

This is why it is important to put more thought and consideration in dealing with the translation of, in particular, one-time linguistic metaphor, because when these innovative metaphors are repeated and reused to the extent that most speakers of the TL become familiar with them, in the end, they will most likely be conventionally normalized in the TL. Through their ST-oriented translations or the repeated use of TP 3, translators would have an essential influence on the target linguistic system. For some authors, students of translation also should be made aware of their power to influence and educate their readers regarding neology, language evolution and the importance of preserving their linguistic patrimony (Gerding, Fuertes, Gómez, & Kotz, 2014). The same experts emphasized that those language teachers and professional translators should be made aware of their responsibility in decisions concerning the incorporation of the SL innovative lexical units. Professionals should take into account that literal translation or neology in translation is just one of the mechanisms that may be used to account for a new SL unit with no exact equivalent in the TL.

The influence that English has on the Spanish formation of popular science needs to be watched over because a preference for literal translation poses doubts concerning to what extent “new expressions” act as a terminologically innovative and enriching element in the language of secondary word formation (Sanz Vicente, 2012). While literal translation or neology in translation may show different degrees of adaptation to the TT from a zero-assimilation degree to almost full assimilation and complete copy, the translators’ conscious decision-making - consider the linguistic impact on the target language both in the short and long term - would be required. In order to make the TT as relevant as possible to the target readers, TP 2 could be considered as an alternative to the immoderate use of TP 3. To repeat, the communicative principle of relevance assumes that the communicator is supposed to want his/her communication to succeed which reflects the communicator’s intention of making the utterance as relevant as possible to the audience. Addition of explanations/information could help our young readers to reach this communicative dimension.

7.5 TP 4: Preservation of non-literal metaphor

In the last category of TP 4, the linguistic metaphors in the ST are adjusted to the TT by keeping its metaphoricity, but describing it in a TL-oriented manner. Table 17 exhibits two Examples. Example 37 of “World’s END” is a title of an article, and, also a book title written by William Beebe in 1924. Spanish version is not available. The article is about Galapagos which used to be very difficult to get to and not the islands have become as an extreme example of both success and failure. Spanish translation could have been “FIN del mundo” in a literal way. Instead, the choice of “EXTREMO” made the intended message clearer and more concrete. It also keeps the metaphoricity of the ST, and, at the same time, neatly

captures the contents of the article.

Another case in point is Example 38 of “underworld” (“infierno”). The basic meanings of “underworld” are as follows: 1) “the criminals in a particular community, considered as a group’, 2) the Underworld in old stories, a place below the Earth’s surface where people go when they die. Given the context, the chosen excerpt corresponds to the second definition. Its literal translation would have been “submundo” or “bajos fondos”. Instead, the translator’s choice of “infierno” means ‘en la doctrina tradicional Cristiana, lugar donde los condenados sufren, después de la muerte, castigo eterno’ which matches for the second definition of “underworld”.

Table 17. An extract from the parallel concordance of TP 4: World

Ex	Source text	Target text
37	World ’s END	EL EXTREMO del mundo
38	But Paba and Nana sent Dad Ibe – the sun – to defend the Great Mother, and dispatched the two neglectful men to the underworld .	Pero entonces Paba y Nana enviaron a Dad Ibe –el sol- para defender a la Gran Madre, y despacharon a los dos hombres negligentes a los infiernos .

Table 17 showed how the TT-oriented and, yet, metaphor preserving translations are possible. TP 4 has been used as a means to preserve the metaphoricity of the ST while probing into the idealist expressions that could be relatively comfortable and understandable for our young target readers. In doing so, it is important to mention that there is no meaning lost. Moreover, the metaphoricity of the ST is maintained. Most importantly, by making what is implicit less implicit or concrete in the TT, the intended message becomes clearer, and probably more adequate and easy for our young target readers. However, as opposed to a lengthy list of TP 3, a very short list of TP 4 is something to be desired. As relevance theory

provides the theoretical validity of the freedom of target-oriented translation, translators should be encouraged to be more creative.

CHAPTER 8. ANALYSIS: ENGLISH-KOREAN

In this Chapter, four different translation patterns of a language pair from English to Korean will be presented along with relevant examples with most distinctive features. Back translations from Korean to English will also be provided.

8.1 Korean TP frequency for each keyword linguistic metaphor

For the Korean subcorpus, a total number of occurrences of TPs stood at 168 (see Table 18), which is similar to that of Spanish subcorpus. In general, the frequency of four TPs was evenly distributed compared to its Spanish equivalents. Sill as in the case of Spanish translation, the most frequently applied Korean translation strategy opted for linguistic metaphors was TP 3 with 51.8%. For more than half the cases, Korean translators leaned toward TP 3, but not as much as their Spanish colleagues.

TP 2 ranked on the second place with a relatively high take-up of 23.8%: more explanations were provided by Korean translators than by their Spanish counterparts. To continue, TP 4 accounted for 17.3% which is a higher number than that of Spanish TP 4: provision of alternative metaphorical expressions in the Korean TT could be observed. Lastly, TP 1 occurred with the least frequency although its usage of 7.1% was more frequent than that of Spanish equivalents.

Table 18. Korean frequency of TP 1, TP 2, TP 3, TP 4

No	KW	Total N	TP 1		TP 2		TP 3		TP 4	
			N	%	N	%	N	%	N	%
1	WORLD	49	6	12.2	8	16.3	19	38.8	16	32.7
2	SUSTAINABLE	33	2	6.1	7	21.2	22	66.7	2	6.1
3	CARBON	29	0	0	11	37.9	16	55.2	2	6.9
4	ENVIRONMENT	18	1	5.6	3	16.7	12	66.7	2	11.1
5	CLIMATE	12	1	8.3	3	25.0	7	58.3	1	8.3
6	YOUTH	8	0	0	7	87.5	0	0	1	12.5
7	WASTE	6	0	0	0	0	6	100	0	0
8	GLOBAL	6	2	33.3	1	16.7	3	50	0	0
9	PLANET	5	0	0	0	0	1	20	4	80
10	PEOPLE	2	0	0	0	0	1	50	1	50
	TOTAL	168	12	7.1	40	23.8	87	51.8	29	17.3

For the first keyword linguistic metaphor of WORLD, all four TPs were used in a relatively even manner. Still, TP 3 took up almost 40%, followed by TP 4 with a slight difference. Next in line was TP 2 of explanation with 16.3%. The frequency of TP 1 was observed to be as high as that of TP 2. When it came to the keyword WORLD, it was confirmed that Korean translators considered not just a literal translation but other translation methods as well. For more than half the cases, the second keyword of SUSTAINABLE was translated in a literal manner, however, TP 2 of explanation was also employed. The same tendency could be found for the third keyword of CARBON: 55.2% of a literal translation along with 38.9 % of explanation provision. In a similar manner, the fourth linguistic metaphor of ENVIRONMENT was mainly translated in a literal manner with 66.7%. The keyword CLIMATE also showed the general tendency to TP 3 with 58.3% followed by TP 2 with 25%.

In the following section, each translation strategy of the Korean language will be further elaborated with corresponding examples and compared with the results of the Spanish TPs which were discussed in the previous Chapter. Back translation from Korean to English will be provided.

8.2 TP 1: Omission of metaphor

TP 1 refers to cases in which the source linguistic metaphor is not translated in the TT. Table 19 presents Examples whose KLM are “world” and “global”. These linguistic metaphors are missing in the TT since the keyword metaphors in the ST were deemed not to constitute vital information, but rather repetitive in the Korean language. When the information is considered otiose, redundant or unessential to the understanding of the given text, the translator may resort to the strategic omission.

Table 19. An extract from the parallel concordance of TP 1: World, Global¹⁵

Ex	Source text	Target text
1	The use of alternatives, particularly renewable ones like the sun, wind and biomass, is expanding, but cannot increase fast enough to take over the burden of powering the world in the near future.	최근 들어 대체연료, 특히 태양과 풍력, 바이오매스(에너지 자원으로 이용되는 식물체와 동물체 폐기물)와 같은 재생 가능한 에너지 사용이 확대되어 가는 추세이지만, 그렇다고 이러한 대체연료들이 가까운 미래의 [φ] 에너지 부담을 짊어질 수 있을 만큼 기술 개발 및 파급 속도가 빠른 것은 아닙니다.
TR	The use of alternatives, particularly	The use of alternatives, particularly

¹⁵ The back translation from Korean to English is done by the author of the present paper.



	renewable ones like the sun, wind and biomass, is expanding, but cannot increase fast enough to take over the burden of powering the world in the near future.	renewable ones like the sun, wind and biomass(waste of plants and animals used as an energy resource), is expanding, but the speed of technological development and its ripple effects are not fast enough to take over the burden of energy [φ] in the near future.
2	More importantly for Castle Huughes – whose mother is Maori and is affiliated with three tribes, Ngati Porou, Tainui and Nga Puhi - it called the world's attention to the values of a people who have lived in harmony with nature.	캐슬 휴스의 어머니는 마오리족이며 가티 포로우, 타이누이, 느가 푸히의 세 가지 부족과 연관이 있기 때문에 특별히 본인에게는 영화를 통해 세상이 자연과 더불어 사는 사람들의 가치를 [φ] 높이 평가했다고 생각했습니다.
TR	More importantly for Castle Huughes – whose mother is Maori and is affiliated with three tribes, Ngati Porou, Tainui and Nga Puhi - it called the world's attention to the values of a people who have lived in harmony with nature.	More importantly for Castle Huughes – whose mother is Maori and is affiliated with three tribes, Ngati Porou, Tainui and Nga Puhi – through the movie [φ] thought that the world highly valued the people who have lived in harmony with nature.
3	Which is the only country in the world that provides both a high level of human development for its people and a globally sustainable demand on the Earth's natural resources?	지구상에서 유일하게 높은 수준의 인적자원 개발과 [φ] 지속가능한 환경개발을 하는 국가는 어느 나라일까요?
TR	Which is the only country in the world that provides both a high level of human development for its people and a globally sustainable demand on the Earth's natural resources?	Which is the country that develops both a high level of human resources and [φ] sustainable environment?

Meanwhile, Table 20 shows an offbeat tendency. Not just KLMs but also other important elements were eliminated altogether. In Example 3 in which the keyword linguistic metaphor is “climate”, the TT starts with “skeptics” instead of “climate skeptics” or “climate change skeptics”. The omission of “climate” is considered acceptable given that it can be deduced from the context. However, there is a chunk of information missing which corresponds to “the dwindling, but noisy, band of climate”. The lack of space cannot be attributable as shown in the captured image (CI) of the texts in Table 20. It is important to note that the left-out information is neither redundant nor unimportant.

Example 4 from the same Table 8 is a similar case in which the keyword “climate” was omitted even when the given space is sufficient as shown in the CI. The chosen element is the first sentence of an article. The resulting TT is incorrect and too vague; the TT lost the source element of “it is not from ‘this world’” along with its relation with the title of “No life on ‘Mars’”.

Table 20. An extract from the parallel concordance of TP 1: Climate, World

Ex	Source text	Target text
4	They call it the ‘other CO ₂ problem’– and it is something that the dwindling, but noisy, band of climate skeptics never talk about.	회의론자들은 지구의 식량위기를 또 하나의 CO ₂ 문제라고 치부하고 이 문제에 대해 전혀 논의하지 않고 있는 실정입니다.
TR	They call it the ‘other CO ₂ problem’– and it is something that the dwindling, but noisy, band of climate skeptics never talk about.	The current state is that skeptics dismiss the Earth’s food crisis as another CO ₂ problem and never discuss about it.

CI	<p>They call it the 'other CO₂ problem' - and it is something that the dwindling, but noisy, band of climate sceptics never talk about. For it is already, incontrovertibly, changing most of the face of the planet - and provides the clinching argument that humanity must urgently and drastically cut emissions of carbon dioxide.</p>	<p>회 의론자들은 지구의 식량위기를 또 하나의 CO₂문제라고 치부하고 이 문제에 대해 전혀 논의하지 않고 있는 실정입니다. 그 이유는 이 문제가 지구의 모습을 바꿔놓고 있다는 사실이 이미 밝혀졌고, 인류의 신속한 이산화탄소 배출량 감소 역시 이에 대한 방안으로 제기되고 있기 때문입니다.</p>
5	<p>It may be the world's largest uninhabited island, but the really striking thing about Devon Island is not of this world at all.</p>	<p>데본(Devon)섬은 아마 세계에서 가장 큰 무인도일 수도 있습니다. 하지만 정작 더 놀라운 것은 다른 것에 있습니다.</p>
TR	<p>It may be the world's largest uninhabited island, but the really striking thing about Devon Island is not of this world at all.</p>	<p>Devon Island may be the world's largest uninhabited island, but the really striking thing lies in a different thing.</p>
CI	<p><i>No life on 'Mars'</i></p> <p>It may be the world's largest uninhabited island, but the really striking thing about Devon Island is not of this world at all. For its mountainous land, surrounded by the chilly waters of the Arctic between Canada and Greenland, is most important for its resemblance to Mars. Some 39 million years ago, a giant 2-kilometre-wide meteorite crashed into it, leaving a crater 23 kilometres across. This Houghton impact crater, as it is called, is thought to be the spot on Earth that is most like the Red Planet. Known as 'Mars on Earth', and well preserved by the cold, dry climate, it is used as a test site for possible future missions to our neighbouring planet. Researchers have been visiting the island to conduct surveys and collect information for the past decade.</p>  <p>Colin Russell</p>	<p>지구의 외성</p> <p>데본(Devon)섬은 아마 세계에서 가장 큰 무인도일 수도 있습니다. 하지만 정작 더 놀라운 것은 다른 것에 있습니다. 캐나다와 그린란드의 차가운 유역이 북극의 지구를 같이 둘러싸고 있는 산지는 3천 9백만 년 전에 반경 2킬로미터의 운석이 떨어지면서 23킬로미터에 달하는 분화구가 만들어졌습니다. '호튼 분화구(Houghton impact crater)'라고 불리는 이곳은 지구에서 화성의 가장 흡사한 지역으로 알려져 있는 '지구의 화성'입니다. 이곳을 돌고 연구할 기록을 잘 보존되고 있으며 매우 훌륭한 화성 탐사 모델의 유사 가능성을 위한 최적의 지역으로 사용되고 있습니다. 연구 조사자들은 지난 10년간의 사료들을 수집하기 위해 여 탐을 방문하고 있습니다.</p>  <p>Colin Russell</p>

The practice of TP 1 that coincides with the loss of information nearby requires further investigation. Table 21 provides representative Examples in which TP 1 is practiced when the lack of space may not be of issue. Example 6 appears in the last page of the magazine. For some reason, this entire page is missing in the TT. In Example 8, in which the keyword linguistic metaphor is “environment”, some significant information is missing: “the replacement of ecological niches”, “extensive farming”, and ostensibly redundant elements of “homogeneous farm environments” are omitted possibly due to the translator’s judgment of being repetitive or unnecessary. As a result, there is no corresponding TT whatsoever, and as a result, the TT became very short.

Table 21. An extract from the parallel concordance of TP 1: World, Environment

Ex	Source text	Target text
6	“My painting shows different ways that people can save the world .”	∅
7	‘The era of the replacement of ecological niches by extensive, artificially maintained, homogenous farm environments, growing single crop varieties, is ending because agrochemicals are becoming expensive and irrigation water scarce.	‘화학 비료 가격이 상승하고 농업 용수는 부족해졌습니다. 단일 농작물을 재배하고 인공적으로 농사짓던 시대는 지났습니다.
TR	‘The era of the replacement of ecological niches by extensive, artificially maintained, homogenous farm environments, growing single crop varieties, is ending because agrochemicals are becoming expensive and irrigation water scarce.	‘Agrochemicals are becoming expensive and irrigation water scarce. The era of growing and artificially maintaining single crop varieties has passed.

Continuously, Table 22 also presents an Example in which a chunk of information is omitted. The entire sentence that involves the KLM “world” was erased in the TT when the lack of space is out of the question. CI in Table 22 visually provides the lengthy difference between the ST and the TT. Visual issues may be at play. Still the reason of omissions remains dubious.

Table 22. An extract from the parallel concordance of TP 1: World

Ex	Source text	Target text
8	<p>I climbed my first tree at 18 months – a stately magnolia with strong spreading branches and heavenly fragrant flowers that perfumed the garden. Ever since, that tree has served as my refuge, if only for a brief respite from the noise and chaos of daily life. Within those branches I have always felt protected, as if the leaves themselves created a force field that repelled the obligations and criticisms of the outside world.</p>	<p>저는 18개월이 되었을 때, 힘차게 뻗은 가지와 천국의 향을 정원 곳곳에 풍기는 꽃을 가지고 위엄있게 서 있는 목련 나무에 올랐습니다. 그 이후로 그 나무는 일상 생활에서의 소음과 혼란으로부터 벗어나 숨을 쉬 수 있는 저만의 휴식처가 되었습니다.</p>
TR	<p>I climbed my first tree at 18 months – a stately magnolia with strong spreading branches and heavenly fragrant flowers that perfumed the garden. Ever since, that tree has served as my refuge, if only for a brief respite from the noise and chaos of daily life. Within those branches I have always felt protected, as if the leaves themselves created a force field that repelled the obligations and criticisms of the outside world.</p>	<p>At 18 months I climbed a stately magnolia with strong spreading branches and heavenly fragrant flowers that perfumed the garden. Ever since, that tree has served as my resting place where I can breathe free of noise and chaos of daily life.</p>

CI	<h2 style="margin: 0;">Fighting like hell</h2> <p style="font-size: small; margin: 0;"><i>International environmental studies student and WWF volunteer, Lauren Prince (22)</i></p>  <p style="font-size: x-small; margin: 0; color: gray;">Lauren Prince</p> <p style="margin: 0;">I climbed my first tree at 18 months – a stately magnolia with strong spreading branches and heavenly fragrant flowers that perfumed the garden. Ever since, that tree has served as my refuge, if only for a brief respite from the noise and chaos of daily life. Within those branches I have always felt protected, as if the leaves themselves created a force field that repelled the obligations and criticisms of the outside world.</p>	<h2 style="margin: 0;">지옥 같은 싸움</h2> <p style="font-size: small; margin: 0;"><i>국제 환경을 연구하는 학생이자 세계야생생물기금(WWF: World Wildlife Fund)의 자원봉사자인 22살의 로렌 프린스(Lauren Prince)</i></p>  <p style="font-size: x-small; margin: 0; color: gray;">Lauren Prince</p> <p style="margin: 0;">저는 18개월이 되었을 때, 힘차게 뻗은 가지와 천국의 향을 정원 곳곳에 풍기는 꽃을 가지고 위엄 있게 서 있는 목련 나무에 올랐습니다. 그 이후로 그 나무는 일상생활에서의 소음과 혼란으로부터 벗어나 숨을 쉴 수 있는 저만의 휴식처가 되었습니다.</p>
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The omission of KLM in this category may be attributed to two reasons as follows:

the translator’s judgment upon which the omitted part contains non-essential or redundant information, or the translator’s arbitrary removal of that information. It may be cautiously assumed that when TP 1 is practiced, other information nearby is likely to disappear along with the keyword linguistic metaphors. The omission of information made the texts much shorter than the ST and meaning was frequently lost or distorted. Furthermore, when practiced TP 1, the translation tended to contain a high degree of incorrectness and inaccuracy, often in the forms of summarization of the lengthy sentence or paragraph. When there were no worries over lengthiness, in particular, the reasons upon which the translators’ decision was taken remain highly doubtful. It can be said that the information was arbitrarily selected by translators.

TP 1 occupied a relatively small percentage in the Korean language, but its usage was more frequent than that of Spanish translation. When a source KLM is excluded in the TT, the important contents nearby should by no means be omitted randomly or excessively, but instead, it ought to be applied very carefully: Korean translator’ arbitrary choice of information could be inevitable in certain context, but needs to be done with much prudence.

8.3 TP 2: Explanation of metaphor

Under the category of TP 2, the explanatory translation is offered in the absence of

linguistic metaphors, referring to the procedure in which translators use hyponyms or concrete terms in the TT. Table 23 includes a series of examples of TP 2. For example, “environmental well-being” in Example 9 is translated into “environmental preservation”, which does not keep the metaphoricity of the ST, but specifies details and precise information are offered. Also, “environmental preservation” in the TT is a widely accepted term that is familiar to the Korean target readers. The same applies to Example 10 as in “intercultural environment” translated into “intercultural family”, which is a common expression for the Korean readers.

Table 23. An extract from the parallel concordance of TP 2: Environment

Ex	Source text	Target text
9	Tourism and environmental well-being rarely go hand in hand, and the pressures are particularly great on islands.	관광산업과 환경보존 은 공존하기 힘든데, 이런 문제는 특히 섬나라들에게 더욱 큰 부담입니다.
TR	Tourism and environmental well-being rarely go hand in hand, and the pressures are particularly great on islands.	Tourism industry and environmental preservation rarely go hand in hand, and this problem puts great pressures particularly on islands.
10	My brothers and I grew up in an intercultural environment , but we have always had an affinity for our Kuna culture.	우리 형제들은 비록 다문화 가정 에서 성장했지만, 쿠나 문화와 더 친숙했습니다.
TR	My brothers and I grew up in an intercultural environment , but we have always had an affinity for our Kuna culture.	My brothers and I grew up in an intercultural family , but we have always had an affinity for the Kuna culture.

Continuously, Table 24 contains the KLM of “climate”. In Example 11, “climate” is specified into “climate change”, which makes the TT more specific pointing to the problem. In the same line, “climate” in Example 12 was translated into “weather”, instead of its literal translation of “climate”. In doing so, the concept has become concrete and familiar to our young target readers.

Table 24. An extract from the parallel concordance of TP 2: Climate

Ex	Source text	Target text
11	Of course, all this will only work if millions of us act. But millions of us now care about the climate .	물론, 이 모든 것은 수 백만 인구가 함께 행동해야만 그 효과가 나타날 것입니다. 하지만 우리는 이제야 기후 변화에 대해 주의를 기울이고 있습니다.
TR	Of course, all this will only work if millions of us act. But millions of us now care about the climate .	Of course, all this will only work if millions of populations act together. But we now finally pay attention to climate change .
12	‘Adapting a building to the climate is better than adapting the climate to a building,’	“빌딩을 날씨에 맞추는 것이 날씨를 빌딩에 맞추는 것보다 쉽습니다.”
TR	‘Adapting a building to the climate is better than adapting the climate to a building,’	“Adapting a building to the weather is easier than adapting the weather to a building,’

Examples presented, so far, in Table 23 and 24 have managed to maintain the length of the TT to match that of the ST. The following Table 25 with the keyword “sustainable” shows the length of the TT has become extended due to the addition of explanation. Example 13 as in “a sustainable lifestyle” has been further elaborated as “a healthy life until one’s later years”. Even though the metaphoricity of “sustainable” was lost in the TT, the intended

meaning was kept in a way that our young target readers are most likely familiar with. Example 14, too, offers a detailed account: “sustainable source” (“in an environment friendly manner that does not harm the ecosystem”). In doing so, the message of the TT has become clearer and more concise for readers to understand, besides it is highly readable in the Korean language.

Table 25. An extract from the parallel concordance of TP 2: Sustainable

Ex	Source text	Target text
13	We are often encouraged to eat more fish to support a sustainable lifestyle .	노후까지 건강한 인생을 살기 위해서 생선을 더 많이 섭취해야 한다고 합니다.
TR	We are often encouraged to eat more fish to support a sustainable lifestyle .	It is known that we have to eat more fish to live a healthy life until one’s later years .
14	and has launched a certification scheme to identify whether the oil comes from a sustainable source .	야자유가 친환경적으로 생태계에 피해를 주지 않으며 생산되었는지를 확인하기 위한 인증제도를 도입하여 시행하고 있습니다.
TR	and has launched a certification scheme to identify whether the oil comes from a sustainable source .	and has launched a certification scheme to identify whether the palm oil is produced in an environment friendly manner that does not harm the ecosystem .

The list of TP 2 continues with the KLM of “carbon” presented in the following Table 26. Examples 18 and 19 contain similar terms for “carbon”: “carbon-free” and “zero-carbon”. The former one was elaborated as “don’t generate CO2”. The latter one was further explained as “doesn’t emit any CO2”. Even though the TT lost the metaphoricity of the ST, the target readers would not have any problem in understanding the intended message, and

that is thanks to the detail accounts provided by Korean translators.

As for the keyword “carbon” which tended to be metaphorical as demonstrated in Table 6 (Chapter 5), the usage of TP 2 was relatively frequent. It is to interpret that the scientific concept of “carbon” along with its metaphoricity in the ST implies a low degree of relevance. Korean translators would have applied TP 2 with an aim to make the TT as relevant as possible to the target readers.

Table 26. An extract from the parallel concordance of TP 2: Carbon

Ex	Source text	Target text
18	Many of these preservation techniques, like dehydrating fruit or meat, were used before the Industrial Revolution and their production is carbon-free .	건조식품 등을 비롯한 많은 식품 보존기법들은 산업혁명 이전부터 사용되어 왔고 이 기법들은 모두 이산화탄소를 발생시키지 않았습니다 .
TR	Many of these preservation techniques, like dehydrating fruit or meat, were used before the Industrial Revolution and their production is carbon-free .	Many of these preservation techniques, like dehydrating food, were used before the Industrial Revolution and all these techniques don't generate CO2 .
19	Imagine a zero-carbon city with all its power provided by the sun, the wind and recycled waste -	태양, 바람, 폐기물로부터 전력을 제공받아 이산화탄소를 전혀 배출하지 않는 도시 가 있다고 상상해 보세요.
TR	Imagine a zero-carbon city with all its power provided by the sun, the wind and recycled waste -	Imagine a city that doesn't emit any CO2 with its power provided by the sun, the wind and waste.

Under the category of Korean TP 2, in the form of eliminating the metaphoricity of the ST, translators introduced details that were not explicitly or sufficiently expressed in the

ST. Up to this point, it was observed that TP 2 could be applied in various manners depending on KLMs. Its frequency was higher for Korean translation than that of Spanish equivalent.

On the other hand, there are cautious voices for the use of TP 2 saying that various functions and effects of the metaphor along with the author's intention may be missing in the TT. For example, C. S. Lee (2000, p. 77) argued that the elimination of metaphors has to be the last option in translation since the important functions of metaphor such as its poetic effects and the possibility of open interpretation would be lost. Against this position, Liu, S. Y. (2021, pp. 100) suggested that in the case of literary works, it may be better to preserve the ST metaphors in the TT at the expense of text processing costs, provided that the reader does not have much room for misinterpretation. This discussion shall be resolved when the characteristics of the given texts are taken into consideration. Given the genre of the chosen corpus, the present study put more emphasis on the meaning delivery and readability. The use of TP 2 is also supported by S. M. Kim (2002, p. 101): For a linguistically remote English-Korean translation what is important is to make sure that the ST meaning is delivered to the target readers with a similar level of formality.

The analysis so far has shown that the main purpose of TP 2 was to help non-specialist readers, in particular, to understand abstract or scientific ideas such as “sustainable source”, “carbon-free” and “zero-carbon”. Indeed, it is a necessary technique since the given texts are aimed at the lay public. A relatively frequent occurrence of TP 2 is a welcoming sign because it proves the translators' endeavor to elaborate further the TT to make it close, familiar and easy to the target readers. Especially for the translation of a novel linguistic metaphor that is used only once, TP 2 could serve as a handy strategy.

8.4 TP 3: Preservation of literal metaphor

On account of novel linguistic metaphors in the ST, the translator may choose to follow TP 3. In turn, these novel linguistic metaphors in the ST are literally introduced in the TT. Table 27 shows the results of TP 3 for three keywords: “environment”, “sustainable” and “climate”. In Example 20 of “environmental age” was translated literally into the Korean language. The resulting TT could be very difficult to understand even for readers with much prior knowledge. Here is the sentence right before the chosen excerpt from the ST: ‘We must move environmentalism from being the philosophy of a passionate minority to a way of life that automatically integrates ecology into governmental policy and normal living standard’. Even with the help of the context, still the TT would not be sufficiently clear and readable, especially, for our young target readers.

Example 21 is a repeated one from the Spanish translation (see Section 7.4). For some readers, “sustainable”, alone, can be considered an unfamiliar or too tricky concept. Now, it was combined with a, possibly, even more technical or scientific – and, at the same time, metaphorical - expressions of “green revolution”. The target readers, as a result of TP 3, may fail to retrieve the intended meaning.

Table 27. An extract from the parallel concordance of TP 3: Environment, Sustainable

Ex	Source text	Target text
20	We are entering an environmental age whether we like it or not.’	우리는 싫든 좋든 환경 의 시대로 접어들고 있기 때문입니다.”
TR	We are entering an environmental age whether we like it or not.’	Whether we like it or not, this is because we are entering an environmental era.”

21	To increase production as rapidly as we must, we need a new and sustainable green revolution , and biotechnology can provide some of the necessary tools.	수요를 충족시킬 수 있을 만큼 빠르게 생산성을 증가시키기 위해서는 지속가능한 녹색 혁명 이 필요하고 생명공학이 여기에 일부 필요한 방법을 제공할 수 있습니다.
TR	To increase production as rapidly as we must, we need a new and sustainable green revolution , and biotechnology can provide some of the necessary tools.	To increase production as rapidly as to meet the demand, we need a sustainable green revolution , and biotechnology can provide some of the necessary methods.

The list of TP 3 goes on with “carbon” and “climate”. The keyword “carbon” requires our special attention. The translation of “carbon” is highly limited to “carbon”, “carbon emissions”, “emissions” or “carbon dioxide and carbon monoxide” in both Spanish and Korean. However, when put together with certain lexical units, “carbon” produces a long list of new expressions. Table 28 presents such cases.

Despite its familiarity, “low-carbon” from Example 22 is not found in *the Macmillan dictionary*. Similar expressions are “zero carbon” and “carbon free”: “zero carbon” means ‘no causing carbon emissions’, while “carbon free” is not found in the dictionary. Neither “carbon-based economy” from Examples 26 and 27 appeared in the English dictionary. As opposed to “low-carbon”, “high-carbon” in Example 28 appears in the dictionary as ‘producing a lot of carbon emissions’. Due to TP 3, all “carbon” related lexical units, both new and existing ones, have entered in a literal manner into the Korean language. The next in line could be “carbon habit” from Examples 26 and 27.

Table 28. An extract from the parallel concordance of TP 3: Carbon

Ex	Source text	Target text
22	the world will need as it seeks to move to low-carbon economies .	세계가 저탄소 경제체제 로 가기 위해 필요한
TR	the world will need as it seeks to move to low-carbon economies .	the world will need as it seeks to move to low-carbon economic system .
23	is it possible to stop developing countries from forming carbon-based economies ?	개발도상국들이 탄소기반경제 를 포기하게 하는 것이 가능할까요?
TR	is it possible to stop developing countries from forming carbon-based economies ?	is it possible to make developing countries abandon their carbon-based economies ?
24	The fact is that the developed world has a carbon-based economy , consuming enormous amounts of natural resources and generating vast amounts of detrimental waste,	선진국가가 막대한 양의 자연자원을 소비하고 어마어마한 양의 쓰레기들을 발생시키는 탄소기반 경제 를 가지고 있는 것을 사실입니다.
TR	The fact is that the developed world has a carbon-based economy , consuming enormous amounts of natural resources and generating vast amounts of detrimental waste,	The fact is that the developed countries have a carbon-based economy , consuming enormous amounts of natural resources and generating vast amounts of waste,
25	the high-carbon infrastructure is perpetuated for the many decades of its future useful life.	이러한 고탄소 산업 기반시설 은 그 사용 가능 기간인 몇 십 년 동안만 유지될 것입니다.
TR	the high-carbon infrastructure is perpetuated for the many decades of its future useful life.	the high-carbon based infrastructure is only perpetuated for a few decades of its future useful life.
26	Technology will be needed to help the world kick the carbon habit .	우리의 잘못된 탄소 습관 을 바꾸기 위해 과학기술의 도움이 필요할 것입니다.
TR	Technology will be needed to help the world kick the carbon habit .	Technology will be needed to help change our incorrect carbon habit .
27	ambitious schemes proposed for doing this pose their own dangers to the	이 문제를 해결하기 위해 제안된 대규모 계획의 위험성이 지구와 직접 연관될 뿐

	planet and could distract from the need to kick the carbon habit by reducing emissions.	만 아니라 이산화탄소 배출을 줄임으로써 잘못된 탄소 습관 을 바꾸려는 원래의 의도에서 벗어날 수 있다고 이의를 제기합니다.
TR	ambitious schemes proposed for doing this pose their own dangers to the planet and could distract from the need to kick the carbon habit by reducing emissions.	large scale schemes proposed for resolving this problem is directly related to the planet and could distract from the original aim to change the incorrect carbon habit by reducing emissions.

The keyword “carbon” will be further discussed with Table 29 in which “carbon-neutral” is in focus. For these specific lexical units, it was also translated literally in the Spanish subcorpus (see Table 17). In Examples 28-32: “carbon-neutral” has turned into “carbon-neutral”, “neutralize carbon” and “carbon neutrality”. Then, “climate neutral” appeared: “Climate Neutral Network” in Example 33 is a name of one of the UNEP’s projects. “Climate Neutral” means ‘describing activities that do not put a strain on the climate because they do not create greenhouse gases’. Both “carbon neutral” and “climate neutral” are the lexical units that we read and hear more and more frequently. To make a note, “Network” was translated into “*ne-teu-wo-keu*” in Korean which once a novel/exotic word, but has now an entry in the dictionary of the National Institute of the Korean Language.

Table 29. An extract from the parallel concordance of TP 3: Carbon, Climate

Ex	Source text	Target text
28	becoming the world’s first energy-independent, carbon-neutral island.	세계에서 첫 번째로 에너지 독립에 성공한 탄소 중립 섬입니다.
TR	becoming the world’s first energy-	becoming the world’s first energy-

	independent, carbon-neutral island.	independent, carbon-neutral island.
29	The United Kingdom has ambitiously set out to make all new homes carbon neutral by 2016, and is to build 10 zero-carbon ‘eco-towns’.	영국은 2016년까지 모든 가정의 탄소 중립화 를 이룩한다는 야심찬 계획을 갖고 탄소 없는 “에코타운(ecotown)’을 10군데 세울 계획입니다.
TR	The United Kingdom has ambitiously set out to make all new homes carbon neutral by 2016, and is to build 10 zero-carbon ‘eco-towns’.	The United Kingdom has ambitiously set out to neutralize carbon of all new homes by 2016, and is to build 10 ‘eco-towns’ without carbon.
30	(...) cool to be carbon-neutral .	탄소 중립 을 지키는 것은 좋은 일입니다.
TR	(...) cool to be carbon-neutral .	(...) good to maintain carbon-neutrality .
31	Norway is aiming to be carbon neutral by 2030.	노르웨이는 2030년까지 탄소중립화 를 달성하는 것을 목표로 삼았습니다.
TR	Norway is aiming to be carbon neutral by 2030.	Norway is aiming to achieve carbon neutrality by 2030.
32	UNEP has also started the Climate Neutral Network to help countries, cities and corporations achieve zero-carbon status and is taking the lead in greening he way the UN works.	UNEP은 또한 국가, 도시, 기업들이 탄소 배출 제로 (0) 목표를 이룰 수 있도록 돕기 위해 기후중립네트워크 (CNN: Climate Neutral Network)을 출범하였고 UN의 활동을 환경친화적인 방향으로 인도하고 있습니다.
TR	UNEP has also started the Climate Neutral Network to help countries, cities and corporations achieve zero-carbon status and is taking the lead in greening he way the UN works.	UNEP has also started the Climate Neutral Network to help countries, cities and corporations achieve zero-carbon emissions and is taking the lead the UN works in the environment friendly way.
33	All signed up to UNEP’s new Climate Neutral Network .	4개국 모두가 유엔환경계획의 새로운 기후중립네트워크 (Climate Neutral Network)에 서명했습니다.
TR	All signed up to UNEP’s new Climate Neutral Network .	All four countries signed up to UNEP’s new Climate Neutral Network .

Another form of TP 3 is borrowing: the choice for translation has been to retain the exact linguistic expressions, particularly phonological ones, of the ST. The following Table 30 illustrates such cases in which previously the English expressions did not exist in the Korean language, but they have become part of it. In both Examples 34 and 35, the KLM, “global” was phonetically copied as “*geul-lo-beol-ha-gae*” and “*geul-lo-beol*”, respectively. It is important to mention that “*geul-lo-beol*”, alone in a separate way, is not found in *the Standard Korean Language Dictionary*. However, two entries in the Dictionary were found as follows: “*geul-lo-beol ye-san*” (global budget) as a technical term and “*geul-lo-beol-li-sm*” (globalism). It can be cautiously presumed that technological terms are possibly at the forefront of anglicism which might be reaching “*geul-lo-beol*”, as well. Meanwhile, a proper name, “SustainUS” in Example 36, became “*sseo-seu-te-in-yu-e-seu*” which does not appear in any Korean dictionary nor is a familiar loanword as in the case of “*geul-lo-beol*”.

Table 30. An extract from the parallel concordance of TP 3: Global

Ex	Source text	Target text
34	Many Cuban youth organizations understand the need to look after the present in order to have a better future, and adopt it as a guiding principle, inspiring a new generation to ‘think global , act local’.	많은 쿠바의 청소년단체들은 보다 나은 미래를 갖기 위해선 현재를 관리하는 것이 중요하다는 것을 깨닫고, 새로운 세대에게 ‘생각은 글로벌하게 , 행동은 지역적으로’라는 마인드를 전파하고 있습니다.
TR	Many Cuban youth organizations understand the need to look after the present in order to have a better future, and adopt it as a guiding principle, inspiring a new generation to ‘think global , act local’.	Many Cuban youth organizations realized the need to look after the present in order to have a better future, and they are speeding generation a mind of ‘think global, act local’ to a new generation.

35	We take cuttings and plant them in orphanages and public gardens. I am content to believe that we're adding our organic drop to the global green reserves.	우리가 키운 나무를 고아원과 공원 등에 심어주고 있으며 이를 통해 글로벌 녹지 보존에 이바지하고 있다는 사실이 매우 뿌듯합니다.
TR	We take cuttings and plant them in orphanages and public gardens. I am content to believe that we're adding our organic drop to the global green reserves.	We are planting trees that we have raised in orphanages and parks through which I am content to believe that we're contributing to the global green reserves.
36	'We can act as a moral conscience,' said Richard Graves, of SustainUS , a US youth organization.	"우리는 도덕적 양심을 가지고 행동할 수 있습니다" 미국의 청소년 조직인 써스테인유에스 (SustainUS: The United States Youth Network for Sustainable Development)의 리차드 그레이브스(Richard Graves)가 말했습니다.
TR	'We can act as a moral conscience,' said Richard Graves, of SustainUS , a US youth organization.	"We can act with a moral conscience," said Richard Graves, of SustainUS , a US youth organization.

TP 3, which involves minimal adjustments for the TT, occurred in two ways: word-for-word exchanges or borrowing. Due to TP 3, the linguistic metaphors introduced in the TT are, to a different degree, novel ones in the TL, which could only be grasped not only with the surrounding contexts, but also, all the possible encyclopedic information that has to be acquired previously. In particular, the scientific concept of "carbon" along with its metaphoricity in the ST already opens a great gap between the stated proposition and the intended meaning for some readers. In addition to this, its literal translation requires even more efforts to make the TT relevant to the target readers. The results of word-for-word exchanges often led to a lack of naturalness and readability in the Korean TT. Putting it differently, it may cause a failure of a full/successful communication. These innovative

linguistic metaphors, by definition, lie outside conventional language and exist in contrast to it. It can be anticipated that no matter whether TP 3 was intentional or unintentional, both Spanish and Korean translators are introducing new and possibly awkward and convoluted metaphorical expressions in their respective target languages.

It is important to remind that at first native speakers must have been aware of the newness of “*geul-lo-beol*” (“global”). However, it lost the sense of novelty over time and became a familiar expression to the Korean audience. Korean translators of this particular popular science texts would have deemed that this foreign term has been naturalized in the TL although it does not appear in the dictionary, or there has been a need to maintain some stylistic or exotic effects of the ST for the TT. It may be considered as a form of popularization (Gotti, 2014, p. 17): popularization targets an average public and deals with specialized topics in a language close to general discourse and to the layman’s everyday experience. However, popularization should be interpreted as a process of treating our language as a means to deliver the intended message in a clear/easy/readable and a SL-oriented manner. To this end, TP 2 may need to be encouraged as an alternative translation strategy, possibly, at the sacrifice of exceeding space limits or with editing skills.

Translation practice in South Korea aims, for the most part, at accuracy in the first instance. It is worth pinpointing that in the generality of cases how much ‘resemblance’ the TT has to the English ST wins over how well it reads in the TL. This is why TP 3 has been widely accepted as the safest and the most common practice. The results are automatically produced and awkwardly fit pedantic translations. It is only foreseeable that translators pursue of TP 3 would lead to a SL-assimilated TT.

The cases of full assimilation of the ST in translation have already established certain systematic correspondences in the minds of target readers. Nowadays it is certainly common to hear and read “*geul-lo-beol*” in the Korean news and everyday discourse. This

phenomenon alarms speakers of the risk of this long-held practice in the modern Korean translation culture, since it surely undermines the originality and beauty of a minority and less-translated language. It is important to remind English-Korean translators and language teachers alike that they should be conscious of the effects of simply copying new metaphorical expressions observed especially in English as a powerful source language.

8.5 TP 4: Preservation of non-literal metaphor

By virtue of TP 4, the KLMs found in the ST are adjusted to the TT, which refers to a TL-oriented translation while preserving the source linguistic metaphor. Table 31 demonstrates how the KLMs of “world” and “environment” were translated into different manners. In Example 37, “world” has been specified as in “the Earth” which also kept the metaphoricity of the TT. Compared to “world”, “humanity” in Example 38 provides a sense of responsibility as a human being. As an alternative to “world”, “era” in Example 39 allocates a specific period of time.

These linguistic adjustments have been neatly done and appropriately provided the target readers with good liveliness and detailed account as kept in the ST and also the readability of the TT. Lastly, in Example 40, “green environment” could have been literally translated in a word-for-word way, but then, the translated version would have sounded too technical. Instead, it was translated as “in the nature”, which is deemed a proper choice given the contexts and the target readers.

Table 31. An extract from the parallel concordance of TP 4: World, Environment

Ex	Source text	Target text
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37	‘On a bicycle, there are no windows to separate your senses from the outside world. ’	‘여행은 지구를 바라보고 느끼고 지구의 향기를 맡는 법을 가르쳐 주었습니다.’
TR	‘On a bicycle, there are no windows to separate your senses from the outside world. ’	‘Travel has taught me how to see and feel the Earth and how to smell the scent of the Earth. ’
38	Technology is one of the things that separate humans from animals, and it has increasingly shaped our world.	기술은 인간과 동물을 구분 짓는 요소들 중의 하나로써 인류의 발전에 크게 기여해왔습니다.
TR	Technology is one of the things that separate humans from animals, and it has increasingly shaped our world.	Technology is one of the elements that differentiate humans from animals, and it has been increasingly contributing the development of the humanity.
39	It’s a material world , and technology is needed to find and develop the materials that will keep it healthy.	인류의 역사가 보다 환경 친화적인 물질의 시대 를 맞이하기 위해서는 앞으로 새로운 재료를 발견하고 개발하는 기술의 역할이 중요할 것입니다.
TR	It’s a material world , and technology is needed to find and develop the materials that will keep it healthy.	In order for the humanity to greet the era of more environment-friendly materials, the role of technology will be important to find new materials and develop them.
40	A present medical study claims people can boost their mental health by spending time outdoors and getting active in a green environment.	최근 의학 연구에 따르면, 집 밖에서 시간을 보낼수록, 자연 속에서 활동을 할수록 사람들의 정신 건강이 좋아진다고 합니다.
TR	A present medical study claims people can boost their mental health by spending time outdoors and getting active in a green environment.	According to a recent medical study, the more time people spend outdoors and are active in nature , the better mental health people will have.

Likewise, the ‘problematic’ KLM of “carbon” can be translated in a TT oriented manner as presented in Table 32. In Example 41, “carbon awareness” could have been

literally translated, instead it was translated as “carbon knowledge”. In doing so, the metaphoricity of the TT was maintained while the meaning has become more apparent, and thus, easier to grasp. Moving on to Example 42, “CUTTING the carbs” is a title of an article: “carbs” refers to ‘carbohydrate’, and also metaphorically imply ‘carbon’. The Korean translation of “Low-carbon recipe” was able to keep the charming of the metaphoricity of the TT and at the same time deliver successfully the intended meaning of the ST. To continue, the KLM of “youthful” in Example 43 could also have been literally translated. Instead, it was further elaborated as in “not very old” in a way that its contradiction with “heritage” was kept, and thus, is considered a good example of linguistic adaptation to the TT.

Table 32. An extract from the parallel concordance of TP 4b: Carbon, Youthful

Ex	Source text	Target text
41	How high is your carbon awareness ?	당신의 탄소 지식 은 어느 정도인가요?
TR	How high is your carbon awareness ?	How is your carbon knowledge ?
42	CUTTING the carbs Does your kitchen need to go on a carbon diet? Ovens, fry pans and hotplates guzzle fuel. Many traditional cooking methods are kinder to the planet... Check out these low-carbon options from around the world.	저탄소 조리법 여러분의 부엌에서 탄소 다이어트가 필요하지 않으십니까? 부엌에서 우리는 오븐, 프라이팬, 요리용 철판을 사용하면서 많은 연료를 소모하고 있습니다. 전통 요리법들은 지금의 조리법들보다 더 친환경적이었습니다. 자, 이제 세계의 저탄소 조리법들을 소개하겠습니다.
TR	CUTTING the carbs	Low-carbon recipe
43	Youthful heritage	오래되지 않은 유산
TR	Youthful heritage	Not very old heritage

TP 4 has been used as a means to preserve the metaphoricity of the ST while probing into the idealist expressions that may be relatively comfortable and understandable for young

target readers. By means of TP 4, the first point to emphasize is that there was no meaning lost which is the basic principle of translation. Second, the metaphoricity of the ST is also kept in the TT. Third, by making explicit what is implicit in the ST in a SL-oriented way, it is often the case in which the target readers can grasp the meanings without much difficulty. In doing so, the message has become clearer and more personal to the target readers. All these possibilities show that alternative metaphors are possible and should be explored in translation. Upon this challenge, there are two actions that a translator could take. One is a well-informed, engaged and meticulous reading, and two is imaginative risk-taking (Holmström, 2006). Given the first one is expected for professional translators, the second action duly corresponds to TP 4.

As opposed to the overuse of TP 3, this dissertation proposes TP 4 as a viable translation strategy which provides a good readability for target readers. By means of TP 4, translators can take their liberty in translation and exert their linguistic creativity and genius. The well-maintained metaphoricity in the TT not just offers a comfortable legibility, but also provokes boundless imagination beyond different languages, and in doing so, enriches the TL system. All in all, all the necessary means for a good translation are in the hands of translators. Their role is critical in affecting the way we think about our language, culture and the environment.

8.6 Carbon neutrality

The Republic of Korea hosted the 2021 P4G Seoul Summit¹⁶ on May 30 - 31, 2021.

¹⁶ The P4G Seoul Summit is the second of its kind. The inaugural meeting took place in Denmark in 2018. The next Summit will be hosted by Colombia in 2023.

The key theme of the P4G Summit for 2021 was “Inclusive Green Recovery Towards Carbon Neutrality”. According to the European Parliament, “carbon neutrality” refers to achieving net-zero carbon dioxide emissions. This can be done by calculating the emissions of carbon dioxide and reducing the emissions to the point where it reaches a balance, which is also called “carbon offsetting” or “zero carbon footprint”. The emissions can be offset through various means such as reforestation of degraded areas or purchase of carbon credits, etc. As a follow-up measure, South Korea established a Presidential Committee on Carbon Neutrality.

The relevance of this Summit with the present study is its keyword: “carbon neutrality”. The frequent use of TP 3 for the keyword “carbon” and its problems of neology have been discussed in Chapter 7 and 8 (see Table 14 & 28). As the official language of the event was English, many of relevant news articles were, in differing degrees, a result of translation into Korean and Spanish which make them a good up to date material to witness how the chosen lexical units have been normalized.

There is a long list of news articles written in Korean which touched upon the 2021 P4G Seoul Summit (refer to Appendix 7). The list also contains one or two lexical units right before and after the chosen lexical units to see their translation. Since the Summit took place in South Korea, there was more press coverage on the event. The lexical units that repeated over almost all news articles covering this international event were “carbon neutrality” and “carbon neutral society”, none of these two terms appear in the dictionary of the National Institute of the Korean Language. Yet, it is likely that after a repeated use of “carbon neutrality” in the press, it would turn into a common expression as in the case of “greenhouse gas” or “carbon footprint”.

The press has also covered the event in the Spanish language even though the list is relatively short (see Appendix 8). Given the reporters’ names of *Excelsior* and *Perfil*, there is a possibility that these journalists have Korean background. Besides, compared to other

Spanish newspapers, *Yonhap News* has published more articles about the Summit. This is because Yonhap News Agency is a South Korean news agency based in Seoul: it provides news articles, pictures and other information to newspapers, TV networks, and other media. It seems that the Korean government or the press have proactively covered the Summit to make it known to the world.

The lexical units that repeated in all Spanish articles were “la neutralidad de carbono”, which has no entry in the dictionary of the Royal Spanish Academy. The list presents one or two lexical units right before the chosen lexical units of “la neutralidad de carbono”. This resulting concordance reveals similarities between Spanish news articles and their equivalents of *Yonhap News*. It can be assumed that Spanish articles were written mainly based on that of *Yonhap News*, or, even the possibility of copying *Yonhap News*’ articles cannot be ruled out.

To repeat, TP 3 from English to Korean has been identified for “carbon neutrality” and how this new expression was literally reproduced in the press written in Korean and Spanish. Then, for the same lexical units, TP 3 from English to Spanish or from Korean to Spanish has also been observed. Neither of Spanish nor Korean dictionary has entry for such newly-termed lexical units. The emerging keywords of “carbon neutrality” are still deemed novel among laypersons.

One can recall the metaphorical lexical units of “carbon footprint” which has become less conspicuous with the emergence of “carbon neutrality”. For a person who yet does not have a full understanding of “carbon footprint”, “carbon neutrality” can be challenging to grasp. Over time, the literal translation of “carbon neutrality” could become a familiar expression to the Spanish and Korean audience. To make the TT as relevant as possible to the young target readers, additional translation strategies are to be in order.

CHAPTER 9. CONCLUSION

This dissertation set out to test the translation strategies for KLM that are most widely used for English environmental texts into Spanish and Korean. The main hypotheses were:

- 1) that highly creative/novel linguistic metaphors found in English environmental discourse constitute a notorious difficulty for translators;
- 2) that the structural or linguistic differences existing between the two target languages might affect the type of strategies preferred by translators.

Results have shown that the *Tunza* magazine allowed an adequate analysis of environmental discourse and its translation into widely separate languages. Linguistic metaphors - both traditional and, particularly, novel ones - posed difficulty on translators, and this led them to resort to a wide range of different translation strategies. As for preferred patterns of translation, both Spanish and Korean translators have shown the same tendency, broadly speaking. However, there were some significant differences found in frequency in each pattern (Table 16 & 30). Comparing the translation results of these two distant target languages has also enhanced the understanding of how differently translators have tackled difficulties when dealing with KLM.

The research questions which were raised in Chapter 1, based on the above mentioned hypotheses are to be resolved:

1) To the question of what keywords tend to be linguistic metaphors in English environmental discourse, a first relevant finding from a purely quantitative point of view concerned the frequency of linguistic metaphors in the ST. Out of twenty keywords (refer to Table 2), the study identified ten most relevant KLM (Table 3). The ST keywords that came out to be the most metaphorical were SUSTAINABLE; SUSTAIN (34.5%), CARBON (24.8%), WORLD (14.2%) (for more details, refer to Table 6).

2) To the question of how KLM in the ST are to be translated, that is: a) literally, b) as an expression of a different metaphor, c) being preserved in some ways using other strategies, or d) dropped altogether, four translation patterns (TP) have been identified in accordance with its relative degree of metaphorization (see Table 7).

TP 1 has been found to be the least applied strategy in the translation into both Spanish and Korean of *Tunza* texts. In the case of Spanish translations, TP 1 was practiced under the translator's rightful decision that the omitted parts served no significant role for the understanding of the TT, which is supported by Noh (2007, p. 7): the elimination can be practiced to make the TT familiar to the target readers by removing unnecessary elements in order to achieve a similar understanding of the TT to that of the ST in a broad sense.

However, it is important to pinpoint that TP 1 occurred more frequently in Korean translation than in its Spanish equivalent. The results (refer to Table 20, 21 and 22) provided visible evidence in a repetitive manner that space limitations or formatting was not the reason for TP 1. An account of S. M. Kim (2002, p. 81) may provide insights on possible explanation: It is probably because many translators, despite their high level of education, still often translate arbitrarily especially when encountered with a creative metaphorical expressions. The observation of S. Y. Kim (2005, p. 99) is in the same line: There was a tendency in which

translations have been made according to the translator's arbitrary strategies and choices without establishing clear criteria. As a result, the intended implication in the ST may not be accurately conveyed, or the meaning may be lost, and even mistranslation may occur.

Even though TP 2 was the second most frequently opted strategy for both Spanish and Korean translation of English texts, its frequency differed greatly. TP 2 has been more frequently employed in Korean as a means to provide detailed and clearer versions to the target readers, indicating that no matter the loss in metaphoricity, more weight was put on achieving the optimal relevance of the TT. As for Spanish, TP 2 has not been practiced as much as its Korean equivalent. This tendency may reflect that the addition of information does not constitute a preferred trend in contemporary Spanish or Korean translation of popular science texts, while space limits were also possibly at play (Table 10).

TP 3 has been preferred the most by both translators of Spanish and Korean translators with some frequency differences. The Spanish *Tunza* texts showed a greater tendency toward literalness than the Korean renderings. Relatively low occurrences of TP 1 and TP 2 in Spanish could be also related to a high frequency of TP 3. This may indicate a predisposition of Spanish translators to apply a possibly convenient strategy for English texts, calling for a need to raise awareness about certain attitudes toward the constitution and dissemination of 'translationese' texts (García Palacios, 2021, p. 138).

Even though the frequency of TP 3 in the Korean subcorpus was not as great as that of Spanish, the consequences of an abusive use of this strategy in a less-translated language like Korean could be severe. It is not only that the imported expressions were highly unnatural for a general readership, but rather could significantly impede the comprehension of the TT. It is important to reiterate that when the translation is directed at the youth education, in particular, the TT needs to be guided by the corresponding addressee-orientation.

TP 4 of adopting an appropriate linguistic metaphor to suit the TT can serve as a

useful indicator for translators' skills and the readability of the TT. Relevance theorists support the validity of target-oriented and creative translation. However, it was not a common strategy chosen by Korean translators, and even less so by their Spanish colleagues. A more open and realistic approach in translation needs to be encouraged as opposed to a mere literal translation. TP 4 can be summed up as follows: different images of the environment suit different kinds of society and, more concretely, different languages (Clark, 2011, p. 69). In other words, every language can and should express uniquely in its own way. A sense of ethical investment, collective ownership and a much greater sensitivity to the social, environmental and linguistic consequences of translation should be reinforced (Cronin, 2017, p. 2868). A good translation should be valued and appreciated precisely because it is so difficult to achieve just that.

3) For the last research question of whether there is any discernible translation pattern and what implications can be deduced for the given corpora, it is important to understand the genre of popular science. For this particular genre, a process of adaptation to the appropriate conditions of the young target readers is certainly needed. This is where translators enter to perform this popularizing y recontextualizing task. It is true that if a metaphor conveys a vivid image in the minds of readers, it would have far greater influence. Accordingly, the desired translation strategy would be TP 4, which is, however, not always within reach. The present dissertation argues that the vividness of metaphors can come only after the understanding and readability of the TT is secured. For this reason, when a certain linguistic metaphor is novel or poses a great difficulty, TP 2 of addition of explanation could be recommended as a safe alternative strategy.

As for the practice of applying TP 3, the results showed that the idea of faithfulness to the ST was not restricted to just faithfulness to the words. In many cases, even the number

of words and the sentence word order found in the ST was replicated in the TT. When the cultures are not very distant from each other as in the case of English and Spanish in comparison to Korean, the metaphors could be valid; however, the principle that should guide the translation of metaphor is not so much to achieve semantic or formal equality, but to achieve equivalence of effects in the recipient of the target language (Giorgio, 2012, p. 75). Given that the word order and syntactic and morphological nature between English and Korean, in particular, are completely different, TP 3 led to highly exotic/awkward renderings.

This dissertation attempted to touch upon how the environment keyword of “carbon neutrality” has been introduced to both Spanish and Korean *Tunza* magazine from 2003 and the latest press to 2021 through a possibly indiscriminate use of TP 3 which may be generally accepted in the current translation community. More seriously, the direct incorporation of an English expression can easily lead to the conventionalization of those expressions and ultimately affect the system of the TL. Particularly for Korean as a minority language, more cautions are required not to copy the major language (Cronin, 2017, p. 3397) given that this trend might have relevant identitarian implications for Korean speakers. Now, it is with “*geul-lo-beol*” (“global”), but next time, it could be with “*ting-king*” (“thinking”).

This study believes that critical analysis of language plays an important role in addressing environmental issues through investigating and questioning widely accepted translation culture and, more broadly, linguistic construction of current society. Translators should develop a greater ecological awareness when a new metaphor is to be introduced in the TT. One of the major functions of ecolinguistics is to contribute to the unmasking of myths, assumptions and ideologies related to the environment (Verhagen, 2008, p. 1). The novel linguistic metaphors in the TT, as a result of TP 3, could be seen as destructive or ambivalent from the ecolinguistic perspective, because they might obscure the problem or distract attention away from the important message. As a result, the target readers might fail

to retrieve the intended meaning altogether.

Shifting language will change the society around us and what translators need to do is to shift language in the right direction to build the more ecological culture (Stibbe, 2021). Readers sometimes attribute so much value to new words by incorporating them into their own linguist repertoire, however it is translators who ultimately decide to adopt or adapt neology (Gerding, Fuentes, Gómez and Kotz, 2014, p. 42). It is essential that translators rethink them in the interest of short and long-term socioecological sustainability as well. Momentous decisions need to be taken in view of potential future consequences of unchecked metaphor translation (Cronin, 2017, p. 2311), calling for future translators to be more creative, but cautious, in their representation of “environment”.

Despite this study’s contribution to the under-researched area of KLMs in translation in a way that has not yet been attempted, it has limitations. This study could benefit from a future longitudinal study on word-for-word translations; the evolution of each KLM found in the *Tunza* magazine could be studied individually for a prolonged period of time. A further classification within TP 3 could also help translators to better understand their works and determine the appropriate equivalent. A provision of alternative translation using TP 4 would be of most value. It can also go further than these three languages of investigation. These limitations may point to fruitful directions for future research.

CAPÍTULO 10. RESUMEN EN ESPAÑOL

Aunque la investigación sobre metáforas y traducción de metáforas se ha centrado principalmente en el lenguaje literario durante gran parte de la historia, existen otros ámbitos, como el del discurso ambiental, en el que la traducción de metáforas es el problema más importante que se le plantea al traductor profesional (Newmark, 1988). Si tenemos en cuenta que el discurso ambiental representa una de las preocupaciones educativas más acuciantes del mundo globalizado, debemos pensar que los traductores juegan un papel esencial a la hora de trasladar las metáforas encontradas en el texto de origen (TO) al texto de destino (TD); y por tanto hasta el público que es objeto del discurso, como pudieran ser los lectores jóvenes.

Esta tesis pretende examinar de manera comparativa y contrastiva las metáforas lingüísticas utilizadas en la revista juvenil de divulgación científica llamada *Tunza* que publica el Programa de Naciones Unidas para el Medio Ambiente, a través de un corpus paralelo unidireccional y multilingüe de textos escritos. Esta tesis pone su foco de análisis en las metáforas lingüísticas observadas en el texto de origen (TO) y su traducción al texto de destino (TD) mediante una metodología sistemática. Los idiomas involucrados son el inglés, que actúa como lengua de origen (LO), junto con el español y el coreano, seleccionadas como lenguas de destino (LD). Para realizar este estudio se han aplicado métodos cuantitativos a la versión online de la revista *Tunza* que consta de 75 Volúmenes que a su vez incluyen aproximadamente 908.708 palabras en total. Por otro lado, para el análisis cualitativo, el corpus se ha reducido a 15 Volúmenes con alrededor de 160.000 palabras.

En el corpus de dichos escritos se conjugan por parte de los autores nuevas expresiones metafóricas en el área del medio ambiente y la tecnología, como: *crecimiento verde, esfuerzo ecológico, estilo de vida sostenible, revolución verde sostenible, carbono*

positivo/negativo, clima positivo, carbono neutral, etc. La presente tesis comienza planteando la cuestión de si el significado que se pretende transmitir con estas expresiones se transmitiría de manera suficiente y eficaz al público objetivo.

Ha habido un pequeño número de estudios de metáforas no literarias que se han basado en corpus especializados del lenguaje natural. Suelen tener un enfoque ideológico con corpus de textos políticos o económicos extraídos de informes anuales, periodismo o discursos políticos (Liu, 2021; J. G. Kim, 2017; Moreno Lara, 2008; López & Llopis, 2010; Schäffner, 2010; Atanasova & Koteyko, 2017; Kapranov, 2017a, 2017b, 2018). Pero ha sido solo hace poco que cuando se han ido haciendo más frecuentes los estudios sobre las metáforas que aparecen en los textos económicos y científicos (Lee & Bae, 2011; Shin & Park, 2011; S. Y. Kim, 2005; Parkinson y Adendorff, 2004; Charteris-Black y Ennis, 2001; Rodríguez Márquez, 2010; Jiménez García, Coca, Francisco Carrera & Valero Matas, 2014; Ponton, 2015; Roldán-Riejos & Cuadrado, 2015; Alshunnag, 2016; David & Matlock, 2018).

10.1 Hipótesis y preguntas de investigación

Esta tesis pretende descubrir si existen patrones de traducción observables teniendo en cuenta las características lingüísticas de los textos. Las dos hipótesis principales de partida de este estudio son las siguientes:

1) Las metáforas lingüísticas altamente creativas y/o novedosas que se encuentran en el discurso sobre medio ambiente en inglés constituyen una dificultad añadida para los traductores;

2) Las diferencias estructurales y lingüísticas existentes entre los dos idiomas de

destino (español y coreano) pueden afectar al tipo de estrategias preferidas por los traductores.

Teniendo en cuenta estas hipótesis, la presente tesis, por lo tanto, abordará las siguientes preguntas de investigación:

1) ¿Qué palabras clave tienden a ser metáforas lingüísticas en inglés (lengua de origen, LO) en el discurso ambiental? ¿Existen casos peculiares en los que determinadas palabras clave son más metafóricas que otras?

2) Si solo el texto de origen (TO) tiene cierta metáfora, ¿cómo se traducirá? a) ¿literalmente y, por lo tanto, aportando una novedad en el texto de destino (TD)?, b) ¿como expresión de una metáfora diferente, para, al menos, retener la naturaleza metafórica?, c) ¿se preservará de alguna manera la metáfora usando otras estrategias de traducción?, o, d) ¿desaparecerá por completo?

3) Si alguna de las opciones mencionadas anteriormente ocurre con alguna regularidad, ¿hay algún patrón de traducción (PT) discernible en español y coreano? ¿Son específicos para las lenguas de destino (LDs)? ¿Cuáles son las implicaciones para el corpus elegido?

10.2 Revisión de la literatura

En el campo contemporáneo de los estudios interdisciplinarios de metáforas, la teoría lingüístico-cognitiva de la metáfora es la perspectiva dominante (Gibbs, 2013b), lo cual es un punto de partida para el trasfondo teórico de este estudio. Sin embargo, hay cierto escepticismo sobre la teoría de la metáfora conceptual (Cameron, 2003; Kövecses, 2020;

Semino, Heywood & Short, 2003; Casasanto, 2008 & 2009; Casasanto & Gijssels, 2015), lo que lleva a desarrollar para la metáfora un enfoque teórico alternativo, conocido como Teoría de la Relevancia (Sección 10.2.1). Esta Sección trata sobre la traductibilidad de metáforas desde el enfoque teórico de la relevancia. A continuación, revisaremos estudios previos realizados sobre ecología desde la perspectiva de la traducción en los que se observa una cierta falta de interés por los aspectos más puramente lingüísticos hasta ahora (Sección 10.2.2). Posteriormente, se abordará un fenómeno de la neología impulsada por la traducción (Sección 10.2.3). Por último, repasaremos las características del género de divulgación científica al que pertenece el corpus elegido en este trabajo.

10.2.1 Teoría de la Relevancia aplicada a la traducción

Según la Teoría de la Relevancia, se hace una distinción entre tres niveles de análisis: lenguaje, pensamiento y comunicación (Steen, 2011a). Mientras que los lingüistas cognitivos consideran que las metáforas lingüísticas son tratadas como reflejos superficiales de asignaciones conceptuales subyacentes entre diferentes dominios cognitivos y tienen su raíz más en la cognición que en la comunicación, los teóricos de la Relevancia (Goatly, 1997; Sperber & Wilson, 1986, 2008; Dirven, 2002; Wilson, 2009; Johansson Flack, 2018), sin embargo, argumentan que las metáforas surgen naturalmente en la comunicación y los mapeos conceptuales entre diferentes dominios como "lo bueno está arriba" y "lo malo está abajo" pueden resultar del uso repetido de metáforas lingüísticas.

De acuerdo con la Teoría de la Relevancia (Goatly, 1997; Dirven, 2002; Gibbs, 2003a; Sperber & Wilson, 1986, 2008; Wilson, 2009; Monti, 2010; Steen, 2011a; Johansson Flack, 2018), la metáfora no se concibe como reflejo superficial de un conjunto de

asociaciones sistemáticas entre diferentes dominios cognitivos, sino que surge naturalmente en la comunicación lingüística (Lakoff & Johnson, 1980; Lakoff & Turner, 1989; Ponton, 2015; Kapranov, 2017a, 2017b).

Basado en la Teoría de la Relevancia, Liu (2021, p. 83) categorizó seis tipos de metáforas: *muerta*, *cliché*, *estándar*, *estándar adaptada*, *reciente* y *original*, y agregó que clasificar una metáfora en uno de estos seis tipos mencionados anteriormente es casi imposible, porque el grado de metaforicidad depende de criterios subjetivos como, por ejemplo, conocimiento, experiencia, exposición a la cultura, etc.

El concepto de Liu (2021) se podría interpretar como el continuo gradual de casos de Sperber y Wilson (2008, p. 97) entre el lenguaje literal, el lenguaje laxo, la hipérbole y la metáfora, en el que no se perciben divisiones claras: la metáfora se produce en un extremo de este continuo. Dirven (2002) lo llama un "continuo figurativo" en el que los sentidos de las palabras pueden ubicarse desde los sentidos puramente literales, pasando por los sentidos metonímicos, hasta los metafóricos. Por otro lado, Goatly (1997, p. 32) planteó cinco grados de convencionalidad de la metáfora en diferentes términos: metáfora activa, inactiva (cansada o dormida), enterrada y muerta. Por lo tanto, la distinción entre literal y metafórico sería una cuestión que se ve influida por el grado de relevancia. Es decir, cuanto mayor sea la brecha entre la proposición expresada y el significado pretendido, más metafórico es el enunciado, y viceversa.

La Teoría de la Relevancia se basa en dos afirmaciones generales: el principio cognitivo de relevancia y el principio comunicativo de relevancia (Wilson, 2009, pp. 47-48). De acuerdo con el principio cognitivo de relevancia, la cognición humana tiende a estar orientada a la maximización de la relevancia, de modo que un oyente pueda comprender el enunciado de un hablante haciendo suposiciones interpretativas sobre la intención informativa del hablante. Basado en el principio comunicativo de relevancia, se asume que el

comunicador desea que su comunicación tenga éxito, lo que refleja la intención del comunicador de hacer que el enunciado sea lo más relevante posible para la audiencia. Esta tendencia a maximizar la relevancia se resume de la siguiente manera: “todo acto de comunicación inferencial transmite una presunción de su propia relevancia óptima” (Sperber & Wilson, 2008 p. 104).

Teniendo en cuenta varias dimensiones simultáneamente, calcular la traducibilidad de las metáforas en términos de un continuo en lugar de categorías discretas parece una forma rentable de abordar el problema (Monti, 2010, p. 204). La sugerencia de la Teoría de la Relevancia, en la que la metáfora expresa una forma de hablar suelta, se basa en una distinción entre representaciones descriptivas e interpretativas. Desde el punto de vista de la Teoría de la Relevancia, la traducción cae naturalmente bajo el uso interpretativo del lenguaje. Así es como se podría aplicar a la traducción el parecido interpretativo de la Teoría de la Relevancia (Smith, 2002). Los comunicadores, en palabras de Wilson y Sperber, pueden representarse como traductores (Gutt, 1993), ya que son ellos quienes primero leen y comprenden los textos originales y luego los traducen con objetivos claros para comunicarse de manera efectiva con sus lectores potenciales.

Smith (2002) afirma que la contribución principal de Gutt (1993) es otorgar un mayor reconocimiento a los traductores que serían capaces de tomar las decisiones correctas. Su argumento sigue siendo válido a pesar del paso del tiempo. Se supone que los traductores anticipan si su traducción es comunicable en el contexto dado de la audiencia de destino. La contribución secundaria de Gutt (1993) es la interpretación de la traducción desde la perspectiva de la información implícita, especialmente en lo que respecta al uso del lenguaje figurativo. El texto de destino (TD) debe ser la forma en que los lectores pongan el menor esfuerzo posible para poder disfrutar de la lectura.

La audiencia, en palabras de Wilson (2009), puede interpretarse en la traducción

como el lector. De acuerdo con el enfoque de relevancia aplicado a la traducción, los lectores cederían su información enciclopédica previamente adquirida para tratar de comprender las nuevas metáforas lingüísticas que se encuentran en los materiales traducidos. Siguiendo la regla de la relevancia óptima, existe la expectativa por parte del lector de que su intento de interpretación de un texto dado producirá efectos contextuales adecuados. Así es como se puede alcanzar el concepto de relevancia óptima de Wilson y Sperber (2008) en la traducción de dos maneras: la intención del traductor de comunicarse de manera efectiva con los lectores y la firme voluntad de los lectores de comprender el texto dado.

La Teoría de la Relevancia proporciona la validez teórica de la libertad de la traducción orientada al objetivo, que se sustenta en los siguientes tres fundamentos. Primero, para evitar la ruptura de la comunicación causada por diferentes contextos, se requiere una traducción sensible al contexto y orientada al objetivo. En segundo lugar, las implicaturas débiles, como características únicas de la metáfora creativa, deben mantenerse en la traducción orientada a objetivos. En tercer lugar, en términos generales, la característica interpretativa de la traducción también respalda la práctica de la traducción orientada a objetivos.

El proceso de metáforas en la lengua de origen (LO) es probablemente diferente al de la lengua de destino (LD). Por ello, la traducción literal de una metáfora no contiene los mismos supuestos que los de la LO. Por tanto, los contextos son cruciales para comprender las metáforas lingüísticas. El contexto inmediato de una metáfora es el mismo tanto en el texto de origen (TO) como en el texto de destino (TD), pero por la influencia de contextos más amplios, los efectos contextuales en las metáforas del TO y el TD son probablemente diferentes. En una traducción directa, la implicación de una metáfora puede ser difícil de lograr y la comunicación se debilita o incluso puede provocar una ruptura.

Es importante destacar que la Teoría de la Relevancia aplicada a la traducción de

metáforas ofrece una mayor libertad para el traductor; no existen normas fijas para una buena traducción. La perspectiva comunicativa condicionada por el principio de relevancia proporciona una apertura y un alcance mucho más amplio para su traducción (Jing, 2010). Basado en la Teoría de la Relevancia, la preocupación central del traductor no es lograr un estándar fijo de equivalencia, sino hacer una comunicación exitosa. En la misma línea, el papel del traductor es convertirse en un tomador de decisiones que equilibre entre la información contextual y la lingüística. Se espera que el lector objetivo obtenga con un mínimo de esfuerzo de procesamiento cognitivo, un nivel de entendimiento similar al lector del TO (Al-Jarrah, Abu-Dalu & Obeidat, 2018, p. 30). Para lograr esto, el traductor puede recurrir a varios medios adaptativos y creativos en su traducción para recrear los efectos previstos de las metáforas en el TO que luego serán apreciados por los lectores objetivo con el menor esfuerzo de procesamiento posible.

10.2.2 Ecolingüística y traducción

Varios autores (Machielsen, 2019; Wiben Jensen & Greve, 2019; Stibbe, 2021) exploraron metáforas que son relevantes para la ecolingüística. La ecología, también conocida como ecología del lenguaje, ecología lingüística, ecología del lenguaje o lingüística ecológica es un paradigma relativamente nuevo de investigación lingüística que surgió a principios de la década de 1970 (Steffensen & Fill, 2014, p. 6). La ecolingüística se refiere a una elección o restricción lingüística que implica la interacción entre el lenguaje y el entorno. La idea básica es que el lenguaje da forma a cómo vemos el mundo (Alexander & Stibbe, 2014; Stibbe, 2021). En el marco de la ecolingüística, Clark (2011, págs. 46, 54) definió un lenguaje como un entorno material del que no podemos elegir salir y un entorno decisivo del

que nos definimos. Steffensen y Fill (2013, p. 21) expresaron la relación entre la ecología, el lenguaje y el hombre de la siguiente manera: “la ecología es naturaleza, el lenguaje es cultura y el hombre es un ser cultural que explota la naturaleza”. Más específicamente, la visión dinámica de la metáfora de Machielsen (2019, p. 106) comienza con la norma de que todo uso de la metáfora no está simplemente incrustado en un sentido físico, sino también social y cultural. De la misma manera, Wiben Jensen y Greve (2019, p. 1) vieron la metáfora como parte de nuestro hacer activo que involucra igualmente dimensiones cognitivas, sociales y lingüísticas.

Una de las principales corrientes de la ecolingüística es el paradigma antropocéntrico cuya creencia es que los seres humanos tienen la máxima importancia en el universo. Esta representación dicotómica del mundo es común a las metáforas en el discurso del cambio climático: medio ambiente versus economía o clima versus crecimiento económico (Shaw y Nerlich, 2015, p. 38). En este contexto, Fill (2000, p. 67) presentó que hay más y mejores formas de expresar ideas ecológicas como la interrelación entre el ser humano y la naturaleza.

Otras áreas de investigación de la ecolingüística son las lenguas y variedades lingüísticas amenazadas. La ecología implica no solo influencia económica, sino también una jerarquía lingüística implícita, y en la parte superior de la jerarquía, está el inglés como el idioma más utilizado en todas partes, incluida Europa, América Latina y Asia, tanto en la educación como en su uso formal e informal (Denison, 2001, p.80). La adopción de idiomas de mayor prestigio y una economía más amplia y el plurilingüismo conducen inevitablemente a la influencia de variedades de idiomas más respetables, posiblemente reemplazando a otros idiomas nacionales europeos y socavando la productividad lingüística nativa.

Debido a los medios de comunicación modernos combinados con la movilidad internacional del capital y el trabajo, los usos internos considerables y crecientes del inglés en otras comunidades lingüísticas han desplazado a sus idiomas nacionales, lo que conduce a la

homogeneidad global o al internacionalismo lingüístico de, en particular, la terminología científica (Denison, 2001, pág.80). Dado el estado actual de la ecología lingüística europea, es necesario prestar una especial atención a un fenómeno en el que la invasión de terminología de fuentes lingüísticas de prestigio, que ocurre sin contramedidas para evitarlo, puede potenciarse considerablemente (Denison, 2001, p.79). El efecto acumulativo de tal influencia puede producir reacciones adversas al menos en algunos hablantes de idiomas Resinger, H. (2008, p. 141).

Se han realizado una serie de trabajos de investigación sobre la diversidad lingüística y los peligros de su desaparición y los aspectos gramaticales del discurso ambiental, pero muy pocos fueron publicados en el área del lenguaje de la ecología y la traducción. Es decir, falta investigación sobre el multilingüismo desde un punto de vista contrastivo. Teniendo en cuenta que los traductores son una parte importante del ecosistema dado que contribuyen a la proliferación de las lenguas traducidas en su entorno, se requiere alguna nueva teorización, así como ideas innovadoras sobre la investigación empírica (Fill, 2001, p. 51).

Esta área de investigación puede denominarse de diversas formas, como lenguaje y ecología, eco-traducción y enfoque ecolingüístico de la traducción. Cualquiera que sea el nombre que se le dé, la idea principal es que la ecotraducción pretende concienciar sobre los problemas medioambientales con el objetivo de hacer que nuestra sociedad los resuelva, poniendo de relieve la importancia del papel que desempeña el traductor. La traducción tiene como objetivo proporcionar al entorno significados subyacentes intencionales y conciencia para influir en el punto de vista de la audiencia sobre el tema. El uso de la traducción debe ser visto como un instrumento para mediar entre los autores, los textos y los puntos de vista de los lectores con respecto a la presencia de la naturaleza puesta como elemento central en los textos.

Cronin (2017, p. 2303) respondió a la pregunta de cómo ver la traducción desde la

perspectiva ecolingüística: “Debemos pensar en la traducción como una parte esencial para resolver todas las razones equivocadas y revisar una gran cantidad de supuestos fundamentales sobre qué es ser humano y qué significa: qué es vivir y ser parte del mundo.” Para hacerlo, Cronin (2017, p. 2304) pide decisiones trascendentales que se tomen en el presente en vista de posibles consecuencias futuras o ramificaciones individuales. De la misma manera, Resinger (2008, p. 142) enfatizó que traductores, investigadores y profesores de idiomas están en una posición en la que pueden hacer una contribución muy valiosa a los hábitos lingüísticos de nuestra sociedad adaptándolos gradualmente a un nuevo entorno ambiental y social: la conciencia medioambiental.

10.2.3 Neología y traducción

La adopción del inglés como lengua de mayor prestigio y su sustitución de otras lenguas menos poderosas se ha abordado en la sección anterior. Esta sección está dedicada a la traducción y la neología. La neología significa la creación de nuevas palabras y términos (Díaz Rojo, 2001, p. 1), mientras que Guerrero Ramos y Pérez Lagos (2021, p. 143) consideran la neología como el principal proceso de evolución de las lenguas: la creación formada en el proceso de la evolución de cada idioma, incluidos los préstamos y la neología semántica. Guerrero Ramos (2017, p. 1398) suggested a series of parameters to identify neology and one of which is a lexicographic criterion: a unit to be considered neological when it does not appear in dictionaries.

Díaz Rojo (2001) distingue entre neología general y neología especializada para referir la primera al lenguaje común o general y la segunda al campo especializado. Siguiendo la definición de Díaz Rojo (2001, p. 1), en terminología científica, existen dos

tipos de neología: neología primaria y secundaria. La neología primaria es la creación de un término para designar un nuevo concepto resultante de la innovación científica y técnica dentro de un mismo idioma, que se define como *la neología primaria intralingüística*. La neología secundaria se refiere a la creación de un nuevo término en una lengua para sustituir o traducir el precedente lingüístico existente, entonces se denomina *neología secundaria interlingüística*. Este último se coloca en el punto focal de la investigación actual.

La neología se puede presentar con diferentes nombres: préstamos, traducción de préstamos, palabra alienígena, alienismo, palabra extranjera, extranjerismo, extranjerización y endeudamiento. Lingüistas, lexicógrafos, neólogos, traductores y profesores de idiomas a veces usan estas palabras indistintamente y no existe consenso en un solo término para nombrar neología (Gerding, Fuentes, Gómez y Kotz, 2014, p. 42). Ante esta diversidad, el término neología se utilizará en esta tesis para referirse a las unidades léxicas utilizadas en el TO que pueden ser adoptadas o adaptadas en el TD.

La neología ocurre en todos los idiomas como consecuencia de los contactos lingüísticos. La influencia del inglés en otros idiomas es evidente y de interés para lingüistas, neólogos y traductores. Guerrero Ramos y Pérez Lagos (2021, p. 146) señalaron que la mayoría de las veces les toca a los traductores decidir, en gran medida, si acuñar una nueva expresión en el TD para un término determinado proveniente del TO. Hormigo y Moreno (2018, pp. 61-63) también demostraron la aplicabilidad del estudio de la neología en el campo de la traductología.

Al mismo tiempo, como argumentan Hormigo y Moreno (2018, p. 61), la traducción de nuevas unidades léxicas y la neología se consideran uno de los mayores desafíos a los que se enfrentan los traductores. La difusión del inglés como idioma de la era de Internet y el énfasis puesto en el inglés en las escuelas y la educación sugieren que cada vez más neología impulsada por el inglés se importará y pasará a otros idiomas. Guerrero Ramos y Pérez Lagos

(2021, p. 149) advirtieron contra estos anglicismos porque si queremos ayudar a que nuestro lenguaje alcance un posicionamiento como lenguaje científico, estamos obligados no solo a traducir, sino también a brindar equivalentes terminológicos a los objetos importados, productos, conceptos, etc. en todos los idiomas.

La relevancia que tiene el anglicismo para la traducción expone el dilema al que se enfrentan los traductores: elegir unidades ‘anglicanizadas’ para aceptar el flujo de la información mediante el uso de la traducción literal o palabras prestadas, y, por tanto, la neología, o traducirlas al español o al coreano para así cumplir con los estándares de cada LD y, al hacerlo, defender o enriquecer su especificidad lingüística. El miedo a innovar, correr riesgos e incluso la falta de confianza en sí mismos pueden impedir que los traductores generen una traducción adecuada. La paradoja es que un traductor se esfuerza por encontrar traducciones que pocos le piden y menos lo valoran, y que muchos incluso rechazan, y mientras tanto compite con traducciones especializadas que se dedican a importar anglicismos al por mayor (Claros Díaz, 2016, p.14).

10.2.4 Género de divulgación científica

El corpus elegido para este estudio pertenece al género de divulgación científica; y está principalmente dirigido a los lectores jóvenes. Es importante recordar que la mayoría de la gente no busca información sobre la ciencia directamente en artículos científicos porque estos artículos pueden ser demasiado académicos y difíciles de digerir sin una base científica y matemática relativamente amplia. Las personas que carecen de una formación suficiente tienden a informarse a través de fuentes intermedias como los textos de divulgación científica. Popularizar la ciencia para una audiencia general implica presentar conocimiento

especializado dentro de un campo científico específico de una manera simplificada que permita a los no especialistas acceder fácilmente a información sobre avances y teorías relacionadas con el campo (Alshunnag, 2016).

De manera similar, el concepto de popularización se ha denominado a menudo como la difusión de conocimientos especializados con fines educativos o informativos (Gotti, 2014). A diferencia de los manuales de instrucción o libros de texto típicos cuyo objetivo es capacitar a los lectores no especializados en conceptos y terminología específicos, el propósito principal de este género, en particular, es brindar información precisa sobre la ciencia y la naturaleza al tiempo que hace que el idioma sea más accesible. A pesar del uso extensivo del discurso de divulgación científica, falta literatura relevante que aborde sus aspectos lingüísticos.

Otra función de los textos popularizados es entretener a sus lectores. Para ello, los procedimientos comúnmente elegidos son las metáforas y la experiencia cotidiana que ciertamente facilitan a los lectores el comprender información abstracta y situaciones distantes de una manera accesible (Gotti, 2014, p. 23). Además, la fuerza de las metáforas no proviene de proporcionar nueva información sobre el mundo, sino de una redefinición de la información que ya está disponible para el lector (Clouse, Goodin, Aniello, McDowell, N. & MaDowell, D., 2013, p. .90).

Cabe destacar que el análisis textual de Fredriksson y Pelger (2018, p. 917) sobre artículos sobre ciencia escritos por estudiantes de Física reveló que el uso de metáforas adecuadas en sus escritos es un reflejo de una mejor comprensión del tema en cuestión. Es el caso del elegido corpus *Tunza*, una revista juvenil popularizada sobre el medio ambiente. Su propósito es facilitar la interpretación de la ciencia y la naturaleza para un público general de una manera divertida y fácil.

Además, el discurso de divulgación científica está frecuentemente disponible de

forma gratuita en Internet. Tekgul (2018, p. 76) puntualizó la accesibilidad de los materiales traducidos en medios digitales. De hecho, muchos artículos de ciencia popular, como en el caso de nuestra revista *Tunza*, son de libre acceso en Internet para los jóvenes con buenas habilidades de alfabetización digital que buscan combinar la educación con el ocio. Una de las características que distinguen a los textos popularizados de los textos totalmente especializados es el público objetivo (Gotti, 2014, p. 16). Dado que la revista *Tunza* está destinada principalmente a los jóvenes, la susceptibilidad de los jóvenes al mundo digital de la inmediatez y la rápida difusión del conocimiento requiere de nuestra especial atención.

Bellés-Fortuño (2016) también demostró la efectividad pedagógica del género de divulgación científica. A diferencia de los artículos científicos, el género de divulgación científica también se recomienda como material educativo para estudiantes de pregrado en el campo de las Ciencias de Salud, ya que son más fácilmente comprensibles. Yoo, Kim y Hong (2007, p. 226) examinaron los efectos del uso de revistas científicas en clase de ciencias. La actitud de los estudiantes de Secundaria hacia la ciencia y los científicos, después de usar revistas científicas en clase, ha cambiado positivamente, lo que beneficiaría a aquellos que aún no han decidido su plan académico futuro. Los autores recomendaron el uso de las revistas de ciencia especialmente para los estudiantes que se especializan en artes liberales gracias a sus materiales relacionados con la vida, ya que son, por naturaleza, contenidos relevantes/interesantes.

Para agregar más evidencia a la utilidad de la comunicación científica popular, Cassata-Widera, Kato-Jones, Duckles, Conezio y French (2008, p. 147) destacaron que los niños pequeños aprenden no solo elementos del lenguaje científico, sino también el lenguaje del mundo de la vida, que es también incorporado en el discurso científico. Esta integración de la ciencia y los lenguajes del mundo de la vida permite a los niños hacer conexiones entre sus ideas y el pensamiento científico. Su conclusión fue que el uso del discurso científico

sirve como vehículo para el desarrollo cognitivo y del lenguaje, proporcionando a los jóvenes nuevas formas de representar, organizar e interpretar las experiencias diarias (p. 141).

Para lograr la finalidad comunicativa del género de divulgación científica se requiere un proceso de remodelación en el que se adecúe el contenido al público objetivo. En una presentación de resultados científicos muy popularizada, como en el caso de un libro de texto de educación superior, Engebretsen, M. (2020, p. 262) afirmó que se debe esperar encontrar un mayor grado de simplificación verbal y visual. Para ello, Gotti (2014, p. 19) utilizó el término *reformulación* para describir el concepto de popularización. La reformulación implica un proceso de adaptación a las condiciones adecuadas de los lectores destinatarios. Para el presente estudio, la reformulación debe estar favorecida por el uso generalizado de la metáfora, lo que facilitaría la identificación del contexto al establecer un vínculo directo, o al menos fácilmente accesible, con los conocimientos y experiencias generales del público joven.

10.3 Características y tamaño del corpus

La revista trimestral *Tunza* ha sido seleccionada como corpus de textos para la presente investigación. En febrero de 2003, el Consejo de Administración del Programa de las Naciones Unidas para el Medio Ambiente (PNUMA), que es una agencia de las Naciones Unidas que coordina sus actividades ambientales, adoptó una estrategia a largo plazo para involucrar a la población joven en las actividades ambientales y en el trabajo de PNUMA. Esta estrategia se denominó *Estrategia Juvenil Tunza*. Uno de los subproductos importantes de esta estrategia es la revista *Tunza*.

Tunza se publicó desde 2003 hasta 2014 con la visión de fomentar una generación de

ciudadanos jóvenes con conciencia ambiental, dispuestos a ejecutar acciones positivas hacia el medio ambiente. La palabra *Tunza* significa "tratar con cuidado o afecto" en *kiswahili*, que es un idioma subregional de África oriental. Dada la creciente preocupación por la crisis ambiental junto con la mayor participación de la generación joven en los temas sociales, el discurso ambiental para la juventud producido por uno de los más altos organismos de la ONU requiere nuestra atención.

Los editores de *Tunza* tienen diversos antecedentes internacionales, desde el Reino Unido, Estados Unidos, Europa, África, América Latina y el Caribe, América del Norte hasta Asia y el Pacífico. De hecho, se encuentran indistintamente expresiones del inglés americano y del inglés británico. Por parte del inglés americano podemos encontrar expresiones como: *organize, emphasize, civilization, argument* (americano), *colour, behaviour, neighbour, favourite* (británico). Por otro lado, provenientes del inglés británico encontramos ejemplos como *color, comportamiento, vecino o favorito*. Además, la revista *Tunza* editada por uno de los organismos internacionales más importantes invita a la participación activa de numerosos colaboradores de diversos países, lo que hace que la LO de la revista elegida sea altamente neutral respecto a cualquier variedad lingüística específica.

También es importante señalar que los materiales de las organizaciones internacionales, en comparación con los artículos de noticias o la literatura traducida, están relativamente libres de variaciones individuales en la traducción. Cabe mencionar que los reportajes mediáticos sobre hechos políticos son siempre formas de recontextualización, y cualquier recontextualización implica transformaciones determinadas por metas, valores e intereses (Schäffner, 2010, pp. 2-8). La misma autora demostró que esto también se aplica a la traducción.

Uno de los principales problemas a los que se enfrentan los lingüistas contrastivos es la disponibilidad de un corpus adecuado y equivalente. Las fuentes potencialmente aptas para

los estudios contrastivos son los documentos multilingües en varios idiomas, que se producen en paralelo, de modo que su análisis pueda arrojar algo de luz sobre las similitudes y diferencias en los diferentes idiomas (Schäffner, 2004, p. 1265).

Seo (2010, p. 85) presentó cuatro beneficios de un corpus paralelo. En primer lugar, un corpus paralelo proporciona conocimientos que se podrían haber pasado por alto en un corpus de un idioma. En segundo lugar, la naturaleza de comparación de un corpus paralelo arroja luz sobre las cualidades universales de las lenguas, así como sobre las diferencias específicas de cada lengua. En tercer lugar, también ayuda a revelar las diferencias entre el TO y el TD como en el idioma nativo y el idioma no nativo. En cuarto lugar, campos prácticos como la lexicografía, la enseñanza de idiomas y la traducción pueden hacer un buen uso de un corpus paralelo.

Cho (2012, pp. 228-229) también abordó la importancia de un corpus paralelo. Según el autor, los investigadores lingüísticos con un corpus paralelo tienden a realizar su estudio de manera integral, teniendo en cuenta no solo los problemas de traducción en el momento, sino también su contexto. Las tres fuentes seleccionadas son comparables; la versión en español es idéntica en contenido, diseño y formato a la original en inglés, mientras que lo mismo se aplica a la edición coreana. En este sentido, la fuente elegida se considera más adecuada para cumplir con estos criterios.

El corpus compilado para este estudio contiene solo textos escritos ya que la presente investigación se refiere a la traducción. El corpus compilado consta de 25 Volúmenes de la revista *Tunza* en inglés, del año 2007 al 2014. El Volumen 11 Número 3 (2014) es la revista más reciente disponible en la página web. A la versión en inglés es necesario añadir las versiones traducidas al español y al coreano (ver Apéndices 1 y 2), por tanto, el corpus de análisis comprende 75 volúmenes en total. Las revistas en inglés incluyen aproximadamente 322.524 palabras, mientras que la versión en español tiene alrededor de 374.547 palabras y la

versión coreana tiene alrededor de 211,637 palabras. Todos estos volúmenes en tres idiomas suman un total de 908.708 palabras a los que se les aplicará métodos cuantitativos para identificar las palabras clave (Apéndices 3 y 4).

El análisis cualitativo, en contraste centrado en el patrón de traducción (PT), se limita a los cinco volúmenes siguientes: Vol 5 No 2, Vol 5 No 3, Vol 5 No 4, Vol 6 No 1, Vol 6 No 2. En total son 15 volúmenes con alrededor de 160.000 palabras, ya que la revista elegida es un corpus paralelo para tres lenguas de investigación. La razón de la reducción se debe a que la versión coreana existente online está compartimentada en pequeños bloques, lo que imposibilita el trabajo con grandes cantidades de datos (consúltese el Apéndice 3).

Especialmente en el caso del idioma coreano, encontrar un corpus paralelo ha sido un desafío. Aparte de las obras literarias, la mayoría de los estudios contrastivos o de traducción inglés-coreano que se han abordado hasta ahora se han centrado en periódicos o revistas económicas como *Newsweek*, lo que es una indicación de que el tema de investigación se ha limitado a la economía y hay pocos corpus paralelos disponibles para este par específico de idiomas.

Asimismo, como el idioma coreano no forma parte de los seis idiomas oficiales de las Naciones Unidas, solo se dispone de una gama de materiales mucho más restringida en comparación con el español. La versión coreana de la revista *Tunza* es proporcionada por el Comité del PNUMA de la República de Corea. Esta entidad pública ha estado contribuyendo a abordar los problemas ambientales nacionales y mundiales en asociación con la Sede del PNUMA. Encontrar un corpus coreano paralelo cuyos equivalentes estén disponibles en los idiomas oficiales de la ONU plantea un reto. El caso se acentúa incluso más cuando el público objetivo son los jóvenes. Debido a esta particular dificultad que tiene el idioma coreano, la revista *Tunza* fue un agradable descubrimiento como resultado de numerosos días de búsqueda.

10.4 Metodología

Esta tesis pone su foco de análisis en las metáforas lingüísticas observadas en el texto de origen (TO) y su traducción al texto de destino (TD) mediante una metodología sistemática. El uso del discurso natural es uno de los principales avances en la investigación de metáforas en los últimos años (Pragglejaz Group, 2007, p. 1). Wikberg (2008) y Deignan (2008) también han destacado la importancia de las técnicas de investigación lingüística, es decir, el uso de un programa informático como *WordSmith Tools*, que puede proporcionar datos sobre el uso del lenguaje que de otro modo permanecerían ocultos.

La principal ventaja que aporta el corpus al estudio de la metáfora es la idea central detrás de la metodología de que el uso del lenguaje real hace que el estudio lingüístico sea más científico. Un corpus computarizado puede permitir al investigador detectar patrones generales de uso más rápidamente que el uso de la intuición o el análisis de textos individuales, ayudando al investigador a tener una visión más amplia.

Sin embargo, no es posible utilizar el corpus para partir de principios generales a través de realizaciones lingüísticas, ya que actualmente no hay forma de acceder a las reglas generales del lenguaje desde un corpus. No obstante, los programas informáticos pueden organizar los datos del lenguaje con rapidez y precisión sobre la base de principios ortográficos, pero no pueden trabajar a partir de una lista de metáforas conceptuales para identificar sus realizaciones lingüísticas.

Es por eso por lo que todavía se requiere el trabajo manual. Una vez que se recopilan los datos cuantitativos, la información debe procesarse manualmente. El investigador que intenta desarrollar generalizaciones válidas sobre el significado y el uso del lenguaje tiene que examinar una gran cantidad de datos lingüísticos en busca de regularidades y patrones. Este enfoque, que va desde abajo hacia arriba, no se centra en metáforas conceptuales

predefinidas; por el contrario, pretende detectar todas las posibles unidades metafóricas en textos individuales.

10.4.1 Colección del corpus

A la hora de recolectar el corpus hubo varios impedimentos. A diferencia de la versión en español, el corpus coreano prácticamente no está disponible en formato pdf en su totalidad. Solo se pueden obtener cuatro volúmenes en el formato pdf como una revista completa, y las 21 ediciones restantes están diseminadas de manera inconveniente. Sin embargo, al menos, existe un índice de estos volúmenes presentado en una página en la web, que, posteriormente, requiere un clic en cada entrada, lo que impide obtener una apariencia general de la revista (Apéndice 2). No solo esto dificulta la investigación, sino que también plantearía una dificultad considerable para el acceso a la información en línea y la legibilidad entre los lectores.

El siguiente desafío fue ordenar los textos. La presente investigación utiliza *WordSmith Tools 4.0* para identificar elementos léxicos. Con ese fin, todos los textos deben convertirse a formato txt, lo cual fue particularmente desafiante, porque como se mencionó anteriormente, muchos volúmenes no se proporcionan en pdf. Además, al convertir el formato de los archivos de pdf a txt, se creaba un espacio innecesario en medio de muchas palabras (por ejemplo, "per cent", "fi le", "refl ect"). Para empeorar aún más el análisis, el apóstrofe (por ejemplo, 's, 't, 've, 'll) tampoco se convertía correctamente, lo que posteriormente dio lugar a resultados distorsionados. Por ejemplo, antes de aclarar los textos, "por" derivado de "por ciento" resultó ser la palabra clave más destacada. Para resolver este

problema todo el texto tuvo que ser revisado y corregido en formato txt, lo que fue un trabajo laborioso y que llevó mucho tiempo.

10.4.2 Colección del corpus de palabras clave

Así, partimos de la identificación de palabras clave en el TO que se consideran características destacadas del discurso ambiental. Para conseguir un resultado cuantitativo, tres principales funciones que se han utilizado para el procedimiento de identificación de metáforas han sido *WordList*, *KeyWords* y *Concord* (Rodríguez Márquez, 2010, p. 43).

Primero, con *WordList* se puede generar una lista de palabras o una lista de frecuencias que indique la frecuencia de cada palabra que aparece en un texto o en un conjunto de textos. En segundo lugar, las unidades léxicas presentadas por la función de *KeyWords* (palabras clave) son rasgos léxicos distintivos del corpus elegido, ya que el término "palabra clave" se define como una palabra que aparece con una frecuencia inusual en un texto dado, o con una frecuencia inusual en comparación con un corpus de referencia de algún tipo (Scott, 1997 y 2006). En tercer lugar, los datos de *Concord* muestran al investigador los contextos lingüísticos de un determinado elemento léxico. Los contextos lingüísticos son cruciales para determinar la metafóricidad de palabras clave que forma parte del siguiente paso.

Volviendo a *KeyWords*, en esta investigación la lista resultante de palabras clave debe considerarse como un conjunto de unidades léxicas que son vehículos potenciales de metáforas lingüísticas. El análisis de palabras clave permite al investigador analizar un vasto recurso de datos, así como centrarse en aquellas palabras que son características destacadas de un género en particular o un recurso de datos en particular. La lista de palabras clave requiere i) tener una lista de palabras de un texto dado o un conjunto de textos, ii) establecer

una frecuencia mínima y iii) tener acceso a una lista de palabras de un corpus de referencia. Este corpus de referencia se refiere a la lista de palabras del *British National Corpus (BNC)* que está disponible gratuitamente en línea.

Para generar la lista de palabras clave en un texto, el programa *KeyWords* realiza un procedimiento estadístico de probabilidad. Además de definir una frecuencia mínima, en este paso también es necesario determinar el valor p y la prueba estadística o la prueba logarítmica de verosimilitud que ayuda a superar los datos sesgados dando resultados más precisos. En otras palabras, es probable que se obtengan resultados más fiables con un valor p más bajo. Scott (2006) sugiere un valor p de 0,000001 con el fin de obtener menos palabras clave.

Sin embargo, a pesar de que en esta investigación el valor p se estableció en 0,000001, la lista de palabras clave resultó ser muy grande, lo cual dificultaba el análisis. Por ejemplo, la lista de palabras generada a partir del conjunto de textos fuente en inglés en comparación con la lista de palabras *BNC* produjo un resultado de 2.408 palabras clave, que es un número muy alto teniendo en cuenta que esas palabras debían analizarse para determinar su metafóricidad. Otra desventaja era que se podía incluir una palabra en la lista de palabras clave, aunque solo aparecía en unos pocos textos.

10.4.3 Colección de una base de datos de palabras clave

Una forma posible de resolver este problema es crear lo que Scott (2006) llama una "base de datos de palabras clave". Una de las funciones del programa *WordSmith* llamada *KeyWords Database* proporciona en varios archivos una lista de palabras que son más frecuentes (Scott, 2006, p. 123).

Para generar esta base de datos de palabras clave, es necesario i) producir una lista de frecuencias para cada uno de los textos en un lote, ii) producir un lote de listas de palabras clave, y iii) establecer dos parámetros en palabras clave al calcular la base de datos de palabras clave. El procesamiento por lotes en *WordSmith Tools* consiste en crear listas de palabras o listas de palabras clave separadas para cada uno de los textos del corpus. Es importante mencionar que la frecuencia resultante o las listas de palabras clave no deben fusionarse, sino mantenerse separadas. Una vez generado el lote de listas de palabras, se puede producir el lote de listas de palabras clave.

Para obtener la base de datos de palabras clave, es necesario establecer dos parámetros: i) una frecuencia mínima de textos en los que aparece la palabra, y ii) un número mínimo de palabras clave por texto. La Tabla 1 muestra la configuración de una base de datos de palabras clave para el TO. Dado que el número total de Volúmenes en inglés es 25 y que una palabra a ser considerada típica de los textos de cada subcorpus debe aparecer al menos en más de la mitad del número total de volúmenes en inglés, se ha establecido la frecuencia mínima. en 12. En cuanto al número mínimo de palabras clave por texto, se decidió establecer en 1, incluyendo así todos los textos independientemente de si alguno de esos textos contiene una sola palabra clave.

Tabla 1. Configuración de una base de datos de palabras clave

Procedimiento	Probabilidad de registro
Valor p	0.000001
Número total de Volúmenes	25
Frecuencia mínima	12
Número mínimo de palabras clave por texto	1

La Tabla 2 muestra la base de datos de 20 palabras clave resultante para el TO. Estas palabras clave se clasifican según la frecuencia acumulada o la frecuencia general indicada en la parte derecha. Los resultados representan claramente los objetivos y enfoques principales de la revista *Tunza*, que están estrechamente relacionados con los temas ambientales.

Tabla 2. Una base de datos de palabras clave

N	KW	Texts	%	Overall Freq.
1	AND	4	80.00	1,903
2	PEOPLE	4	80.00	230
3	WORLD	5	100.00	199
4	FOOD	3	60.00	148
5	ENERGY	4	80.00	140
6	UNEP	5	100.00	111
7	TUNZA	5	100.00	107
8	ENVIRONMENT	4	80.00	102
9	CARBON	3	60.00	99
10	PERCENT	4	80.00	89
11	ENVIRONMENTAL	4	80.00	86
12	CLIMATE	5	100.00	84
13	UNITED	4	80.00	80
14	WASTE	5	100.00	80
15	COUNTRIES	4	80.00	78
16	WORLD'S	4	80.00	77
17	YOUTH	5	100.00	77
18	GLOBAL	5	100.00	65
19	NATURAL	3	60.00	63
20	VOL	5	100.00	56

Aun así, la Tabla 2 debe procesarse en dos pasos. Primero es necesario eliminar varias partes del discurso que son irrelevantes para el propósito de nuestro estudio: las conjunciones (AND), los sustantivos propios (UNEP; TUNZA) y los sustantivos ligados a unidades de medida (PERCENT; VOL). El segundo paso consiste en juntar las palabras clave y sus derivados: (WORLD; WORLD'S; WORLDS'; UNDERWORLD), (ENVIRONMENT;

ENVIRONMENTAL; ENVIRONMENTALLY; ENVIRONMENTALISM), (CARBON; DECARBONIZE), (SUSTAINABLE; UNSUSTAINABLE; SUSTAIN; SUSTAINABLY; SUSTAINABILITY); y (GLOBAL; GLOBALLY).

La Tabla 3 presenta una base de datos de palabras clave clasificadas según la frecuencia general después del proceso de filtrado mencionado anteriormente. Estas palabras clave enumeradas en la revista *Tunza* reflejan claramente los valores y puntos rectores del PNUMA. Las tres palabras clave más destacadas son: WORLD, PEOPLE y ENVIRONMENT.

Tabla 3. Palabras clave potencialmente metáforas lingüísticas en el TO

N	Palabras clave con posibilidad de ser metáforas	Frecuencia
1	WORLD; WORLD'S; WORLDS'; UNDERWORLD; THE WORLD	309
2	PEOPLE; PEOPLES	283
3	ENVIRONMENT; ENVIRONMENTAL; ENVIRONMENTALLY; ENVIRONMENTALISM	238
4	CARBON; DECARBONIZE	113
5	WASTE; WASTES; WASTEFULNESS	94
6	CLIMATE	88
7	SUSTAINABLE; UNSUSTAINABLE; SUSTAIN; SUSTAINABLY; SUSTAINABILITY	87
8	YOUTH; YOUTHFUL	80
9	GLOBAL; GLOBALLY	73
10	PLANET	58
	TOTAL	1.423

Cada una de las palabras clave que se muestran en la Tabla 3 se considera como una unidad léxica que potencialmente se utiliza de forma metafórica. Esas unidades léxicas,

entonces, necesitan ser analizadas en cuanto a su metafóricidad, de acuerdo con el siguiente cuarto paso del Procedimiento de Identificación de Metáforas (MPI, por sus siglas en inglés).

10.4.4 Colección de una base de datos de palabras clave

En la siguiente fase, se aplica el procedimiento del Grupo Pragglejaz (2007) a estas palabras clave para identificar su metafóricidad. El MPI del Grupo Pragglejaz comienza con la búsqueda de unidades léxicas (Steen, 2007, p. 25). Esta tesis cumple con las pautas establecidas por Steen y sus colegas (2010, p. 27) que siguen la mayoría de las prácticas del BNC para decidir qué cuenta como unidad léxica.

Después de identificar las unidades léxicas, el siguiente paso es estudiar su significado contextual. Decidir si un significado metafórico está convencionalizado o no, se puede hacer consultando un diccionario, que es un registro disponible públicamente, actualizado y producido de manera independiente, como una norma de referencia concreta (Steen, 2007, p. 97). En la misma línea, una herramienta útil para determinar si una determinada metáfora debe clasificarse como original o convencional es también un diccionario (Giora, 1997, p. 185). Por ejemplo, si el sentido metafórico de un elemento léxico aparece en el diccionario, el elemento léxico puede definirse de manera confiable como convencional (Way, 1994, p. 240).

Para reducir el grado de errores e inconsistencias y aumentar la fiabilidad del resultado, esta tesis consultó recursos externos como diccionarios de renombre y otros materiales de corpus. Para el análisis de las unidades léxicas del inglés, se ha seleccionado el *Macmillan English Dictionary: For Advanced Learners of American English (MED 2008)* por tratarse de un diccionario basado en corpus, tal como recomienda el Grupo Pragglejaz. Se

consultó también el *Longman Dictionary of Contemporary English* para obtener información adicional/complementaria.

10.4.5 MIP extendido a la traducción

Hasta este punto, se han examinado casos de unidades léxicas utilizadas metafóricamente en el TO. A continuación, las palabras clave identificadas como metáforas lingüísticas (KLM, por sus siglas en inglés) deben compararse con sus equivalentes de traducción en español y en coreano para determinar si las metáforas lingüísticas que aparecen en el TO se preservarían, de alguna manera en el TD, o si se observa alguna tendencia regularmente discernible.

Para el corpus español, el Diccionario de la Lengua Española de la Real Academia Española (DRAE) elaborado por la Real Academia Española (RAE), que es la institución oficial encargada de supervisar la lengua española. La RAE fue fundada en 1713 con el propósito de trabajar al servicio del idioma español. La RAE comenzó a establecer reglas para la ortografía del español en 1731. Su misión es asegurar la estabilidad y los estándares comunes y promover la unidad lingüística del idioma español dentro y entre varios territorios.

Según Santamaría Pérez (2021, p. 268), el DRAE, a lo largo de los años, ha mostrado una política relativamente abierta a la hora de incorporar nuevas palabras, especialmente las técnicas o extranjeras que no tienen léxico equivalente en el idioma español. El análisis comparativo de Santamaría Pérez (2021, p. 268) del DRAE 2001 y su última versión, mostró que el DRAE ahora es más descriptivo. Se puede decir que el hecho de que un diccionario incluya neología lo hace descriptivo.

Para el corpus coreano, se ha elegido *The Standard Korean Language Dictionary*. Es

publicado por el Instituto Nacional de la Lengua Coreana, que fue creado en 1991 por Decreto Presidencial. Fue fundado para establecer políticas lingüísticas nacionales, que alienten al pueblo coreano a usar su idioma de manera correcta y apropiada. Esta institución pública recopila y realiza investigaciones científicas sobre diversos datos lingüísticos y culturales, publica resultados de investigaciones y proporciona pautas sobre ortografía, uso estándar del coreano y otros asuntos relacionados que deben promover el uso digno del idioma coreano.

10.5 Análisis y resultados

Al aplicar el MIP a las palabras clave en el TO, conseguimos como un primer resultado relevante la lista de KLM (Sección 10.5.1). Posteriormente, siguiendo la Teoría de Relevancia, se muestra la clasificación de PT (Sección 10.5.2) y presentaremos la frecuencia de cada PT de inglés a español (Sección 10.5.3) y de inglés a coreano (Sección 10.5.4).

10.5.1 Palabras clave identificadas como metáforas lingüísticas (KLM)

La identificación de metáforas en grandes cantidades de textos implica una eternidad de horas de trabajo concentrado frente a una pantalla de ordenador (Nacey, 2013, p. 113). El Grupo Pragglejaz también admite que el MIP requiere un trabajo duro y debe hacerse con lentitud (2007, p. 36). Esto se debe a que, al determinar la distinción del significado, es inevitable que todavía surjan casos ambiguos.

Un dilema es cómo lidiar con estos usos de unidades léxicas que parecen tener

diferentes significados, pero también comparten alguna relación semántica en sus contextos. Por ejemplo, MacArthur (2015) intentó identificar usos metafóricos y no metafóricos del lenguaje en verbos relacionados con el habla como decir, contradecir, argumentar y hablar en una conversación utilizando el diccionario recomendado por el Grupo Pragglejaz. La conclusión fue que las definiciones del diccionario no estaban completas y, por lo tanto, la decisión sobre la metaforicidad quedó sin resolver.

La solución a esto se puede encontrar en la Teoría de la Relevancia. De acuerdo con la relación de relevancia con la metáfora, las metáforas se consideran un fenómeno graduable. Si los juicios se hacen en una escala de metáfora a no metáfora de una manera muy estricta, cuantificar la metáfora se vuelve confuso y difícil de controlar. Por ejemplo, un investigador tendría que decidir el número de incrementos en una escala. Además, es dudoso que diferentes codificadores emitieran los mismos juicios al determinar el estado metafórico de una expresión en una escala. En este contexto, MacArthur (2015) señaló la importancia de la intuición del investigador que le guía a ver el bosque/discurso en lugar de los árboles/palabras para decidir si el significado de esa unidad léxica en contexto es suficiente y relativamente metafórico.

Cuando se daban casos dudosos, el uso adicional del *Longman Dictionary of Contemporary English* fue realmente útil y necesario. Este uso complementario del diccionario secundario ha ayudado a aclarar el tratamiento de casos que no se pudieron resolver con el uso exclusivo del *Diccionario Macmillan para Estudiantes Avanzados*. La Tabla 6 muestra los resultados de las metáforas lingüísticas de palabras clave identificadas (KLM por sus siglas en inglés) y su frecuencia correspondiente.

Tabla 6. Resultados de la identificación de metáforas lingüísticas

N	Palabras clave potencialmente metáforas lingüísticas	Repeticiones identificadas (N)	Metáforas lingüísticas (N)	Porcentaje (%)
1	WORLD; WORLD'S; WORLDS'; UNDERWORLD; WORLDWIDE; THE WORLD	309	44	14,2
2	PEOPLE; PEOPLES	283	2	0,7
3	ENVIRONMENT; ENVIRONMENTAL; ENVIRONMENTALLY; ENVIRONMENTALISM	238	16	6,7
4	CARBON; DECARBONIZE	113	28	24,8
5	WASTE; WASTES; WASTFEULLNESS	94	6	6,3
6	CLIMATE	88	12	13,6
7	SUSTAINABLE; UNSUSTAINABLE; SUSTAIN; SUSTAINABLY; SUSTAINABILITY	87	28	34,5
8	YOUTH; YOUTHFUL	80	7	8,8
9	GLOBAL; GLOBALLY	73	6	8,2
10	PLANET; THE PLANET	58	5	8,6
	TOTAL	1,423	154	10,8

En total, se encontraron 1.423 ocurrencias de diez palabras clave de los textos ambientales elegidos, entre las cuales se identificaron 156 casos para ser utilizados

metafóricamente, lo que representa aproximadamente el 11% (ver Tabla 6). La palabra clave que resultó ser la más metafórica fue SUSTAINABLE; SUSTAINABLY; SUSTAINABILITY con un 34,5%. El segundo lugar fue para CARBON (24,8%), seguido de WORLD (14,2%). La palabra clave con menor posibilidad de ser metafórica fue PEOPLE (0,7%).

10.5.2 Patrones de traducción (PT)

Después de que se hayan identificado metáforas lingüísticas de palabras clave en el TO, sus traducciones deben clasificarse sobre la base de su grado relativo de metaforización. Inicialmente, las traducciones se han dividido en dos grupos principales dependiendo de si las metáforas lingüísticas se mantienen o no en el TD: metáfora no lingüística vs metáfora lingüística. Posteriormente, en función de su nivel de relevancia metafórica, estos dos tipos se clasifican en dos subgrupos, respectivamente. De esta forma, tenemos cuatro patrones de traducción.

Tabla 7. Patrón de traducción (PT) de metáforas lingüísticas

Metáfora no lingüística		Metáfora lingüística	
PT 1	PT 2	PT 3	PT 4
Omitido	Explicativo	Literal	No-literal

El primer patrón de traducción (PT 1) implica la simple exclusión de las metáforas lingüísticas del TO en el TD, que se sitúa en el extremo del continuo de metaforicidad. El PT 2 presenta casos en los que se omite la metáfora lingüística de origen y se sustituye por una

explicación en el TD. Tanto el PT 3 como el PT 4 incorporan una metáfora lingüística en el TD. En el primero, la metáfora lingüística se conserva siguiendo las formas textuales del TO que exhibe un mayor grado de relevancia en comparación con los patrones de traducción anteriores, mientras que el segundo se adopta en el TD una expresión lingüística metafórica diferente que la original del TO.

10.5.3 Análisis de inglés al español

En total se encontraron 161 apariciones del PT para el subcorpus español (ver Tabla 8). La estrategia de traducción aplicada con mayor frecuencia por KLM fue la TP 3 con una abrumadora aceptación del 91,3%, lo que da el primer indicio de que los traductores al español del discurso de divulgación científica tenían una gran tendencia a la traducción literal y, por tanto, podrían conducir a la producción de los textos orientados al TO.

Con un margen considerable, el segundo lugar fue para el PT 2 con un 6,2%, indicio de que las explicaciones no siempre se daban en la traducción al español. Finalmente, los patrones PT 4 y PT 1 solo fueron utilizados de forma residual, alcanzando en ambos casos una frecuencia del 1,2%. Este resultado apunta tanto a la limitada provisión de expresiones metafóricas alternativas en el TD como también a un mínimo uso de la omisión.

Tabla 8. Frecuencia española de PT 1, PT 2, PT 3, PT 4

N	Palabra clave	Total N	PT 1		PT 2		PT 3		PT 4	
			N	%	N	%	N	%	N	%
1	WORLD	46	1	2,2	3	6,5	40	87,0	2	4,3

2	SUSTAINABLE	30	0	0	2	6,7	28	93,3	0	0
3	CARBON	28	0	0	2	7,1	26	92,9	0	0
4	ENVIRONMENT	18	0	0	2	11,1	16	88,9	0	0
5	CLIMATE	12	1	8,3	0	0	11	91,7	0	0
6	WASTE	7	0	0	1	14,3	6	85,7	0	0
7	YOUTH	7	0	0	0	0	7	100	0	0
8	GLOBAL	6	0	0	0	0	6	100	0	0
9	PLANET	5	0	0	0	0	5	100	0	0
10	PEOPLE	2	0	0	0	0	2	100	0	0
	TOTAL	161	2	1,2	10	6,2	147	91,3	2	1,2

Para la primera metáfora lingüística de palabras clave WORLD, el TP 3 supuso el 87,0% como estrategia dominante optada por los traductores de español. El uso de otras estrategias alcanzó un valor mínimo. Aproximadamente en el entorno de un enorme 93% tanto la segunda palabra clave SUSTAINABLE como la tercera CARBON se tradujeron a través de la traducción literal. De manera similar, el PT 3 ocupó el 88,9% para la cuarta metáfora lingüística ENVIRONMENT y el 91,7%. para CLIMATE.

10.5.4 Análisis de inglés al coreano

Para el subcorpus coreano, el número total de apariciones del PT fue 168 (ver Tabla 18), que es similar al del subcorpus español. En general, la frecuencia de cada uno de los cuatro PTs se distribuyó uniformemente en comparación con sus equivalentes españoles. Al igual que en el caso de la traducción al español, la estrategia de traducción coreana con mayor frecuencia fue el TP 3 con un 51,8%. En más de la mitad de los casos, los traductores coreanos se inclinaron por una traducción literal, pero no tanto como sus colegas en español.

El PT 2 ocupó el segundo lugar con una frecuencia relativamente alta del 23,8%: los traductores coreanos dieron más explicaciones que sus homólogos españoles. Para continuar, el PT 4 supuso el 17,3%, cifra superior a la del PT 4 español: se pudo observar la provisión de expresiones metafóricas alternativas en el TD coreano. Por último, el PT 1 se presentó con menor frecuencia, aunque su uso del 7,1% fue más frecuente que el de los equivalentes españoles.

Tabla 18. Frecuencia coreana de PT 1, PT 2, PT 3, PT 4

N	Palabra clave	Total N	PT 1		PT 2		PT 3		PT 4	
			N	%	N	%	N	%	N	%
1	WORLD	49	6	12,2	8	16,3	19	38,8	16	32,7
2	SUSTAINABLE	33	2	6,1	7	21,2	22	66,7	2	6,1
3	CARBON	29	0	0	11	37,9	16	55,2	2	6,9
4	ENVIRONMENT	18	1	5,6	3	16,7	12	66,7	2	11,1
5	CLIMATE	12	1	8,3	3	25,0	7	58,3	1	8,3
6	YOUTH	8	0	0	7	87,5	0	0	1	12,5
7	WASTE	6	0	0	0	0	6	100	0	0
8	GLOBAL	6	2	33,3	1	16,7	3	50,0	0	0
9	PLANET	5	0	0	0	0	1	20,0	4	80,0
10	PEOPLE	2	0	0	0	0	1	50,0	1	50,0
	TOTAL	168	12	7,1	40	23,8	87	51,8	29	17,3

Para la primera metáfora lingüística de palabras clave WORLD, los cuatro patrones se utilizaron de manera relativamente uniforme. Aun así, el PT 3 ocupó casi el 40%, seguido del PT 4 con una ligera diferencia. Le sigue el PT 2 con un 16,3%. Se observó que la frecuencia del PT 1 fue tan alta como la del PT 2. En cuanto a la palabra clave WORLD, se confirmó que los traductores coreanos consideraron no solo el PT 3 sino también otros

métodos de traducción como el PT 2 o el PT 4. Para más de la mitad de los casos, la segunda palabra clave SUSTAINABLE se tradujo de manera literal, sin embargo, también se empleó el PT 2. La misma tendencia se puede encontrar para la tercera palabra CARBON: el 55,2% del PT 3 junto con el 38,9% del PT 4. De manera similar, la cuarta metáfora lingüística ENVIRONMENT se tradujo principalmente de manera literal con un 66,7%. La palabra CLIMATE también mostró la tendencia general del PT 3 con 58,3% seguida del PT 2 con 25%.

10.6 Conclusión

El objetivo de este estudio ha sido averiguar las estrategias de traducción que se utilizan más ampliamente para las metáforas lingüísticas de palabras clave de textos ambientales. Los resultados han demostrado que la revista *Tunza* ha permitido realizar un análisis adecuado del discurso ambiental y sus traducciones. Se ha confirmado la veracidad de la primera hipótesis que suponía que las metáforas lingüísticas, tanto las tradicionales como, en particular, las novedosas, plantean dificultades a los traductores, lo que los llevó a recurrir a una amplia gama de estrategias de traducción, situación que justo era la segunda hipótesis de partida del estudio.

El primer hallazgo relevante desde un punto de vista cuantitativo se refería a la frecuencia de metáforas lingüísticas. De veinte palabras clave (Tabla 2), el estudio identificó diez metáforas lingüísticas de palabras clave (Tabla 3). Las palabras clave en el TO que resultaron ser más metafóricas fueron SOSTENIBLE; SOSTENER (34,5%), CARBONO (24,8%) y MUNDO (14,2%) (para más detalles, consultar la Tabla 6).

El estudio identifica que, en función del grado de relevancia metafórica, las metáforas lingüísticas producidas en el discurso ambiental requieren la utilización de una gama completa de estrategias de traducción que se pueden clasificar en cuatro: PT 1, PT 2, PT 3 y PT 4. En cuanto al PT preferido, tanto los traductores de español como los de coreano han mostrado la misma tendencia en términos generales. Sin embargo, se encontraron algunas diferencias significativas en la frecuencia en cada patrón (recurrir a Tabla 16 y 30).

Para la traducción al español, el patrón más recurrentemente aplicado fue el PT 3 con una frecuencia abrumadora, lo que da la primera indicación de que los traductores de español tuvieron una mayor tendencia hacia la traducción literal: el TD parece orientado hacia el TO. A una distancia considerable, el segundo lugar lo ocupó el PT 2. Es decir, en las traducciones no siempre se ofrecen suficientes explicaciones. Por último, encontramos pocos casos en que se utiliza el TP 4 y TP 1, lo cual apunta tanto a la existencia de una limitada lista de expresiones metafóricas alternativas en el TD como al mínimo uso de la exclusión de metáforas lingüísticas del TO.

De la misma manera, la estrategia más recurrentemente elegida para la traducción al coreano fue el PT 3. Es decir, los traductores de coreano se inclinaron por realizar intercambios simples, palabra por palabra. El PT 2 también ocupó el segundo lugar, pero en este caso, con una diferencia muy pequeña con respecto al PT 3. Esto sugiere que los traductores proporcionaron explicaciones detalladas a los jóvenes lectores. Con cierta relevancia, el tercer lugar fue para el PT 4, clara indicación de los intentos de los traductores por ser creativos. En último lugar, a un nivel cercano al PT 4 se encontró el PT 1, lo cual pone de manifiesto un nivel relevante de casos en que es posible que se produzca una falta de transmisión de información.

Este estudio también indagó más sobre la palabra clave propia del curso ambiental "carbon neutrality" de la revista *Tunza* (Tabla 14 y 29) a través de la prensa española y

coreana desde 2003 y hasta 2021. La República de Corea fue sede de la Cumbre P4G de Seúl 2021 del 30 al 31 de mayo de 2021. El tema clave de la Cumbre P4G para 2021 fue "Inclusive Green Recovery Towards Carbon Neutrality". La relevancia de esta Cumbre con el presente estudio es su palabra clave: "neutralidad de carbono". Se observó el uso frecuente del TP 3 para la palabra clave "carbono" y sus problemas de neología (consulte el Apéndice 7 y 8).

La frecuente aplicación del PT 3 requiere nuestra especial atención. En muchos casos, incluso el número de palabras y el orden de estas dentro de las oraciones que se encuentran en el TO se replicaron en el TD. Cuando las culturas lingüísticas no están muy distantes entre sí como en el caso del inglés y el español en comparación con el coreano, las metáforas podrían ser válidas; sin embargo, el principio que debe orientar la traducción de la metáfora no es tanto lograr la igualdad semántica o formal, sino lograr la equivalencia de efectos en el receptor de la LD (Giorgio, 2012, p. 75). Dado que el orden de las palabras y la naturaleza sintáctica y morfológica entre el inglés y el coreano, en particular, son completamente diferentes, la lealtad a esas características en la traducción condujo a resultados muy extraños o incómodos.

Es importante recordar que el género del corpus elegido es de divulgación científica. Para este género en particular, se necesita un proceso de adaptación a las condiciones apropiadas de los jóvenes lectores. Aquí es donde entran los traductores para realizar esta tarea popularizadora y recontextualizadora. Por tanto, la estrategia de traducción deseada sería el PT 4, que, sin embargo, no siempre está al alcance. La presente tesis sostiene que la viveza de las metáforas sólo puede llegar después de que se asegure la comprensión y legibilidad del TD. Por este motivo, cuando una determinada metáfora lingüística es novedosa o plantea una gran dificultad, podría recomendarse el PT 2 de adición de explicaciones como una estrategia alternativa.

Desde la perspectiva ecolingüística (Fill, 2000; Clark, 2011; Steffensen & Fill, 2013; Alexander & Stibbe, 2014; Steffensen & Fill, 2014; Machielsen, 2019; Wiben Jensen & Greve, 2019; Stibbe, 2021), los traductores forman parte importante de un ecosistema en el que contribuyen a los idiomas traducidos. La ecotraducción pretende concienciar sobre los problemas medioambientales con el objetivo de impulsar a nuestra sociedad hacia un futuro mejor, al tiempo que enfatiza la importancia del papel que desempeña el traductor en la mejora del medio ambiente (Resinger, 2008; Cronin, 2017). Uno de los rasgos destacados de la divulgación científica de textos especializados, como es el caso del discurso que caracteriza a nuestra revista *Tunza*, es el público. El propósito principal de la revista es brindar información precisa sobre la ciencia y la naturaleza al tiempo que hace que el idioma sea más accesible para los lectores no especialistas. Para lograr esta finalidad comunicativa en dicho género, un proceso de remodelación es requerido; la reformulación implica un proceso de adaptación a las condiciones de nuestros jóvenes lectores que actúan como objetivo.

Este estudio mantiene que el análisis crítico del lenguaje juega un papel relevante al abordar los problemas ambientales, dado que cuestiona la tradición cultural de las traducciones comúnmente aceptadas y, de forma más amplia las preconcepciones lingüísticas de la sociedad actual. Las metáforas lingüísticas novedosas en el TD, como resultado del TP 3, podrían verse como destructivas o ambivalentes desde la perspectiva ecolingüística. Como resultado, es posible que los lectores de destino no logren recuperar el significado deseado por completo. Parece necesario tomar decisiones adecuadas para evitar indeseadas consecuencias futuras de la traducción descontrolada de metáforas (Cronin, 2017, p. 2311).

Modificar el lenguaje cambiará la sociedad que nos rodea y lo que los traductores deben hacer es modificarlo en la dirección correcta para construir una cultura más ecológica (Stibbe, 2021). Es fundamental que los traductores las reconsideren en aras de la

sostenibilidad socioecológica a corto y largo plazo. Es necesario tomar decisiones importantes en vista de las posibles consecuencias futuras de la traducción de metáforas sin control (Cronin, 2017, p. 2311), que exigen que los futuros traductores sean más creativos, pero cautelosos, en su representación del “entorno”.

A pesar de la contribución de este estudio al área poco investigada de las metáforas lingüísticas de palabras clave en traducción de una manera que aún no se había intentado, tiene sus limitaciones. Este estudio podría beneficiarse de un futuro estudio longitudinal sobre traducciones literales; la evolución de cada metáfora lingüística de palabra clave encontrada en la revista *Tunza* podría estudiarse individualmente durante un período prolongado de tiempo. Una clasificación adicional dentro del TP 3 podría ayudar a los traductores a comprender mejor sus trabajos. La sugerencia de traducción alternativa usando el PT 4 sería de gran valor. También se podría ir más allá de estas tres lenguas de investigación. Estas limitaciones pueden apuntar a direcciones fructíferas para futuros estudios.

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Appendix 28. Korean TP for “people”

Appendix 1. A sample cover in three languages



English

Spanish

Korean

Appendix 2. A sample excerpt in three languages

Water, water...

VIEWED FROM SPACE, ours is a blue planet: fully 70 percent of its surface is water – but mostly in the sea. Just 2.5 percent of all the world’s water is freshwater, and of that, almost 80 percent is locked in ice caps and glaciers, and most of the rest is below ground, in soils and rocks. Just 1 percent of all water on Earth is readily and easily available for our use – and for all the other creatures that share our world.

Agua, agua...

VISTO DESDE EL ESPACIO, el nuestro es un planeta azul: 70% de su superficie es agua — pero la mayor parte en el océano. Apenas 2,5% de toda el agua del mundo es agua dulce, y de ésta, casi 80% está encerrada en capas de hielo y glaciares, y la mayor parte del resto se encuentra bajo tierra, en suelos y rocas. Apenas 1% de toda el agua sobre la Tierra está a fácil disposición para nuestro uso – y de todas las demás criaturas que comporten nuestro mundo.

물

우주에서 바라보는 우리의 지구는 푸른 별입니다. 지구 표면의 70퍼센트는 물로 채워져 있으며, 그 중 대부분은 바다로 이루어져 있지요. 지구 상의 물 중에서 단 2.5퍼센트만이 담수이고, 그 중 80퍼센트 가량은 빙원이나 빙하에 갇혀 있습니다. 나머지 물은 대부분 흙과 바위 사이를 흐르는 지하수로 존재합니다. 지구에 존재하는 물 중 단 1퍼센트만이 인간, 그리고 이 세상의 모든 생명체가 사용하기 편리한 형태로 존재합니다.

Appendix 3. Corpus size and time span: English-Spanish

Year	Volume	English	Words	Spanish	Words
2014	Vol 11 No 3	SUSTAINABLE WORLD	11,529	UN MUNDO SOSTENIBLE	13,648
2013	Vol 11 No 2	Going places? Cars Bikes Buses Planes Trains	9,667	¿De viaje? Avión Bicicleta Tren, Autobús Coche	11,304
	Vol 11 No 1	Repair Recycle Reuse Reduce	10,515	Reparar Reducir Reciclar Reutilizar	12,076
	Vol 10 No 4	FRESHWATER	12,914	AGUA DULCE	15,162
2012	Vol 10 No 3	FOOD	not found (homepage error)	X	not found
	Vol 10 No 2	NEW DIRECTIONS	12,533	NUEVOS RUMBOS	14,594
	Vol 10 No 1	Sport and the environment	12,937	Deporte y medio ambiente	15,429
	Vol 9 No 4	The green economy	14,436	La Economía Verde	16,941
2011	Vol 9 No 3	The road to Rio+20	13,313	El camino a Río+20	15,119
	Vol 9 No 2	Soil – the forgotten element	13,802	El suelo: un elemento olvidado	16,022
	Vol 9 No 1	Forests and trees	12,647	Los bosques y los árboles	14,819
	Vol 8 No 4	Health and the environment	13,761	LA SALUD Y EL MEDIO AMBIENTE	16,518
2010	Vol 8 No 3	Asking searching questions • Green leap forward	13,120	Preguntas escrutadoras • Salto verde hacia adelante	15,436
	Vol 8 No 2	Hazards and catastrophes	12,707	Peligros y catástrofes	15,081
	Vol 8 No 1	“We should not be afraid to fight for what we believe is right”	14,374	“No debemos tener miedo de luchar por lo que creemos es bueno”	16,454
	Vol 7 No 4	“Enjoying the environment is key to its preservation.”	11,500	“Disfrutar de las zonas naturales es la clave para preservarlas.”	13,684
2009	Vol 7 No 3	TUNZA 2009 YOUTH CONFERENCES – What we want from Copenhagen	13,275	CONFERENCIAS TUNZA 2009: Lo que esperamos de Copenhague	15,513
	Vol 7 No 2	The road to COPENHAGEN	14,349	El camino a COPENHAGUE	16,928
	Vol 7 No 1	Your planet needs YOU!	13,621	¡Tu planeta te necesita!	15,636
	Vol 6 No 4	UNite to combat CLIMATE CHANGE – Paint for the Planet	13,398	UNidos contra el CAMBIO CLIMATICO – Pintar para el Planeta	15,458
2008	Vol 6 No 3	WATER	13,010	AGUA	15,150
	Vol 6 No 2	Food and the environment	14,258	Los Alimentos y el Medio Ambiente	14,408

	Vol 6 No 1	Kick the habit!	12,950	¡Deja el Hábito!	14,940
	Vol 5 No 4	Islands	12,718	Las islas	14,909
2007	Vol 5 No 3	Technology and the environment	13,394	Tecnología y el Medio Ambiente	15,634
	Vol 5 No 2	Connecting with nature	11,800	Conexiones con la Naturaleza	13,684
Total	25 volumes		322,524		374,547

Appendix 4. Corpus size and time span: English-Korean

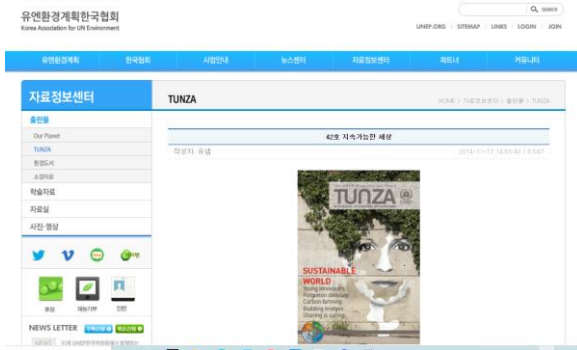
Year	Volume	English	Words	Korean	Words
2014	Vol 11 No 3	SUSTAINABLE WORLD	11,529	42호 지속가능한 세상	8,436
2013	Vol 11 No 2	Going places? Cars Bikes Buses Planes Trains	9,667	41호 친환경적인 삶 - 지속가능한 교통수단 이용하기	7,541
	Vol 11 No 1	Repair Recycle Reuse Reduce	10,515	40호 고쳐쓰고, 다시쓰고, 적게쓰고, 재활용하는 생활	blocked by OCR (not modifiable)
	Vol 10 No 4	FRESHWATER	12,914	39호 깨끗한 물	9,313
2012	Vol 10 No 3	FOOD	not found (homepage error)	38호 낭비가 없으면 부족함도 없다	no corresponding version
	Vol 10 No 2	NEW DIRECTIONS	12,533	37호 새로운 방향	8,777
	Vol 10 No 1	Sport and the environment	12,937	36호 스포츠와 환경	9,439
	Vol 9 No 4	The green economy	14,436	35호 녹색경제	10,356
2011	Vol 9 No 3	The road to Rio+20	13,313	34호 리우로 가는길	9,235
	Vol 9 No 2	Soil – the forgotten element	13,802	33호 토양	9,509
	Vol 9 No 1	Forests and trees	12,647	32호 숲과 나무	8,433
	Vol 8 No 4	Health and the environment	13,761	31호 환경과 건강	7,644
2010	Vol 8 No 3	Asking searching questions • Green leap forward	13,120	30호 녹색 경제를 향한 도약	9,229
	Vol 8 No 2	Hazards and catastrophes	12,707	29호 자연재해	8,339
	Vol 8 No 1	“We should not be afraid to fight for what we believe is right”	14,374	2010 세계환경의 날 기념 특집호 “정의를 위해 두려워하지 말고 싸워야 합니다.”	17,172
	Vol 7 No 4	“Enjoying the environment is key to its preservation.”	11,500	28호 환경이 주는 즐거움을 누리 는 것, 바로 환경보호의 비결입니다.”	8,823
2009	Vol 7 No 3	TUNZA 2009 YOUTH CONFERENCES – What we want from Copenhagen	13,275	25호 우리가 코펜하겐 회의에서 원하는 것	9,149
	Vol 7 No 2	The road to COPENHAGEN	14,349	26호 코펜하겐으로 가는 길	9,505
	Vol 7 No 1	Your planet needs YOU!	13,621	2009 세계환경의 날 기념 특집호 지구에겐 당신이 필요합니다	9,505
	Vol 6 No 4	UNite to combat CLIMATE CHANGE – Paint for the Planet	13,398	24호 Paint for the Planet	9,070

2008	Vol 6 No 3	WATER	13,010	23호 물	9,104
	Vol 6 No 2	Food and the environment	14,258	21호 음식과 환경	blocked by OCR (not modifiable)
	Vol 6 No 1	Kick the habit!	12,950	19호 습관을 바꿔요!	do.
	Vol 5 No 4	Islands	12,718	20호 섬	do.
2007	Vol 5 No 3	Technology and the environment	13,394	18호 기술과 환경	do.
	Vol 5 No 2	Connecting with nature	11,800	17호 자연과의 교감	do.
Total	25 volumes		322,524		211,637¹⁷

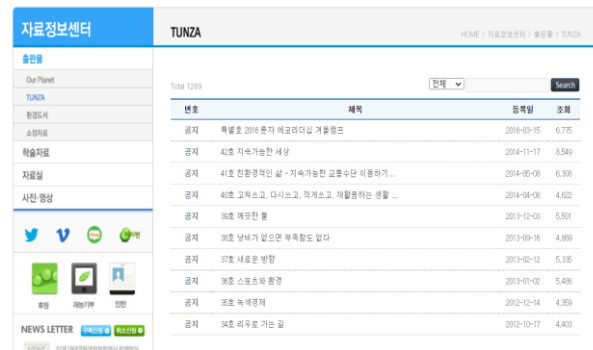
¹⁷ Seven volumes are available in PDF format among which six are blocked by OCR which prohibit any form of modification. For this reason, the number of words couldn't be acquired. The number of words for these volumes was counted as means of the rest.

Appendix 5. Homepage organization of Korea Association for UN Environment

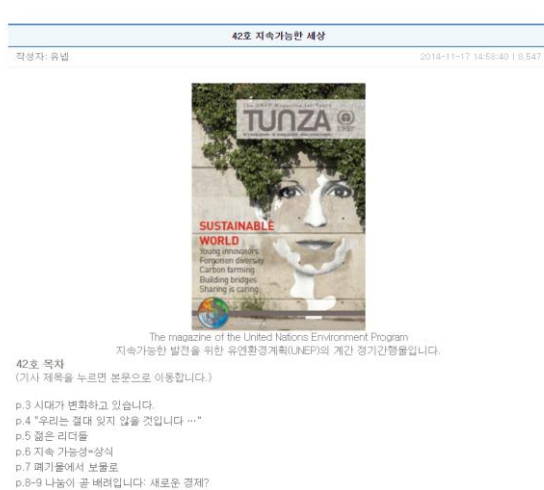
(1)



(2)



(3)



(4)



Appendix 6. The concordance patterns for “environmental”

N	L2	L1	Centre	R1
1	BAYER	YOUNG	ENVIRONMENTAL	ISSUES
2	OF	AND		ENVOY
3	YOUTH	IN		AWARENESS
4	YOUNG	THE		PROTECTION
5	THE	YOUTH		NETWORKS
6	TO	OF		PROBLEMS
7	CONFERENCE	AN		ENVOYS
8	A	PEOPLE'S		AND
9	CONFERENCES	FOR		IMPACT
10	AND	WITH		EDUCATION
11	SOCIAL	ON		DEGRADATION
12	FOR	TO		SUSTAINABILITY
13	AS	INTERNATIONAL		MOVEMENT
14	HEALTH	ABOUT		BENEFITS
15	IN	GLOBAL		FOOTPRINT
16	IS	ITS		CRISIS
17	HUMAN	AS		ENGINEERING
18	ECONOMIC	REDUCING		LEADERS
19	AWARENESS	LOCAL		GOVERNANCE
20	BE	MANY		ACTION
21	HELP	TACKLE		WORK
22	REDUCE	THEIR		AGREEMENTS
23	CAN	OTHER		CONCERNS

Appendix 7. Korean news articles about the 2021 P4G Seoul Summit

No	Origin	Excerpt	Back Translation
1	Economist	탄소중립 선언 탄소중립 시대 탄소중립을 공언 탄소중립의 길 탄소중립을 향한 탄소중립을 위해선 탄소중립을 포함 탄소중립연료 ¹⁸	declaration of carbon neutrality carbon neutral era carbon neutrality promise carbon neutral way toward carbon neutrality for carbon neutrality include carbon neutrality carbon neutral fuel
2	Edaily	탄소중립 여정 탄소중립을 선도 탄소중립을 이루겠다 ¹⁹	carbon neutrality journey lead carbon neutrality achieve carbon neutrality
3	Economist	포용적인 탄소중립 탄소중립으로 가는 길 탄소중립 비전 실현 ²⁰	inclusive carbon neutrality a way to carbon neutrality realization of carbon neutral vision
4	Yonhap News	포용적 탄소중립 탄소중립 비전 실현 ²¹	inclusive carbon neutrality realization of carbon neutral vision
5	Hankyoreh	탄소중립 목표 탄소중립 시나리오 ²²	carbon neutrality objective carbon neutrality scenario
6	Financial News	탄소중립으로 나아가기 탄소중립을 위해 탄소중립 달성 ²³	toward carbon neutrality for carbon neutrality accomplishment of carbon neutrality
7	Financial News	탄소중립 노력 탄소중립 스마트 물관리	carbon neutrality efforts carbon neutrality smart water

¹⁸ Choi, Y. S. (2021, June 4). [제조업 '탈(脫)탄대로' 걸을까①] 현대차, '전과정 탄소중립' 선언. Economist. <https://economist.co.kr/2021/06/04/industry/normal/20210604160700356.html>

¹⁹ Ha, S. R. (2021, June 3). 文대통령, P4G회의 참석 정상급 인사들에 감사 메시지. Edaily. <https://www.edaily.co.kr/news/read?newsId=03913046629078112&mediaCodeNo=257&OutLnkChk=Y>

²⁰ Park, J. S. (2021, June 1). P4G “석탄 너머 태양·풍력으로”. Economist. <https://economist.co.kr/2021/06/01/industry/normal/20210601050100755.html>

²¹ Kim, B. H. (2021, May 31). P4G 정상회의 “에너지전환 촉진... 석탄발전소 금융중단 모색”. Yonhap News. <https://www.yna.co.kr/view/AKR20210531137500001?input=1195m>

²² Lim, G. B. (2021, May 31). 문 대통령, P4G 개회사... “2030 온실가스 감축목표 추가 상향”. Hankyoreh. <https://www.hani.co.kr/arti/politics/bluehouse/997252.html>

²³ Lim, G. B. (2021, May 31). [P4G 서울정상회의] 문승욱 “한국이 탄소중립 선진국·개도국 간 브릿지 역할”. Financial News. <http://www.fnnews.com/news/202105311042458170>

		탄소중립을 향한 ²⁴	management toward carbon neutrality
8	Financial News	탄소중립 비전 ²⁵	carbon neutrality vision
9	YTN	탄소중립 비전 실현 탄소 중립에 대한 ²⁶	realization of carbon neutral vision about carbon neutrality
10	Yonhap News	탄소중립 실현 ²⁷	realization of carbon neutrality
11	YTN	탄소중립 비전 실현 탄소 중립을 위한 ²⁸	realization of carbon neutral vision for carbon neutrality
12	TV Chosun	탄소중립 비전 실현 ²⁹	realization of carbon neutral vision
13	Chosun Biz	탄소중립 사회 탄소중립 성장 실현 탄소중립 달성 ³⁰	carbon neutral society realization of carbon neutral growth accomplishment of carbon neutrality
14	Yonhap News	탄소중립 실현 탄소중립 달성 ³¹	realization of carbon neutrality accomplishment of carbon neutrality
15	KBS News	탄소 중립 사회 ³² 탄소 중립 시나리오 탄소 중립 이행 탄소 중립 목표 ³³	carbon neutral society carbon neutral scenario implementation of carbon neutrality carbon neutrality objective

²⁴ Lee, G. B. (2021, May 31). [P4G]한정에 "국제사회 당사자들, 스마트 물관리 확산 동참해야". Financial News. <https://www.fnnews.com/news/202105311348361700>

²⁵ Na, Y. S. (2021, May 30). P4G 서울 정상회의 오늘 개막..."포용적 회복·탄소중립". YTN. https://www.ytn.co.kr/_ln/0101_202105300002326020

²⁶ Kim, H. Y. (2021, May 30). 文대통령, P4G 서울정상회의 참석...'최초' 환경 다자회의. Financial News. <https://www.fnnews.com/news/202105292333036463>

²⁷ Kim, B. H. (2021, May 29). P4G 서울정상회의 내일 개막...韓 개최 첫 환경정상회의. Yonhap News. <https://www.yna.co.kr/view/AKR20210528155600001?input=1195m>

²⁸ Hong, S. K. (2021, May 29). 2050년 탄소중립 실현...내일 P4G 정상회의 개막. YTN. https://www.ytn.co.kr/_ln/0101_202105291821098981

²⁹ Kim, J. U. (2021, May 28). 文대통령이 '참석 환영한다'던 바이든, 결국 P4G 정상회의 '불참'. TV Chosun. http://news.tvchosun.com/site/data/html_dir/2021/05/28/2021052890093.html

³⁰ Lee, Y. J. (2021, May 28). 신학철 LG화학 부회장, P4G 정상회의서 탄소중립 전략 공유. Chosun Biz. https://biz.chosun.com/industry/company/2021/05/28/HKIIESSV25G2TGFUOV4NW4R2HI/?utm_source=naver&utm_medium=original&utm_campaign=biz

³¹ Lim, H. S. (2021, May 29). 2050 탄소중립위 출범...문대통령 "주춧돌 돼달라". Yonhap News. <https://www.yna.co.kr/view/AKR20210528152600001?input=1195m>

³² Kim, K. J. (2021, May 29). P4G정상회의 내일 개막...'2050 탄소중립위'도 출범. KBS News. <https://news.kbs.co.kr/news/view.do?ncd=5197072&ref=A>

³³ Kim, K. J. (2021, May 29). '2050 탄소중립위' 출범...문 대통령 "탄소중립 위한 구심점 될 것". KBS News. <https://news.kbs.co.kr/news/view.do?ncd=5197014&ref=A>

16	YTN	탄소 중립 사회 탄소중립 비전 실현 ³⁴	carbon neutral society realization of carbon neutral vision
17	SBS Biz	탄소중립 비전 실현 ³⁵	realization of carbon neutral vision
18	News 1	탄소중립 사회 탄소중립 달성 탄소중립 실현 탄소중립 비전 ³⁶	carbon neutral society realization of carbon neutral growth accomplishment of carbon neutrality carbon neutral vision
19	Hankyoreh	탄소 중립 사회 ³⁷	carbon neutral society
20	Asia Economy	탄소 중립 의지 탄소중립 달성 탄소중립 사회 ³⁸	carbon neutral will accomplishment of carbon neutrality carbon neutral society
21	Edaily	탄소 비전 실현 탄소중립 실현 ³⁹ 탄소중립 경제 ⁴⁰	realization of carbon vision realization of carbon neutrality carbon neutral economy

³⁴ Hong, S. K. (2021, May 29). 'P4G 서울 정상회의' 앞둔 문 대통령, 수소차 몰고 퇴근. YTN. https://www.ytn.co.kr/_ln/0101_202105290939522214

³⁵ Song, T. H. (2021, May 29). 韓 개최 환경정상회의 'P4G' 내일 개막...탄소중립 실천 논의. SBS Biz. <https://biz.sbs.co.kr/article/20000017245?division=NAVER>

³⁶ Kim, H. (2021, May 29). 문대통령, '2050 탄소중립위' 출범식 참석..."탄소중립 달성 주춧돌". News 1. <https://www.news1.kr/articles/?4321881>

³⁷ Kang, J. G. (2021, May 29). 환경단체 "탄소중립위, 정의롭지 못한 탄소배출 멈춰라". Hankyoreh. https://www.hani.co.kr/arti/society/society_general/997179.html

³⁸ Ryu, J. M. (2021, May 29). 2050 탄소중립위 출범식...文대통령 "세계 온실가스 감축노력 동참". Asia Economy. <https://view.asiae.co.kr/article/2021052914422989519>

³⁹ Kim, Y. H. (2021, May 27). 30~31일 P4G개최...文대통령, 정상 토론세션 직접 진행. Edaily. <https://www.edaily.co.kr/news/read?newsId=02686326629053184&mediaCodeNo=257&OutLnkChk=Y>

⁴⁰ Lee, S. H. (2021, May 29). 은성수 "탄소중립, 공공자금에 민간자금 역할 필요". Edaily. <https://www.edaily.co.kr/news/read?newsId=01613766629053840&mediaCodeNo=257&OutLnkChk=Y>

Table 8. Spanish news articles about the 2021 P4G Seoul Summit

	Origin	Excerpt
1	elEconomista	Realización de una Visión Neutra en Carbono sociedad neutra en carbono ⁴¹
2	Grupo La Provincia	hacia la neutralidad del carbono lograr la neutralidad de carbono hacia la neutralidad en carbono ⁴²
3	Diario La República	hacia la neutralidad de carbono lograr el carbono cero ⁴³
4	elPeriódico	la declaración de “Neutralidad de Carbono en 2050” para la Neutralidad de Carbono ⁴⁴
5	Excélsior	la visión de neutralidad de carbono acelerar la neutralidad de carbono ⁴⁵
6	PERFIL	hacia la neutralidad de carbono para la neutralidad en carbono ⁴⁶
7	Yonhap News	hacia la neutralidad de carbono ⁴⁷ hacia la neutralidad de carbono lograr la neutralidad de carbono las metas de neutralidad de carbono ⁴⁸ sobre la neutralidad de carbono

⁴¹ Bahk, S. H. (2021, May 31). *La crisis de los 1,5 grados y la Cumbre P4G de Seúl*. *eleconomista.es*. <https://www.eleconomista.es/opinion-blogs/noticias/11240193/05/21/La-crisis-de-los-15-grados-y-la-Cumbre-P4G-de-Seul.html>

⁴² Grupo La Provincia. (2021, May 29). *Corea del Sur celebra mañana y el lunes una cumbre virtual sobre cambio climático pospandemia*. *GrupoLaProvincia.com*. <https://www.grupolaprovincia.com/internacionales/corea-del-sur-celebra-manana-y-el-lunes-una-cumbre-virtual-sobre-cambio-climatico-pospandemia-725246>

⁴³ Diario La República. (2021, May 28). *Buscan incentivar el “desarrollo verde” en Cumbre P4G, objetivo que Uruguay apoya*. *republica.com*. <https://www.republica.com.uy/buscan-incentivar-el-desarrollo-verde-en-cumbre-p4g-objetivo-que-uruguay-apoya-id842397/>

⁴⁴ elPeriódico. (2021, May 27). *“Guatemala ha sufrido mucho como consecuencia del cambio climático”*. *elperiodico.com*. <https://elperiodico.com.gt/noticias/internacionales/2021/05/27/guatemala-ha-sufrido-mucho-como-consecuencia-del-cambio-climatico/>

⁴⁵ Suh, J. I. (2021, May 25). *Cumbre Climática P4G de Seúl*. *excelsior.com.mx*. <https://www.excelsior.com.mx/opinion/columnista-invitado-global/cumbre-climatica-p4g-de-seul/1450699>

⁴⁶ Jang, M. S. (2021, May 23). *Una oportunidad para el medioambiente*. *perfil.com*. <https://www.perfil.com/noticias/opinion/una-oportunidad-para-el-medioambiente.phtml>

⁴⁷ Yonhap News. (2021, June 1). *Corea del Sur asume la dirección de la junta directiva de la P4G*. *sp.yna.co.kr*. <https://sp.yna.co.kr/view/ASP20210604004000883>

⁴⁸ Yonhap News. (2021, May 31). *Videos*. *sp.yna.co.kr*. <https://sp.yna.co.kr/view/MYH20210530011600883>

		<p>políticas de neutralidad de carbono⁴⁹</p> <p>sobre la neutralidad de carbono⁵⁰</p> <p>lograr la neutralidad de carbono⁵¹</p> <p>alcanzar la neutralidad de carbono⁵²</p> <p>hacia la neutralidad de carbono⁵³</p> <p>lograr la neutralidad de carbono</p> <p>el objetivo de neutralidad de carbono ⁵⁴</p>
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⁴⁹ Yonhap News. (2021, May 30). *Corea del Sur lanza un panel presidencial sobre la neutralidad de carbono*. sp.yna.co.kr. <https://sp.yna.co.kr/view/ASP20210530000600883>

⁵⁰ Yonhap News. (2021, May 30). *Corea del Sur lanza un panel presidencial sobre la neutralidad de carbono*. sp.yna.co.kr. <https://sp.yna.co.kr/view/ASP20210530000600883?section=national/index>

⁵¹ Yonhap News. (2021, May 28). *Embajadora neerlandesa: Los Países Bajos esperan que se profundice la cooperación con Corea del Sur en VE y energías renovables*. sp.yna.co.kr. <https://sp.yna.co.kr/view/ASP20210528000500883>

⁵² Yonhap News. (2021, May 27). *(AMPLIACIÓN) Moon promociona en persona la próxima cumbre climática en un videoclip especial*. sp.yna.co.kr. <https://sp.yna.co.kr/view/ASP20210527002400883>

⁵³ Yonhap News. (2021, May 25). *Corea del Sur albergará esta semana una cumbre global de dos días de la P4G sobre asuntos climáticos y crecimiento sostenible*. sp.yna.co.kr. <https://sp.yna.co.kr/view/ASP20210525002600883>

⁵⁴ Yonhap News. (2021, May 25). *Corea del Sur redoblará su inversión en proyectos de 'Green New Deal'*. sp.yna.co.kr. <https://sp.yna.co.kr/view/ASP20210525003500883>

Appendix 9. Spanish TP for “world”

No	Volume	English	Spanish	TP
1	Vol 5 No 2	left his home in London in March 2007 for a year-long journey around the world by land and sea, ‘to move through the world and not just over and above it’.	Salió de su casa en marzo de 2007 para un viaje de un año alrededor del mundo por tierra y mar, para un viaje de un año alrededor del mundo por tierra y mar, “para moverme a través del mundo y no simplemente sobre y encima del mundo”.	TP 3
2	Vol 5 No 2	‘On a bicycle, there are no windows to separate your senses from the outside world .’	“En una bicicleta no hay ventanas de vidrio que separan tus sentidos del mundo exterior.”	TP 3
3	Vol 5 No 2	The upside is that you get to see, smell, taste, hear and feel the world .	La ventaja es que el viajero llega a ver, oler, gustar, oír y sentir el mundo .	TP 3
4	Vol 5 No 2	became an ambassador for the Food and Agriculture Organization of the United Nations, helping to fight world hunger.	una embajadora para la Organización de las Naciones Unidas para la Agricultura y la Alimentación, ayudando en la lucha contra el hambre mundial .	TP 3
5	Vol 5 No 2	earning China a reputation for world -class cinema.	que ganaron la reputación de cine de clase mundial a China.	TP 3
6	Vol 5 No 2	Within those branches I have always felt protected, as if the leaves themselves created a force field that repelled the obligations and criticisms of the outside world .	Entre sus ramas siempre me he sentido protegida, como si las horas mismas crearan un campo gravitatorio que repelía las obligaciones y las críticas del mundo exterior.	TP 3
7	Vol 5 No 2	We, all of humanity, will solve global warming because the issue awakens in each of us our innate relationship with nature and reminds us that the world itself is our sanctuary.	Nosotros, la humanidad toda, solucionaremos el problema despierta en todos y cada uno de nosotros nuestra innata relación con la naturaleza y nos recuerda que el mundo mismo es nuestro santuario.	TP 3
8	Vol 5 No 2	Tree planting and other environmental measures feature among the many projects undertaken by the world’s tens of thousands of Scout groups to build a better world, often linked to furthering to the Millennium Development Goals.	La plantación de árboles y otras medidas medioambientales figuran entre muchos proyectos de los millares de grupos Scout dedicados a construir un mundo mejor, a menudo vinculados con la promoción de los Objetivos de Desarrollo para el Milenio.	TP 3
9	Vol 5 No 2	and being committed to building a better world by working together, helping each other at all times.	con su compromiso de ayudar a formar un mundo mejor trabajando juntos, ayudándose unos a otros en todo momento.	TP 3
10	Vol 5 No 3	Technology is one of the things that separate humans from animals, and it has increasingly shaped our world .	La tecnología es una de las cosas que separan a los seres humanos de los animales, y que últimamente ha configurado cada vez más el mundo en que vivimos.	TP 2
11	Vol 5 No 3	Our generation must redress the balance and concentrate resources and effort on developing technologies suited to our ages, and to our fragile, interdependent world .	Es obligación de nuestra generación restablecer el equilibrio y concentrar los recursos y los esfuerzos en el desarrollo de tecnologías adecuadas a nuestra época, y a nuestro frágil mundo interdependiente.	TP 3
12	Vol 5 No 3	At this minuscule scale, our world seems to turn on its head: the laws of physics no longer apply and everyday	A esta minúscula escala, nuestro mundo aparece cabeza abajo: las leyes de la física ya no son aplicables y los materiales	TP 3

		materials abruptly change their behavior.	cotidianos cambian su conducta abruptamente.	
13	Vol 5 No 3	It's a material world , and technology is needed to find and develop the materials that will keep it healthy.	Estamos viviendo en un mundo material, y hace falta tecnología para encontrar y desarrollar los materiales que lo mantendrán sano.	TP 3
14	Vol 5 No 3	The use of alternatives, particularly renewable ones like the sun, wind and biomass, is expanding, but cannot increase fast enough to take over the burden of powering the world in the near future.	El uso de alternativas –sobre todo combustibles renovables como el sol, el viento, y la biomasa- está aumentando, pero simplemente no puede aumentar lo suficiente como para asumir la carga de proveer la energía que el mundo necesitará en un futuro próximo.	TP 2
15	Vol 5 No 3	is one of the top 10 individuals that people would like to lead the world .	es uno de los primeros 10 individuos que la gente desearía que dirimieran el mundo .	TP 3
16	Vol 5 No 3	Branson caught the world's imagination in the 1980s and 1990s with record-breaking manned balloon flights,	En los años 1980 y 1990 atrajo el interés del mundo con vuelos en globo tripulados que batieron récords,	TP 2
17 18	Vol 5 No 3	a group of respected world figures (including Mandela, Tutu and Annan) who will grapple with intractable world problems.	un grupo de respetadas figuras mundiales (incluso Mandela, Tutu y Annan) que se dedicarán a lidiar con problemas mundiales inextricables.	TP 3 TP 3
19	Vol 5 No 3	We need world leaders to treat this as seriously as World War II.	Necesitamos que los líderes mundiales traten este asunto tan seriamente como la Segunda Guerra Mundial.	TP 3
20	Vol 5 No 3	Rapidly increasing supplies of cheap crude oil soon replaced them, but now the world is beginning to turn to them again.	Los suministros de petróleo crudo barato en rápido aumento pronto los reemplazaron, pero ahora el mundo está empezando a volver a ellos.	TP 3
21	Vol 5 No 3	With input from the best of both worlds , turning towards natural building could help create sustainable homes for modern times.	Con la aportación de lo mejor de ambos mundos , el cambio hacia la construcción natural podría ayudar a crear viviendas sostenibles para los tiempos modernos.	TP 3
22	Vol 5 No 3	they were used widely in the Islamic world and introduced to the new world .	eran ampliamente usadas en el mundo islámico y fueron introducidas en el nuevo mundo .	TP 3 TP 3
23	Vol 5 No 4	World's END	EL EXTREMO del mundo	TP 3 TP 4
24	Vol 5 No 4	Nobody likes invasions of rats, but islanders have more reason than most to fear them. Blamed for half the world's extinctions since the 1600s, they wreak especial havoc when they arrive at islands where they have no natural predators.	A nadie le gustan las invasiones de ratas, pero los habitantes de una isla tienen más razones que la mayoría para temerlas. Culpadas por la mitad de las extinciones desde los años 1600, causan estragos severos cuando llegan a islas en las cuales no tienen predadores.	TP 1
25	Vol 5 No 4	Only cuts in carbon dioxide emissions, particularly in the rich world , can help to slow down or limit the rise.	Únicamente la disminución en las emisiones de dióxido de carbono, sobre todo en el mundo rico, puede ayudar a limitar o disminuir el ritmo del alza.	TP 3
26	Vol 5 No 4	was set up in early 2007 as a coordination and information platform for youth groups to exchange experiences, promote ideas and join forces for such campaigns as Clean up	fue establecida a principios de 2007 como una plataforma de coordinación e información para grupos juveniles para intercambiar experiencias, promocionar ideas y unir fuerzas para campañas como A	TP 3

		the World and Plant for the Planet.	Limpian el Mundo y Planteamos para el Planeta.	
27 28	Vol 5 No 4	Though for most people New Zealand and its Maori culture are a world away, Whale Rider managed to touch global audiences with its universal themes of family struggle, gender equality and the role of tradition in a changing world .	A pesar de que para la mayoría de la gente Nueva Zelanda y la cultura maorí están a un mundo de distancia, <i>Jinete de ballena</i> logró llegar al público mundial con sus temas universales de lucha familiar, igualdad de géneros y el papel de la tradición dentro de un mundo cambiante.	TP 3 TP 3
29	Vol 5 No 4	it called the world's attention to the values of a people who have lived in harmony with nature.	llamó la atención del mundo a los valores de un pueblo que siempre ha vivido con la naturaleza.	TP 3
30	Vol 5 No 4	But Paba and Nana sent Dad Ibe – the sun – to defend the Great Mother, and dispatched the two neglectful men to the underworld .	Pero entonces Paba y Nana enviaron a Dad Ibe –el sol- para defender a la Gran Madre, y despacharon a los dos hombres negligentes a los infiernos .	TP 4
31	Vol 5 No 4	It may be the world's largest uninhabited island, but the really striking thing about Devon Island is not of this world at all.	Podrá ser la isla deshabitada más grande del mundo, pero la característica más sorprendente de la Isla de Devon no es cosa de este mundo .	TP 3
32	Vol 6 No 1	The world's standby products, using up to 10 per cent of household energy consumption, are together estimated to be responsible for 1 per cent of global CO2 emissions.	Se calcula que los productos standby del mundo , que usan hasta un 10% de las emisiones mundiales de CO ₂ .	TP 3
33	Vol 6 No 1	are likely to be illuminating the world before long.	Cabe esperar que dentro de poco estarán iluminando el mundo .	TP 3
34	Vol 6 No 1	They also helped open up the conference to the world , updating those back home through blogs, online video and emails.	También ayudaron a abrir la Conferencia al mundo , poniendo al día a la gente en sus respectivos países mediante blogs, vídeo online y correo electrónico.	TP 3
35	Vol 6 No 1	As the world eats more and more meats, some 70 per cent of the deforested area of the Amazon is now used for cattle ranching,	A medida que el mundo come cada vez más carne, un 70% del área deforestada del Amazonas es utilizado ahora para ganadería,	TP 3
36	Vol 6 No 2	Feeding the world	Alimentando el mundo	TP 3
37	Vol 6 No 2	Pizza Earth – the world on a plate	Planeta-pizza – el mundo en un plato	TP 3
38	Vol 6 No 2	Meet the world's least-sung hero – the small farmer of the developing world.	Presentamos al héroe menos reconocido del mundo – el pequeño campesino del mundo en desarrollo.	TP 3
39	Vol 6 No 2	But so long as we continue to accept a world of unjust wealth distribution, there will always be some who eat more than they need, and get sick,	Pero mientras continuemos aceptando un mundo de distribución injusta de la riqueza, siempre habrá algunos que comen más de lo que necesitan,	TP 3
40	Vol 6 No 2	'The benefits of productivity increase in world agriculture are unevenly spread.	“LOS BENEFICIOS de los aumentos de la productividad en la agricultura mundial están distribuidos muy desigualmente.	TP 3
41	Vol 6 No 2	Business as usual would mean more environmental degradation and the Earth's “haves” and “have-nots” splitting further apart. It would leave us facing a world nobody would want to inhabit.'	Si las cosas siguieran como siempre significaría más degradación ambiental y una división cada vez mayor entre los ricos y los desposeídos de la Tierra. Nos dejaría enfrentando un mundo en el cual nadie querría vivir.”	TP 3
42	Vol 6 No 2	'Feeding the world must remain	“Alimentar al mundo debe seguir siendo la	TP 3

		humanity's top priority.'	prioridad absoluta de la humanidad.”	
43	Vol 6 No 2	'How we eat determines, to a considerable extent, how the world is used.	“Cómo comemos determina, en considerable medida, cómo se utiliza el mundo .	TP 3
44	Vol 6 No 2	“My painting shows different ways that people can save the world .”	“Mi cuadro muestra diferentes maneras en que la gente puede salvar el mundo .”	TP 3

Appendix 10. Korean TP for “world”

No	Volume	English	Korean	TP
1	Vol 5 No 2	left his home in London in March 2007 for a year-long journey around the world by land and sea, ‘to move through the world and not just over and above it’.	2007년 3월, 단순히 전세계의 바다와 육지를 건너고 넘는 것이 아닌 전 세계 를 모두 둘러보기 위한 1년 동안의 긴 세계 여행을 위해 런던에 있는 자신의 집을 떠나 왔습니다.	TP 3
2	Vol 5 No 2	‘On a bicycle, there are no windows to separate your senses from the outside world .’	‘저는 여행은 지구 를 바라보고 느끼고 지구 의 향기를 맡는 법을 가르쳐 주었습니다.’	TP 4
3	Vol 5 No 2	The upside is that you get to see, smell, taste, hear and feel the world .	당신은 이 세계 를 눈으로 보고, 듣고, 향기와 맛을 느낄 수 있습니다.	TP 3
4	Vol 5 No 2	became an ambassador for the Food and Agriculture Organization of the United Nations, helping to fight world hunger.	그녀는 문화 간 교량 역할을 장려하는 유네스코 평화 아티스트에 뽑혔고, 세계 기아에 맞서 활동하는 유엔식량농업기구(FAO)의 홍보대사가 되었습니다.	TP 3
5	Vol 5 No 2	earning China a reputation for world -class cinema.	중국영화는 세계적 인 수준이라는 명성을 얻게 되었습니다.	TP 3
6	Vol 5 No 2	I climbed my first tree at 18 months – a stately magnolia with strong spreading branches and heavenly fragrant flowers that perfumed the garden. Ever since, that tree has served as my refuge, if only for a brief respite from the noise and chaos of daily life. Within those branches I have always felt protected, as if the leaves themselves created a force field that repelled the obligations and criticisms of the outside world .	저는 18개월이 되었을 때, 힘차게 뻗은 가지와 천국의 향을 정원 곳곳에 풍기는 꽃을 가지고 위엄있게 서 있는 목련 나무에 올랐습니다. 그 이후로 그 나무는 일상생활에서의 소음과 혼란으로부터 벗어나 숨을 쉬 수 있는 저만의 휴식처가 되었습니다.	TP 1
7	Vol 5 No 2	We, all of humanity, will solve global warming because the issue awakens in each of us our innate relationship with nature and reminds us that the world itself is our sanctuary.	자연과 우리 각자의 고유한 관계에 눈뜨게 하고 자연 그 자체가 우리의 신성한 장소임을 일깨우게 한 이상, 우리 인류는 지구 온난화를 해결할 것입니다.	TP 4
8	Vol 5 No 2	Tree planting and other environmental measures feature among the many projects undertaken by the world’s tens of thousands of Scout groups to build a better world , often linked to furthering to the Millennium Development Goals.	전 세계의 수천 개의 스카우트 단체에서는 더 나은 세상 을 만들기 위해 나무심기를 비롯한 다양한 환경 관련 활동을 하고 있으며, 이는 종종 새천년 개발 목표와 깊은 연관성이 있습니다.	TP 4
9	Vol 5 No 2	and being committed to building a better world by working together, helping each other at all times.	세계적으로 행해진 가지각색의 프로젝트 성과를 교류하고, 함께 더 나은 세상 을 만들기 위해 노력하는 것도 방법이 될 수 있습니다.	TP 4
10	Vol 5 No 3	Technology is one of the things that separate humans from animals, and it has increasingly shaped our world .	기술은 인간과 동물을 구분 짓는 요소들 중의 하나로서 인류 의 발전에 크게 기여해왔습니다.	TP 4
11	Vol 5 No 3	Our generation must redress the balance and concentrate resources and effort on developing technologies suited to our ages, and to our fragile, interdependent world .	우리는 자연과 인류 모두에게 이익이 되는 기술개발을 위하여 상호간 균형을 유지하고 자원을 집중하는 노력을 기울여야만 합니다.	TP 1 TP 4
12	Vol 5 No 3	At this minuscule scale, our world	나노의 아주 작은 척도로 보면, 우리의 세상 은 마치	TP 4

		seems to turn on its head: the laws of physics no longer apply and everyday materials abruptly change their behavior.	혼란에 빠진 것처럼 보입니다. 더 이상 적용되지 않고, 우리가 접해왔던 물질들은 갑자기 성질을 바꿉니다.	
13	Vol 5 No 3	It's a material world , and technology is needed to find and develop the materials that will keep it healthy.	석기시대, 철기시대, 청동기 시대를 지나온 인류의 역사가 보다 환경 친화적인 물질의 시대 를 맞이하기 위해서는 앞으로 새로운 재료를 발견하고 개발하는 기술의 역할이 중요할 것입니다.	TP 4
14	Vol 5 No 3	The use of alternatives, particularly renewable ones like the sun, wind and biomass, is expanding, but cannot increase fast enough to take over the burden of powering the world in the near future.	최근 들어 대체연료, 특히 태양과 풍력, 바이오매스(에너지 자원으로 이용되는 식물체와 동물체 폐기물)와 같은 재생 가능한 에너지 사용이 확대되어 가는 추세이지만, 그렇다고 이러한 대체연료들이 가까운 미래의 에너지 부담을 짊어질 수 있을 만큼 기술 개발 및 파급 속도가 빠른 것은 아닙니다.	TP 1
15	Vol 5 No 3	is one of the top 10 individuals that people would like to lead the world .	세계 를 이끌 인물 10인 중에 한 명으로 선정되었습니다.	TP 3
16	Vol 5 No 3	Branson caught the world's imagination in the 1980s and 1990s with record-breaking manned ballon flights,	리처드 브랜슨은 1980년대와 1990년대에 전례없던 유인 열기구 여행을 통해 세계 의 주목을 받았습니다.	TP 3
17 18	Vol 5 No 3	a group of respected world figures (including Mandela, Tutu and Annan) who will grapple with intractable world problems.	세계 적으로 존경받는 인물들이 활동하는 모임인 원로(Elders)의 설립을 도움으로써 그 동안 풀기 어려웠던 세계 의 많은 문제를 해결하기 위해 노력하고 있습니다.	TP 3 TP 3
19	Vol 5 No 3	We need world leaders to treat this as seriously as World War II.	우리는 세계 리더들이 이 문제를 2차 세계 대전만큼 진지하게 다룰 것을 요구합니다.	TP 3
20	Vol 5 No 3	Rapidly increasing supplies of cheap crude oil soon replaced them, but now the world is beginning to turn to them again.	급속하게 늘어나는 값싼 원유가 바이오연료를 순식간에 대체하면서 연료시장의 주도권을 잡게 되었습니다. 하지만 세계 는 다시 바이오연료에 주목하고 있습니다.	TP 3
21	Vol 5 No 3	With input from the best of both worlds , turning towards natural building could help create sustainable homes for modern times.	과거와 현재의 세계 에서 가장 장점이 되는 것들을 취해 천연 건물을 짓는 것은 현대에 있어서 지속 가능한 집을 창조하는 데 도움이 될 것입니다.	TP 3
22	Vol 5 No 3	they were used widely in the Islamic world and introduced to the new world .	노리아스는 이슬람 국가 들에서 널리 사용되었으며, 후에 다른 나라 에 소개되었다고 합니다.	TP 2 TP 2
23	Vol 5 No 4	World's END	세상 의 끝	TP 4
24	Vol 5 No 4	Nobody likes invasions of rats, but islanders have more reason than most to fear them. Blamed for half the world's extinctions since the 1600s, they wreak especial havoc when they arrive at islands where they have no natural predators.	누구도 쥐를 좋아하지 않겠지만 섬에 거주하는 사람들에게 쥐는 특히나 두려운 존재입니다. 1,600년대 이후 섬 생태계 의 절반 이상이 멸종하면서 쥐의 천적이 사라지게 되었고 무서울 게 없어진 쥐는 자유롭게 섬의 자연환경을 파괴하고 있습니다.	TP 4
25	Vol 5 No 4	Only cuts in carbon dioxide emissions, particularly in the rich world , can help to slow down or limit the rise.	해결책은 오로지 강대국 에서 온실가스 배출을 감소시켜 해수면 상승을 늦추거나 막는 것입니다.	TP 2
26	Vol 5 No 4	was set up in early 2007 as a coordination and information platform for youth groups to exchange experiences, promote ideas and join forces for such campaigns as Clean up	2007년 설립된 (...)는 청소년들의 경험을 서로 교환하고, 아이디어를 개발하고 'Clean up the World (호주에서 시작된 환경캠페인)'와 같은 세계적인 환경캠페인과도 협력할 수 있도록 코디네이터 및 정보창구 역할을 하고 있습니다.	TP 3

		the World and Plant for the Planet.		
27 28	Vol 5 No 4	Though for most people New Zealand and its Maori culture are a world away, Whale Rider managed to touch global audiences with its universal themes of family struggle, gender equality and the role of tradition in a changing world .	대부분의 뉴질랜드인과 마오리 문화는 다른 나라 의 그것과는 거리가 멀지만, 영화 ‘웨일 라이더’는 전 세계 관객이 공감할 수 있는 주제인 가족 갈등, 성적 평등, 급변하는 사회 에서의 전통의 역할 등을 성공적으로 그려냈습니다.	TP 2 TP 4
29	Vol 5 No 4	More importantly for Castle Huughes – whose mother is Maori and is affiliated with three tribes, Ngati Porou, Tainui and Nga Puhī - it called the world’s attention to the values of a people who have lived in harmony with nature.	캐슬 휴스의 어머니는 마오리족이며 가티 포로우, 타이누이, 느가 푸히의 세 가지 부족과 연관이 있기 때문에 특별히 본인에게는 영화를 통해 세상이 자연과 더불어 사는 사람들의 가치를 높이 평가했다고 생각했습니다.	TP 1
30	Vol 5 No 4	But Paba and Nana sent Dad Ibe – the sun – to defend the Great Mother, and dispatched the two neglectful men to the underworld .	그러나 대지를 보호하기 위해 파바와 나나는 다시 데드 이메(Dad Ibe: 태양의 신)를 보내, 두 인간을 지하세계 로 보냈습니다.	TP 3
31	Vol 5 No 4	It may be the world’s largest uninhabited island, but the really striking thing about Devon Island is not of this world at all.	데븐(Devon)섬은 아마 세계에서 가장 큰 무인도일 수도 있습니다. 하지만 정작 더 놀라운 것은 다른 것에 있습니다.	TP 1
32	Vol 6 No 1	The world’s standby products, using up to 10 per cent of household energy consumption, are together estimated to be responsible for 1 per cent of global CO2 emissions.	대기모드를 갖고 있는 제품들은 가정소비전력의 10 퍼센트를 차지하고 전지구적으로 보면 전체 이산화탄소 배출량의 1퍼센트를 차지합니다.	TP 4
33	Vol 6 No 1	But, in fact, they are likely just to be a staging post. Light-emitting diodes (LEDs), are even more efficient (developers plan to make ones 16 times better than traditional bulbs by 2010), last even longer than compact fluorescents and are likely to be illuminating the world before long.	그러나 사실 형광등의 사용은 발광다이오드(LEDs)로의 전환에 앞서 시행할 수 있는 준비단계라고 할 수 있습니다. 콤팩트형 형광등보다 훨씬 오래가는 발광다이오드 램프는 에너지 면에서 보다 더 효율적입니다(개발업자들은 2010년까지 기존의 전구보다 16배나 더 성능이 좋은 제품을 만들 계획입니다). 머지않아 발광다이오드 램프가 전세계 를 밝힐 것이라 예측됩니다.	TP 3
34	Vol 6 No 1	They also helped open up the conference to the world , updating those back home through blogs, online video and emails.	청소년들은 집으로 돌아와 그들이 표명한 내용들을 블로그, 온라인 비디오와 이메일을 통해 세계 각국의 친구들과 공유하였습니다.	TP 2
35	Vol 6 No 1	As the world eats more and more meats, some 70 per cent of the deforested area of the Amazon is now used for cattle ranching,	많은 사람들이 고기를 소비하게 되면서 파괴된 70%의 아마존 숲 일부가 현재 가축을 기르는 데 사용되고, 나머지는 사료로 쓰일 작물 재배지로 쓰이게 되었습니다.	TP 2
36	Vol 6 No 2	Feeding the world	전세계 식량문제	TP 3 TP 2
37	Vol 6 No 2	Pizza Earth – the world on a plate	피자 한판에 놓인 세계	TP 3 TP 4
38	Vol 6 No 2	Meet the world’s least-sung hero – the small farmer of the developing world.	세계 에서 가장 주목 받지 못하는 영웅들인 개발도상국의 소규모 농부들을 봅시다.	TP 3
39	Vol 6 No 2	But so long as we continue to accept a world of unjust wealth distribution, there will always be some who eat more than they need, and get sick, and many others that suffer in hunger.	하지만 세계적으로 부의 분배 문제를 해결하지 않는 이상, 필요 이상으로 먹는 부류와 기아에 시달려 병에 걸리는 부류 사이의 차이는 항상 존재할 것입니다.	TP 3
40	Vol 6 No 2	‘The benefits of productivity increase in	전세계 농업 생산량 증가의 혜택이 불공평하게	TP 3

		world agriculture are unevenly spread.	분배되었습니다.	
41		Business as usual would mean more environmental degradation and the Earth's "haves" and "have-nots" splitting further apart. It would leave us facing a world nobody would want to inhabit.'	농업은 점점 환경을 파괴하고 있으며, 지구상에 '가진 자'와 '못 가진 자'간의 빈부격차가 점점 심해지고 있습니다. 결국 아무도 살고 싶어하지 않는 세상 으로 변해갈 것입니다."	TP 4
42	Vol 6 No 2	'Feeding the world must remain humanity's top priority.'	' 세계 인구를 먹여 살리는 일이 인류의 우선 과제가 되어야 합니다'	TP 2 TP 4
43	Vol 6 No 2	'How we eat determines, to a considerable extent, how the world is used.	'우리가 어떤 음식을 어떻게 먹을지 생각하는 일은, 우리의 지구 를 어떻게 사용할 지에 대해 결정하는 일입니다.	TP 4
44	Vol 6 No 2	"My painting shows different ways that people can save the world ."		TP 1

Appendix 11. Spanish TP for “sustainable”

No	Volume	English	Spanish	TP
1	Vol 5 No 2	Cleaning up the mountain and improving its management system will create an ecologically sustainable tourist destination that people will be able to enjoy for generations to come,	Al limpiar la montaña y mejorar su sistema de gestión crearemos un destino turístico ecológicamente sostenible que el público podrá disfrutar por generaciones por venir,	TP 3
2	Vol 5 No 3	Mollison has spent the last three decades teaching and encouraging people to establish permaculture communities, encompassing eco-villages and sustainable housing: he himself lives in one he founded in Tasmania.	Mollison se ha dedicado durante estos últimos tres decenios a enseñar y alentar a la gente a establecer comunidades de permacultivo, abarcando eco-aldeas y vivienda sostenible : el mismo vive en una de ellas que ha fundada en Tasmania.	TP 3
3	Vol 5 No 3	North Americans and Europeans focused on sustainable lifestyles and technology transfer,	los norteamericanos y los europeos centraron la atención en estilos de vida sostenibles y la transferencia de tecnología,	TP 3
4	Vol 5 No 3	turning towards natural building could help create sustainable homes for modern times.	el cambio hacia la construcción natural podría ayudar a crear viviendas sostenibles para los tiempos modernos.	TP 3
5	Vol 5 No 4	Islands are the most sustainable places on our planet because islanders know how important it is to ensure the ongoing use of their natural resources.	Las islas son los lugares más sostenibles en nuestro planeta porque los isleños saben cuán importantes es asegurar el uso duradero de sus recursos naturales.	TP 3
6	Vol 5 No 4	The economic ups and downs of the 1990s – in part the result of the ending of the Soviet era and the United States of America’s economic embargo – meant that for Cuba sustainability was not an option, but the only option.	Las dificultades económicas de los años 1990 –en parte resultado del fin de la era soviética y del embargo económico de los Estados Unidos– significaron que, para Cuba, la sostenibilidad no era una opción sino la única opción.	TP 3
7	Vol 5 No 4	Yet unsustainable logging – especially for the plywood industry and to clear land – is threatening all this.	Sin embargo, la tala insostenible – especialmente para la industria de la Madera de contrachapado y para limpiar tierra para agricultura- está amenazando toda esta riqueza.	TP 3
8	Vol 5 No 4	fishermen and divers are learning how to develop sustainable livelihoods.	se les enseña tanto a los Pescadores como a los buceadores a desarrollar sus actividades con estilos de vida sostenibles .	TP 3
9	Vol 6 No 1	Due to be completed in 2012, Masdar – ‘the source’ in Arabic – is aiming to be the world’s first sustainable city, and a centre of clean energy research and development.	Planeada para ser completada en 2012, Masdar –“la fuente” en idioma árabe– se ha fijado como meta ser la primera ciudad sostenible del mundo, y un centro de investigación y desarrollo de energía limpia.	TP 3
10	Vol 6 No 1	Yet cities offer great potential for sustainable living.	Sin embargo, las ciudades ofrecen gran potencial para una vida sostenible .	TP 3
11	Vol 6 No 1	‘We can act as a moral conscience,’ said Richard Graves, of SustainUS , a US youth organization.	“Podemos asumir el papel de conciencia moral,” afirma Richard Graves, de SustainUS , una organización juvenil estadounidense.	TP 3
12	Vol 6 No 1	A campaign, 11th Hour Action, aims to	Una campaña –Acción Última Hora– trata	TP 3

		'engage and activate youth in taking leadership in the sustainability movement'.	de "atraer y activar a los jóvenes para emprender el liderazgo en el movimiento de la sostenibilidad ".	
13	Vol 6 No 1	It's becoming smart to be sustainable , cool to be carbon-neutral.	Hoy día es de buen tono actuar de manera sostenible , y estar en la onda mostrándose "carbono-neutro".	TP 2
14	Vol 6 No 1	And so are smarter, quirkier sustainable goods, demonstrating that kicking the carbon habit does not have to be sad.	Y lo mismo es el caso con productos sostenibles más extravagantes y peculiares, lo cual demuestra que dejar el hábito del carbono no debe ser necesariamente algo triste.	TP 3
15	Vol 6 No 1	14 years ago, when he announced plans to make it 'the first industrial company that, by its deeds, shows the entire industrial world what sustainability is'.	14 años atrás cuando anuncio sus planes de fabricar "la primera empresa industrial que, a través de sus actos, demuestra al mundo industrial entero que significa sostenibilidad ".	TP 3
16	Vol 6 No 1	Anderson insists that the thrust for sustainability is at the heart of the company's success, and says it might not have survived a recent recession without it.	Anderson insiste en que el empeño de lograr la sostenibilidad se encuentra en el mello del éxito de la empresa, y dice que sin ese empeño tal vez hubiera sido incapaz de sobrevivir una reciente recesión.	TP 3
17	Vol 6 No 2	Failure to observe this simple principle of sustainability has already made our task much harder.	La falta de observar este simple principio de sostenibilidad ya ha hecho mucho más difícil nuestra tarea.	TP 3
18	Vol 6 No 2	even start a fire are all absorbing ways to increase your sustainable lifestyle.	hasta cómo hacer fuego son todas maneras de aumentar tu estilo de vida sostenible .	TP 3
19	Vol 6 No 2	We are often encouraged to eat more fish to support a sustainable lifestyle.	A menudo nos alientan a comer más pescado para apoyar un estilo de vida sostenible .	TP 3
20	Vol 6 No 2	What can young people do to live a more sustainable life in terms of the food they eat?	¿Qué pueden hacer los jóvenes para vivir una vida más sostenible en términos de los alimentos que comen?	TP 3
21	Vol 6 No 2	leading the sustainability debate and influencing processes linked to food security and lifestyles, and protecting the natural resources on which we depend.	dirigir el debate sobre la sostenibilidad e influenciar procesos asociados con la seguridad de los alimentos y los estilos de vida, y proteger los recursos naturales de los cuales todos dependemos.	TP 2
22	Vol 6 No 2	Young people have a special role in stimulating and mobilizing the maximum level of commitment to sustainability from the bottom up, all the more so at a time of climate change and rising food and energy costs.	Los jóvenes tienen un papel especial que jugar en las tareas de estimular y movilizar el máximo nivel de compromiso hacia la sostenibilidad , "de abajo arriba", tanto más en una época de cambios climáticos y los costos en aumento de los alimentos y la energía.	TP 3
23	Vol 6 No 2	Recycling e-waste should be mandatory, global and sustainable .	El reciclaje de los desechos electrónicos debería ser obligatorio, mundial y sostenible .	TP 3
24	Vol 6 No 2	aim to redesign local communities so that they work together to be more self-sufficient and sustainable rather than relying on fissile fuels.	tratan de dar Nuevo diseño a las comunidades locales de modo que trabajen juntas para ser más autosuficientes y sostenibles en lugar de depender de combustibles fósiles.	TP 3
25	Vol 6 No 2	More needs to be done to minimize the impact of aquaculture on the	Es necesario hacer más para minimizar el impacto de la acuicultura sobre el medio	TP 3

		environment, and to ensure its full sustainability .	ambiente, y asegurar su sostenibilidad total.	
26	Vol 6 No 2	To increase production as rapidly as we must, we need a new and sustainable green revolution, and biotechnology can provide some of the necessary tools.	Para aumentar la producción tan rápidamente como estamos obligados a hacerlo, nos hace falta una nueva revolución verde, que además sea sostenible , y la biotecnología puede proporcionar algunos de los instrumentos necesarios.	TP 3
27	Vol 6 No 2	Some people in rural areas of Argentina live sustainable lives without ever knowing what the word means – they simply live off the land, make compost, and waste very little.	Hay gente en las zonas rurales de la Argentina que vive una vida sumamente sostenible sin saber jamás lo que la palabra significa.	TP 3
28	Vol 6 No 2	Roundtable for Sustainable Palm Oil (RSPO)	La Mesa Redonda para Aceite de Palma Sostenible (RSPO)	TP 3

Appendix 12. Korean TP for “sustainable”

No	Volume	English	Korean	TP
1	Vol 5 No 2	Cleaning up the mountain and improving its management system will create an ecologically sustainable tourist destination that people will be able to enjoy for generations to come,	산을 정화시키고, 이 운영 시스템을 계속해서 발전시켜 나가는 것은 앞으로 몇 세대에 걸쳐 사람들이 즐길 수 있는 지속 가능한 친환경적인 관광지를 만들게 해 줄 것입니다	TP 3
2	Vol 5 No 3	Mollison has spent the last three decades teaching and encouraging people to establish permaculture communities, encompassing eco-villages and sustainable housing: he himself lives in one he founded in Tasmania.	환경 친화 주택으로 이뤄진 환경 마을인 영속농업 공동생활체를 설립하도록 사람들을 독려하고 가르치며, 실제로 자신이 태즈메이니아섬(호주 남동의 섬)에 설립한 공동생활체에서 생활하고 있습니다.	TP 4
3	Vol 5 No 3	North Americans and Europeans focused on sustainable lifestyles and technology transfer,	미국과 유럽의 참가자들은 지속 가능한 생활 방식과 기술에 초점을 맞추었던 반면,	TP 3
4	Vol 5 No 3	turning towards natural building could help create sustainable homes for modern times.	천연 건물을 짓는 것은 현대에 있어서 지속 가능한 집을 창조하는 데 도움이 될 것입니다.	TP 3
5	Vol 5 No 4	Islands are the most sustainable places on our planet	섬은 지구상에서 가장 지속가능한 장소입니다.	TP 3
6	Vol 5 No 4	The economic ups and downs of the 1990s – in part the result of the ending of the Soviet era and the United States of America’s economic embargo – meant that for Cuba sustainability was not an option, but the only option.	냉전시대의 종식과 미국의 경제제재가 부분적으로 가져온 1990년대 쿠바의 경제적 흥망은 지속가능성 을 선택이 아닌 필수로 만들었습니다.	TP 3
7	Vol 5 No 4	Yet unsustainable logging – especially for the plywood industry and to clear land – is threatening all this.	합판 산업과 도시개발 등을 위한 지나친 벌목이 이 모든 것들을 위협합니다.	TP 2
8	Vol 5 No 4	fishermen and divers are learning how to develop sustainable livelihoods.	어부들은 지속가능한 생계를 개발하는 법을 배웁니다.	TP 3
9	Vol 6 No 1	Due to be completed in 2012, Masdar – ‘the source’ in Arabic – is aiming to be the world’s first sustainable city, and a centre of clean energy research and development.	2012년까지 완성할 계획인 아라비아의 자이라는 뜻을 가진 마스다는 청정 에너지 연구와 발전, 그리고 세계 최초의 지속 가능한 도시를 목표로 하고 있습니다.	TP 3
10	Vol 6 No 1	Yet cities offer great potential for sustainable living.	그러나 도시는 지속 가능한 생활을 위한 거대한 잠재력을 제공합니다.	TP 3
11	Vol 6 No 1	‘We can act as a moral conscience,’ said Richard Graves, of SustainUS , a US youth organization.	“우리는 도덕적 양심을 가지고 행동할 수 있습니다” 미국의 청소년 조직인 써스테인유에스(SustainUS: The United States Youth Network for Sustainable Development) 의 리차드 그레이브스(Richard Graves)가 말했습니다.	TP 3
12	Vol 6 No 1	A campaign, 11th Hour Action, aims to ‘engage and activate youth in taking leadership in the sustainability movement’.	한편, ‘11번째 시간’ 활동 캠페인은 지속 가능한 발전 운동에 있어서 청소년들이 주도적인 역할을 할 수 있도록 이를 활성화하는 것을 목표로 합니다.	TP 3 TP 2
13	Vol 6 No 1	It’s becoming smart to be sustainable ,	환경적으로 지속 가능한 소비생활을 하는 것은 현명	TP 3

		cool to be carbon-neutral.	한 일이고, 탄소 중립을 지키는 것은 좋은 일입니다.	TP 2
14	Vol 6 No 1	And so are smarter, quirrier sustainable goods, demonstrating that kicking the carbon habit does not have to be sad.	또한, 흥미로우면서도 독특한 친환경 재화들이 우리가 탄소배출 습관을 버리는 것을 전혀 슬퍼할 필요가 없다는 것을 보여주고 있습니다.	TP 4
15	Vol 6 No 1	14 years ago, when he announced plans to make it ‘the first industrial company that, by its deeds, shows the entire industrial world what sustainability is’.	그가 14년 전 자신의 회사를 ‘산업화된 세계에 최초로 지속 가능성 이 무엇인지 보여줄 수 있는 산업회사’로 만들겠다고 발표했을 때, 그의 동료 CEO는 “당신은 몽상가야”라고 비웃었습니다.	TP 3
16	Vol 6 No 1	Anderson insists that the thrust for sustainability is at the heart of the company’s success, and says it might not have survived a recent recession without it.	앤더슨은 지속 가능성 을 위해 노력하는 것이 그의 회사가 성공한 이유라고 주장하며 자신의 회사가 그렇게 하지 않았더라면 최근의 불황을 견뎌낼 수 없었을 지 모른다고 이야기합니다.	TP 3
17	Vol 6 No 2	Failure to observe this simple principle of sustainability has already made our task much harder.	지속가능한 개발이라는 단순한 원칙을 지키지 않아서 지구가 점점 더 힘겨워하고 있습니다.	TP 3
18	Vol 6 No 2	even start a fire are all absorbing ways to increase your sustainable lifestyle.	심지어 썬지 불 만들기도 지속가능한 라이프스타일을 만드는데 필요한 기술들입니다.	TP 3
19	Vol 6 No 2	We are often encouraged to eat more fish to support a sustainable lifestyle.	노후까지 건강한 인생을 살기 위해서 생선을 더 많이 섭취해야 한다고 합니다.	TP 2
20	Vol 6 No 2	What can young people do to live a more sustainable life in terms of the food they eat?	올바른 식생활 을 위해서 청소년이 할 수 있는 일이 있을까요?	TP 2
21	Vol 6 No 2	There are lots of things young people from both developed and developing countries can do, including learning more about the food we need, buying and eating local produce, leading the sustainability debate and influencing processes linked to food security and lifestyles, and protecting the natural resources on which we depend.	선진국과 개발도상국의 청소년들이 할 수 있는 일은 많습니다. 예를 들자면, 우리에게 필요한 음식이 무엇인지 배우고 그 지역에서 생산된 식품을 구매하며 그들이 속한 학교와 커뮤니티에서 식생활과 관련된 논쟁들을 이끌어내는 것, 그리고 우리가 크게 의존하는 자연 자원들을 보호하는 일 등이 있습니다.	TP 1
22	Vol 6 No 2	Young people have a special role in stimulating and mobilizing the maximum level of commitment to sustainability from the bottom up, all the more so at a time of climate change and rising food and energy costs.	또한 청소년들은 기후변화, 식량 생산, 에너지 소비 등에 모든 사람들이 관심을 가질 수 있도록 그들을 동참시켜 나가는 역할도 수행해야 할 것입니다.	TP 1
23	Vol 6 No 2	Recycling e-waste should be mandatory, global and sustainable .	전자폐기물을 재활용하는 것은 전세계적으로, 지속적인 활동이 될 수 있도록 의무화되어야 합니다.	TP 3
24	Vol 6 No 2	aim to redesign local communities so that they work together to be more self-sufficient and sustainable rather than relying on fissile fuels.	지역 사회를 재구성한 것으로, 화석연료에 의존하지 않고 자급자족하며 지속가능한 공동체를 만들기 위해 노력합니다.	TP 3
25	Vol 6 No 2	More needs to be done to minimize the impact of aquaculture on the environment, and to ensure its full sustainability .	해양 생태계가 지속되려면 , 양식업으로 인한 생태계의 피해를 최소화 시키는 노력이 필요할 것입니다.	TP 3
26	Vol 6 No 2	To increase production as rapidly as we must, we need a new and sustainable green revolution, and biotechnology can provide some of the necessary tools.	수요를 충족시킬 수 있을 만큼 빠르게 생산성을 증가시키기 위해서는 지속가능한 녹색 혁명이 필요하고 생명공학이 여기에 일부 필요한 방법을 제공할 수 있습니다.	TP 3 TP 2

27	Vol 6 No 2	Some people in rural areas of Argentina live sustainable lives without ever knowing what the word means	아르헨티나의 농부들은 지속 가능한 삶이라는 용어를 알지 못합니다.	TP 3
28	Vol 6 No 2	Roundtable for Sustainable Palm Oil (RSPO)	지속가능한 야자유 생산을 위한 회의 (RSPO: Roundtable for Sustainable Palm Oil)	TP 3 TP 2

Appendix 13. Spanish TP for “carbon”

No	Volume	English	Spanish	TP
1	Vol 5 No 4	the world will need as it seeks to move to low-carbon economies .	el mundo necesitará a medida que va tratando de cambiar hacia las economías de bajo- carbono .	TP 3
2	Vol 5 No 4	becoming the world’s first energy-independent, carbon -neutral island.	convertirse en la primera isla energéticamente independiente y carbono -neutral del mundo.	TP 3
3	Vol 6 No 1	Technology will be needed to help the world kick the carbon habit.	La tecnología será indispensable para ayudar al mundo a dejar el hábito del carbono .	TP 3
4	Vol 6 No 1	Counting carbon	La cuenta del carbono	TP 4
5	Vol 6 No 1	Low-carbon chic	Chic con bajo carbono	TP 3
6	Vol 6 No 1	How high is your carbon awareness?	¿Cuán correcto es tu hábito de carbono ?	TP 4
7	Vol 6 No 1	the world’s scientists have repeatedly warned that unless we rapidly star to kick the carbon habit,	los científicos del mundo han advertido repetidamente que, a menos que nos apresuremos a abandonar el hábito del carbono ,	TP 3
8	Vol 6 No 1	all hamper personal attempts to kick the carbon habit.	todos frustran diversos intentos personales de dejar los hábitos del carbono .	TP 3
9	Vol 6 No 1	the high- carbon infrastructure is perpetuated for the many decades of its future useful life.	la infraestructura de alto carbono es perpetuada por los muchos decenios de su futura vida útil.	TP 3
10	Vol 6 No 1	So besides individual action to shrink carbon footprints,	De modo que, aparte de las medidas individuales para reducir las huellas de carbono ,	TP 3
11	Vol 6 No 1	there has to be a bigger effort to decarbonize national and regional infrastructures.	hace falta un esfuerzo mayor para decarbonizar infraestructuras nacionales y regionales.	TP 3
12	Vol 6 No 1	so the greater the expected life span of an amenity, the more we should invest in maximizing its carbon efficiency.	cuanto más larga sea la vida útil esperada de un servicio, más deberíamos invertir en la potenciación al máximo de su eficiencia energética .	TP 2
13	Vol 6 No 1	is it possible to stop developing countries from forming carbon -based economies?	acaso es posible convencer a los países en desarrollo que abandonen la idea de formar economías basadas en el CO₂ ?	TP 2
14	Vol 6 No 1	The fact is that the developed world has a carbon -based economy, consuming enormous amounts of natural resources and generating vast amounts of detrimental waste,	La verdad es que el mundo desarrollado tiene una economía basada en CO₂ , que consume enormes cantidades de recursos naturales y genera vastas cantidades de desperdicios perjudiciales.	TP 2
15	Vol 6 No 1	What practical things can everyone do to kick the carbon habit?	¿Qué cosas prácticas puede hacer cualquier persona para dejar el hábito del carbono ?	TP 3
16	Vol 6 No 1	Imagine a zero- carbon city with all its power provided by the sun, the wind and recycled waste -	Imaginen una ciudad de cero- carbono en que toda la energía es proporcionada por el sol, el viento y residuos reciclados,	TP 3
17	Vol 6 No 1	The United Kingdom has ambitiously set out to make all new homes carbon neutral by 2016,	El Reino Unido se ha propuesto la ambiciosa meta que todas las nuevas viviendas deberán ser carbono -neutrales para el año 2016,	TP 3

18	Vol 6 No 1	and is to build 10 zero- carbon ‘eco-towns’	y planea la construcción de 10 “ecociudades” de cero carbono .	TP 3
19	Vol 6 No 1	And France has gone further, deciding that all buildings must be carbon positive – producing more renewable energy than they consume – by 2020,	Y Francia ha ido más allá todavía, con la decisión que para 2020, todos los edificios deben ser carbono -positivos-produciendo más energía renovable de la que consumen-	TP 3
20	Vol 6 No 1	ambitious schemes proposed for doing this pose their own dangers to the planet and could distract from the need to kick the carbon habit by reducing emissions.	los ambiciosos planes propuestos para hacer esto plantean sus propios peligros para el planeta y podrían distraer de la necesidad de abandonar el hábito del carbono y reducir las emisiones.	TP 3
21	Vol 6 No 1	And so are smarter, quirkier sustainable goods, demonstrating that kicking the carbon habit does not have to be sad.	Y lo mismo es el caso con productos sostenibles más extravagantes y peculiares, lo cual demuestra que dejar el hábito del carbono no debe ser necesariamente algo triste.	TP 3
22	Vol 6 No 1	Four countries from three continents – New Zealand, Norway, Iceland and Costa Rica - are racing to be the first to achieve national carbon neutrality.	Cuatro países de tres Continentes –Nueva Zelanda, Noruega, Islandia y Costa Rica- están compitiendo para ser el primero en lograr la neutralidad nacional de carbono .	TP 3
23	Vol 6 No 1	It’s becoming smart to be sustainable, cool to be carbon -neutral.	Hoy día es de buen tono actuar de manera sostenible, y estar en la onda mostrándose “ carbono -neutro”.	TP 3
24	Vol 6 No 1	Norway is aiming to be carbon neutral by 2030.	Noruega se ha propuesto alcanzar la neutralidad de carbono para 2030.	TP 3
25	Vol 6 No 2	CUTTING the carbs	CORTANDO carbono	TP 2 TP 4
26	Vol 6 No 2	Does your kitchen need to go on a carbon diet? Ovens, fryers and hotplates guzzle fuel.	¿Acaso tu cocina necesita ponerse a una dieta de bajo carbono ? Los hornos, las freidoras y las hornallas tragan combustible que da susto.	TP 3
27	Vol 6 No 2	Check out these low- carbon options from around the world.	Estudia estas opciones de bajo carbono de todas partes de mundo.	TP 3
28	Vol 6 No 2	Many of these preservation techniques, like dehydrating fruit or meat, were used before the Industrial Revolution and their production is carbon -free.	Muchas de estas técnicas de conservación, como por ejemplo la de deshidratar fruta o carne, fueron utilizadas antes de la revolución industrial y son libres de carbono .	TP 3

Appendix 14. Korean TP for “carbon”

No	Volume	English	Korean	TP
1	Vol 5 No 4	the world will need as it seeks to move to low- carbon economies.	세계가 저탄소 경제체제로 가기 위해 필요한 기술 개발	TP 3
2	Vol 5 No 4	becoming the world’s first energy-independent, carbon -neutral island.	세계에서 첫 번째로 에너지 독립에 성공한 탄소 중립 섬입니다.	TP 3
3	Vol 6 No 1	Technology will be needed to help the world kick the carbon habit.	우리의 잘못된 탄소 습관을 바꾸기 위해 과학기술의 도움이 필요할 것입니다.	TP 3
4	Vol 6 No 1	Counting carbon	탄소 계산	TP 3
5	Vol 6 No 1	Low-carbon chic	저탄소 제품의 유행	TP 3
6	Vol 6 No 1	How high is your carbon awareness?	당신의 탄소 지식은 어느 정도인가요?	TP 2 TP 4
7	Vol 6 No 1	the world’s scientists have repeatedly warned that unless we rapidly star to kick the carbon habit,	세계의 과학자들은 우리가 빨리 탄소와 관련된 나쁜 습관들을 버리고 방출량을 줄이지 않는 이상 이 위험한 기후변화는 피할 수 없을 것이라고 여러 차례 경고해 왔습니다.	TP 2
8	Vol 6 No 1	all hamper personal attempts to kick the carbon habit.	온난화 방지를 위한 개개인의 노력을 무용지물로 만들고 있습니다.	TP 2
9	Vol 6 No 1	the high- carbon infrastructure is perpetuated for the many decades of its future useful life.	이러한 고-탄소 산업 기반시설은 그 사용가능 기간인 몇 십 년 동안만 유지될 것입니다.	TP 3
10	Vol 6 No 1	So besides individual action to shrink carbon footprints,	온난화 방지에 앞서 개개인의 실행만큼이나 중요한 것은	TP 2
11	Vol 6 No 1	there has to be a bigger effort to decarbonize national and regional infrastructures.	국가나 지역단위에서 온난화 방지를 위해 노력하는 것입니다.	TP 2
12	Vol 6 No 1	so the greater the expected life span of an amenity, the more we should invest in maximizing its carbon efficiency.	따라서 우리가 만든 시설을 오랫동안 사용하기 위해 선 탄소배출 효율성에 대한 투자를 극대화해야 합니다.	TP 2
13	Vol 6 No 1	is it possible to stop developing countries from forming carbon -based economies?	개발도상국들이 탄소기반경제를 포기하게 하는 것이 가능할까요?	TP 3
14	Vol 6 No 1	The fact is that the developed world has a carbon -based economy, consuming enormous amounts of natural resources and generating vast amounts of detrimental waste,	선진국가가 막대한 양의 자연자원을 소비하고 어마어마한 양의 쓰레기들을 발생시키는 탄소기반 경제를 가지고 있는 것을 사실입니다.	TP 3
15	Vol 6 No 1	What practical things can everyone do to kick the carbon habit?	탄소배출 습관을 버리기 위해 우리 모두가 현실적으로 실천할 수 있는 것들에는 어떤게 있을까요?	TP 2
16	Vol 6 No 1	Imagine a zero- carbon city with all its power provided by the sun, the wind and recycled waste -	태양, 바람, 폐기물로부터 전력을 제공받아 이산화탄소를 전혀 배출하지 않는 도시가 있다고 상상해 보세요.	TP 2
17	Vol 6 No 1	The United Kingdom has ambitiously set out to make all new homes carbon neutral by 2016,	영국은 2016년까지 모든 가정의 탄소 중립화를 이룩한다는 야심찬 계획을 갖고	TP 3
18	Vol 6 No 1	and is to build 10 zero- carbon ‘eco-towns’	탄소 없는 “에코타운(ecotown)”을 10군데 세울 계획입니다.	TP 3
19	Vol 6 No 1	And France has gone further, deciding	프랑스에서는 2020년까지 소비한 것보다 더 많은 재	TP 2

		that all buildings must be carbon positive – producing more renewable energy than they consume – by 2020,	생 가능한 에너지를 발생시키고 탄소 배출 에 적극적으로 대응할 수 있는 건물을 지을 것을 결정했습니다.	
20	Vol 6 No 1	ambitious schemes proposed for doing this pose their own dangers to the planet and could distract from the need to kick the carbon habit by reducing emissions.	이 문제를 해결하기 위해 제안된 대규모 계획의 위성이 지구와 직접 연관될 뿐만 아니라 이산화탄소 배출을 줄임으로써 잘못된 탄소 습관을 바꾸려는 원래의 의도에서 벗어날 수 있다고 이의를 제기합니다.	TP 3
21	Vol 6 No 1	And so are smarter, quirrier sustainable goods, demonstrating that kicking the carbon habit does not have to be sad.	또한, 흥미로우면서도 독특한 친환경 재화들이 우리가 탄소배출 습관을 버리는 것을 전허할 슬허할 필요가 없다는 것을 보여주고 있습니다.	TP 2
22	Vol 6 No 1	Four countries from three continents – New Zealand, Norway, Iceland and Costa Rica - are racing to be the first to achieve national carbon neutrality.	세 개의 대륙에 속한 4개국 뉴질랜드, 노르웨이, 아이슬란드, 코스타리카는 서로 국가적인 탄소 중립 (carbon neutrality)을 달성하는 첫 나라가 되기 위해 경쟁하고 있습니다.	TP 3
23	Vol 6 No 1	It’s becoming smart to be sustainable, cool to be carbon-neutral .	환경적으로 지속 가능한 소비생활을 하는 것은 현명한 일이고, 탄소 중립을 지키는 것은 좋은 일입니다.	TP 3
24	Vol 6 No 1	Norway is aiming to be carbon neutral by 2030.	노르웨이는 2030년까지 탄소 중립화를 달성하는 것을 목표로 삼았습니다.	TP 3
25	Vol 6 No 2	CUTTING the carbs	저탄소 조리법	TP 4
26	Vol 6 No 2	Does your kitchen need to go on a carbon diet ? Ovens, fryers and hotplates guzzle fuel.	여러분의 부엌은 탄소 다이어트가 필요하지 않으십니까?	TP 3
27	Vol 6 No 2	Check out these low- carbon options from around the world.	자, 이제 세계의 저 탄소 조리법들을 소개하겠습니다.	TP 3
28	Vol 6 No 2	Many of these preservation techniques, like dehydrating fruit or meat, were used before the Industrial Revolution and their production is carbon-free .	건조식품 등을 비롯한 많은 식품 보존기법들은 산업혁명 이전부터 사용되어 왔고 이 기법들은 모두 이산화탄소 를 발생시키지 않았습니다.	TP 2

Appendix 15. Spanish TP for “environment”

No	Volume	English	Spanish	TP
1	Vol 5 No 2	A present medical study claims people can boost their mental health by spending time outdoors and getting active in a green environment .	Un reciente estudio médico pretende que la gente puede estimular su higiene mental saliendo al aire libre y dedicándose a alguna actividad en un medio ambiente verde.	TP 3
2	Vol 5 No 2	We need to find ways of removing ourselves from fast-paced, developed society, and of reconnecting with our environment .	Es necesario que encontremos maneras de apartarnos de la acelerada sociedad “desarrollada”, y de reconectarnos con nuestro medio ambiente .	TP 3
3	Vol 5 No 2	People do benefit from living in urban environments , but we can help ease the ecological effects of so many living in crowded surroundings through sustainable urban planning	Es verdad que la gente puede beneficiarse viviendo en ambientes urbanos, pero mediante el planeamiento urbano sostenible es posible ayudar a aliviar los efectos ambientales de tanta gente que vive en entornos abarrotados	TP 3
4	Vol 5 No 2	In our small way, we have tried to change perceptions and improve our local environment .	En nuestra modesta manera hemos tratado de cambiar las percepciones de la gente y mejorar nuestro medio ambiente local.	TP 3
5	Vol 5 No 3	Others propose to extract hydrogen and methane from plant biomass by pyrolysis (heating in an oxygen starved environment), burying the char by-product as fertilizer.	Otros proponen extraer hidrogeno y metano de biomasa vegetal por pirolisis (calentamiento en un ambiente privado de oxígeno), enterrando los subproductos carbonizados como fertilizantes.	TP 3
6	Vol 5 No 4	Tourism and environmental well-being rarely go hand in hand, and the pressures are particularly great on islands.	El turismo y el bienestar del medio ambiente rara vez van de la mano, y las presiones son especialmente fuertes en las islas.	TP 3
7	Vol 5 No 4	Cuban Youth Environmental Network, was set up in early 2007 as a coordination and information platform for youth groups to exchange experiences, promote ideas and join forces for such campaigns as Clean up the World and Plant for the Planet.	la Red Juvenil Ambiental de Cuba – fue establecida a principios de 2007 como una plataforma de coordinación e información para grupos juveniles para intercambiar experiencias, promocionar ideas y unir fuerzas para campañas como A Limpiar el Mundo y Plantemos para el Planeta.	TP 3
8	Vol 5 No 4	My brothers and I grew up in an intercultural environment , but we have always had an affinity for our Kuna culture.	Mi hermano y yo crecimos dentro de un ambiente intercultural, pero siempre hemos sentido afinidad con nuestra cultura kuna.	TP 3
9	Vol 5 No 4	islanders have the opportunity to show the world how a lifestyle that balances social, environmental and economic needs is not only possible but necessary.	los isleños tienen la oportunidad de demostrar al mundo que un estilo de vida que equilibra las necesidades sociales, ambientales y económicas no sólo es posible sino necesario.	TP 3
10	Vol 6 No 1	Philippine’s delegate and member of UNEP’s Southeast Asian Youth Environment Network,	delegado de Filipinas y miembro de la Red Juvenil de Asia Sudoriental para el Medio Ambiente del PNUMA,	TP 3
11	Vol 6 No 1	For his environmental activism, like his film stardom, is well over a decade old, even though he is still only 33.	ha sido activista dedicada a asuntos ambientales desde casi dos décadas, aunque solo tiene 33 años de edad.	TP 2 TP 3

12	Vol 6 No 1	‘We must move environmentalism from being the philosophy of a passionate minority to a way of life that automatically integrates ecology into governmental policy and normal living standards.	“Es necesario que cambiemos el ambientalismo para que deje de ser la filosofía de una minoría apasionada y se convierta en un modo de vida que automáticamente integre la ecología a la política gubernamental y a los estándares de vida normales.”	TP 3
13	Vol 6 No 1	We are entering an environmental age whether we like it or not.’	Queramos o no, estamos entrando en una edad medioambiental .”	TP 3
14	Vol 6 No 1	He made <i>11th</i> Hour – which he produced, co-wrote and narrated - to try to move environmental thinking into the mainstream.	El deseo de llevar el pensamiento medioambiental a la corriente dominante fue lo que motivó a DiCaprio a filmar <i>La Ultima Hora</i> , que él produjo, y cuyo guion también fue coescrito y narrado por él mismo.	TP 3
15	Vol 6 No 2	‘The era of the replacement of ecological niches by extensive, artificially maintained, homogenous farm environments , growing single crop varieties, is ending because agrochemicals are becoming expensive and irrigation water scarce.	“La era del reemplazo de nichos ecológicos por ambientes agrícolas homogéneos extensos, mantenidos artificialmente, con el cultivo de variedades de monocultivo, está llegando a su fin, tanto debido al encarecimiento de los productos agroquímicos como a la escasez de agua de riego.	TP 3
16	Vol 6 No 2	But what do you do if you happen to live in a challenging environment where food can be seasonally scarce?	¿Pero qué hacer cuando se vive en un medio ambiente desafiante en que los alimentos pueden escasear seriamente según la estación?	TP 3

Appendix 16. Korean TP for “environment”

No	Volume	English	Korean	TP
1	Vol 5 No 2	A present medical study claims people can boost their mental health by spending time outdoors and getting active in a green environment .	최근 의학 연구에 따르면, 집 밖에서 시간을 보낼수록, 자연 속에서 활동을 할수록 사람들의 정신 건강이 좋아진다고 합니다.	TP 4
2	Vol 5 No 2	We need to find ways of removing ourselves from fast-paced, developed society, and of reconnecting with our environment .	이에 우리는 빠르고 공업화된 사회에서 벗어나 환경 과 이어질 수 있는 길을 찾아야 합니다.	TP 3
3	Vol 5 No 2	People do benefit from living in urban environments , but we can help ease the ecological effects of so many living in crowded surroundings through sustainable urban planning	사람들은 도시 환경 의 생활로부터 많은 이익을 얻고자 합니다. 하지만 공원이나 산책로 같은 녹지조성과 지속 가능한 도시계획을 통해 혼잡함 속에서 살아가는 많은 사람들에게 생태적 효과를 누릴 수 있게 할 수 있습니다.	TP 3
4	Vol 5 No 2	In our small way, we have tried to change perceptions and improve our local environment .	‘우리의 작은 실천으로, 우리는 인식을 바꾸고 우리의 지역 환경 을 개선시키고자 노력했습니다.’	TP 3
5	Vol 5 No 3	Others propose to extract hydrogen and methane from plant biomass by pyrolysis (heating in an oxygen starved environment), burying the char by-product as fertilizer.	어떤 이들은 열분해(산소가 적은 환경 에서 가열하는 방법)상에서 식물 바이오매스의 수소와 메탄가스를 추출해내고 숯 부산물은 땅에 묻어 비료로 사용하는 방법을 제안합니다.	TP 3
6	Vol 5 No 4	Tourism and environmental well-being rarely go hand in hand, and the pressures are particularly great on islands.	관광산업과 환경 보존은 공존하기 힘든데, 이런 문제는 특히 섬나라들에게 더욱 큰 부담입니다.	TP 3 TP 2
7	Vol 5 No 4	Cuban Youth Environmental Network, was set up in early 2007 as a coordination and information platform for youth groups to exchange experiences, promote ideas and join forces for such campaigns as Clean up the World and Plant for the Planet.	2007년 설립된 ‘쿠바청소년 환경 네트워크’는 청소년들의 경험을 서로 교환하고, 아이디어를 개발하고 ‘Clean Up the World (호주에서 시작된 환경캠페인)’와 같은 세계적인 환경캠페인과도 협력할 수 있도록 코디네이터 및 정보창구 역할을 하고 있습니다.	TP 3
8	Vol 5 No 4	My brothers and I grew up in an intercultural environment , but we have always had an affinity for our Kuna culture.	우리 형제들은 비록 다문화 가정 에서 성장했지만, 쿠나 문화와 더 친숙했습니다.	TP 2
9	Vol 5 No 4	islanders have the opportunity to show the world how a lifestyle that balances social, environmental and economic needs is not only possible but necessary.	섬 지역 주민들은 세상에 사회적, 환경적 , 경제적 수요의 균형을 맞추는 것이 가능할 뿐만 아니라 반드시 필요한 의무라는 것을 보여주고 있습니다.	TP 3
10	Vol 6 No 1	Philippine’s delegate and member of UNEP’s Southeast Asian Youth Environment Network,	동남아시아 청소년 환경 네트워크의 회원이자 필리핀 청소년 대표인	TP 3
11	Vol 6 No 1	For his environmental activism, like his film stardom, is well over a decade old, even though he is still only 33.	레오나르도 디카프리오의 아직 33살밖에 되지 않았지만, 그의 영화계에서의 유명세만큼이나 그의 환경 운동 또한 16년 넘게 지속되어 왔습니다.	TP 3
12	Vol 6 No 1	‘We must move environmentalism from being the philosophy of a passionate minority to a way of life that	“우리의 환경주의 는 수동적인 소수의 철학에서 벗어나, 적극적으로 생태학을 정부정책과 일반적 삶의 기	TP 3

		automatically integrates ecology into governmental policy and normal living standards.	준에 융합시키는 방식으로 변화되어야 합니다.	
13	Vol 6 No 1	We are entering an environmental age whether we like it or not.’	우리는 싫든 좋든 환경 의 시대로 접어들고 있기 때 문입니다.”	TP 3
14	Vol 6 No 1	He made <i>11th</i> Hour – which he produced, co-wrote and narrated - to try to move environmental thinking into the mainstream.	디카프리오는 직접 제작, 공동대본, 내레이션을 맡은 영화 ‘11번째 시간’을 통해 환경친화적인 생각을 주 류에 편입시키고자 했습니다.	TP 2 TP 4
15	Vol 6 No 2	‘The era of the replacement of ecological niches by extensive, artificially maintained, homogenous farm environments , growing single crop varieties, is ending because agrochemicals are becoming expensive and irrigation water scarce.	‘화학 비료 가격이 상승하고 농업 용수는 부족해졌습 니다. 단일 농작물을 재배하고 인공적으로 농사짓던 시대는 지났습니다.	TP 1
16	Vol 6 No 2	But what do you do if you happen to live in a challenging environment where food can be seasonally scarce?	여러분이 계절별로 식량을 구하기 어려운 환경 에서 산다면 어떨까요?	TP 3

Appendix 17. Spanish TP for “climate”

No	Volume	English	Spanish	TP
1	Vol 5 No 2	Since it was founded last year, the Project has taught over 1,500 people from around the world (including Australia, Mexico, Puerto Rico, Thailand, Uganda and the United States) about climate issues, and sent them home to deliver 10 or more of their own presentations.	Desde su fundación el año pasado, el Proyecto ha entrenado a 1.500 personas de todas partes del mundo, incluso Australia, los Estados Unidos de América, México, Puerto Rico, Tailandia y Uganda. Todas volvieron a su propio país para dar otras diez presentaciones más.	TP 1
2	Vol 5 No 3	‘We’re starting with corn, but plan to move to 100 percent climate -friendly cellulosic ethanol, which can be derived from fibrous, fast-growing crops and agricultural waste.	Comenzamos con el maíz, pero nuestro plan es llegar al etanol celulósico 100% favorable al clima , que es posible derivar de cultivos fibrosos de crecimiento rápido y residuos agrícolas.	TP 3
3	Vol 5 No 4	‘Adapting a building to the climate is better than adapting the climate to a building,’	“Adaptar un edificio al clima es mejor que adaptar el clima a un edificio”,	TP 3
4	Vol 5 No 4	At least a fifth of man-made global greenhouse gas emissions now come from energy consumption in buildings, he told a workshop on Protecting the Climate Through Smart Construction.	Por lo menos una quinta parte de las emisiones de gases de invernadero provocadas por el hombre proviene del consumo de energía en edificios, como informó Ian Paterson en un taller sobre el tema “Protección del Clima a través de una Construcción Inteligente”.	TP 3
5	Vol 5 No 4	The building is one of several ‘lighthouse projects’ in the Bayer Climate Program, which was announced at	El edificio es uno de varios “proyectos faro” en el Programa Bayer para el Clima , anunciado en la conferencia.	TP 3
6	Vol 6 No 1	Of course, all this will only work if millions of us act. But millions of us now care about the climate .	Por supuesto, todo esto sólo podrá dar resultado si millones de nosotros tomamos medidas conscientes. Pero millones de nosotros ahora nos preocupamos por el clima .	TP 3
7	Vol 6 No 1	UNEP has also started the Climate Neutral Network to help countries, cities and corporations achieve zero-carbon status and is taking the lead in greening the way the UN works.	el PNUMA inició la creación de la Red de Clima Neutral para ayudar a países, ciudades y corporaciones a alcanzar la categoría “cero carbonos”, y ha tomado la delantera en el reverdecimiento de la forma en que trabaja la ONU.	TP 3
8	Vol 6 No 1	All signed up to UNEP’s new Climate Neutral Network.	Todos se han apuntado a la nueva Red de Clima Neutral del PNUMA.	TP 3
9	Vol 6 No 1	Climate -friendly food: Encouraging school cafeterias and restaurants to serve locally produced, vegetarian food.	Alimentos favorables al clima : Alentar a las escuelas y colegios a servir alimentos producidos localmente y comidas vegetarianas en sus cafeterías.	TP 3
10	Vol 6 No 1	This matters to the climate because cutting down trees is the second biggest cause of increasing carbon dioxide in the atmosphere after the burning of fossil	Esto es importante para el clima , dado que la tala de árboles es la segunda causa más grande del creciente aumento de CO ₂ en la atmósfera después de la quema de	TP 3

		fuels: it is responsible for about a fifth of humanity's emissions.	combustibles fósiles: es responsable de alrededor de una quinta parte de las emisiones de la humanidad.	
11	Vol 6 No 1	Governments have been slow to reach international agreement on reducing deforestation so as to save the climate .	Los gobiernos han sido lentos en llegar a un acuerdo internacional sobre la reducción de la deforestación a fin de salvar el clima .	TP 3
12	Vol 6 No 2	They call it the 'other CO ₂ problem'—and it is something that the dwindling, but noisy, band of climate sceptics never talk about.	Lo llaman “el otro problema del CO ₂ ”, y es algo de lo cual el grupo cada vez más reducido, pero vociferante, de escépticos del clima nunca habla.	TP 3

Appendix 18. Korean TP for “climate”

No	Volume	English	Korean	TP
1	Vol 5 No 2	Since it was founded last year, the Project has taught over 1,500 people from around the world (including Australia, Mexico, Puerto Rico, Thailand, Uganda and the United States) about climate issues, and sent them home to deliver 10 or more of their own presentations.	작년에 설립된 이래로, 기후 프로젝트는 오스트레일리아, 멕시코, 푸에르토리코, 태국, 우간다, 미국을 포함한 전 세계의 1500여 명이 넘는 사람들에게 기후 문제에 대해서 가르쳤고, 그들을 고향으로 10여개 이상의 해결 방안을 제출하였습니다.	TP 3
2	Vol 5 No 3	‘We’re starting with corn, but plan to move to 100 percent climate -friendly cellulosic ethanol, which can be derived from fibrous, fast-growing crops and agricultural waste.	‘지금 우리는 옥수수를 놓고 연구를 하고 있습니다. 하지만 훗날엔 농업폐기물이나 섬유질이 많으며 성장속도가 빠른 농작물에서 만들어진 100% 기후 친화적 목질계에탄올(cellulosic ethanol)로 전환시킬 수 있을 것입니다.	TP 3
3	Vol 5 No 4	‘Adapting a building to the climate is better than adapting the climate to a building,’	“빌딩을 날씨에 맞추는 것이 날씨를 빌딩에 맞추는 것보다 쉽습니다.”	TP 2
4	Vol 5 No 4	At least a fifth of man-made global greenhouse gas emissions now come from energy consumption in buildings, he told a workshop on Protecting the Climate Through Smart Construction.	패터슨은 ‘스마트 건축을 이용한 기후 보호 (Protecting the Climate Through Smart Construction)’ 단체의 워크숍에서 적어도 인간이 방출하는 온실가스의 20%는 빌딩의 에너지 소비에서 발생한다고 주장하였습니다.	TP 3
5	Vol 5 No 4	The building is one of several ‘lighthouse projects’ in the Bayer Climate Program, which was announced at	이 빌딩의 건설은 바이엘 기후 프로그램의 바이엘 청소년 환경대사 회의에서 발표한 ‘등대 프로젝트’ 중 하나입니다.	TP 3
6	Vol 6 No 1	Of course, all this will only work if millions of us act. But millions of us now care about the climate .	물론, 이 모든 것은 수 백만 인구가 함께 행동해야만 그 효과가 나타날 것입니다. 하지만 우리는 이제야 기후 변화에 대해 주의를 기울이고 있습니다.	TP 2
7	Vol 6 No 1	UNEP has also started the Climate Neutral Network to help countries, cities and corporations achieve zero-carbon status and is taking the lead in greening he way the UN works.	UNEP은 또한 국가, 도시, 기업들이 탄소배출 제로(0) 목표를 이룰 수 있도록 돕기 위해 기후중립네트워크(CNN: Climate Neutral Network)을 출범하였고 UN의 활동을 환경친화적인 방향으로 인도하고 있습니다.	TP 3
8	Vol 6 No 1	All signed up to UNEP’s new Climate Neutral Network.	4개국 모두가 유엔환경계획의 새로운 기후중립네트워크(Climate Neutral Network)에 서명했습니다.	TP 3
9	Vol 6 No 1	Climate -friendly food: Encouraging school cafeterias and restaurants to serve locally produced, vegetarian food.	환경친화적 식품 장려운동은 다음과 같습니다. 저희는 학교 식당과 레스토랑이 지역 생산물과 채식 위주의 음식을 판매하도록 장려할 것입니다.	TP 4
10	Vol 6 No 1	This matters to the climate because cutting down trees is the second biggest cause of increasing carbon dioxide in the atmosphere after the burning of fossil fuels: it is responsible for about a fifth of humanity’s emissions.	인간이 배출하는 물질의 약 20%는 화석연료입니다. 화석연료는 대기 중에서 가장 많은 이산화탄소 양을 배출하고 그 다음으로 기후변화에 큰 영향을 미치는 요인이 별목입니다.	TP 2
11	Vol 6 No 1	Governments have been slow to reach international agreement on reducing	정부는 기후를 살리기 위한 삼림 벌채 감축에 대한 국제 협정을 미뤄만 왔습니다.	TP 3

		deforestation so as to save the climate .		
12	Vol 6 No 2	They call it the ‘other CO ₂ problem’– and it is something that the dwindling, but noisy, band of climate sceptics never talk about.	회의론자들은 지구의 식량위기를 또 하나의 CO ₂ 문제라고 치부하고 이 문제에 대해 전혀 논의하지 않고 있는 실정입니다.	TP 1

Appendix 19. Spanish TP for “waste”

No	Volume	English	Spanish	TP
1	Vol 5 No 2	Their two-year-old project encourages people to separate their rubbish, turning organic wastes into fertilizer using a ‘magic waste basket’ composter; and being creative with their inorganic waste, crafting some of it into bags, photo frames and souvenirs.	Su proyecto de dos años alienta a la gente a separar sus residuos, convirtiendo residuos orgánicos en abono y usando sus residuos inorgánicos en formas creativas, por ejemplo, para fabricar bolsas, marcos para fotos, y artículos de recuerdo.	TP 3 TP 2
2	Vol 5 No 2	Their project ‘Useful Waste for a Better Future’ has won the \$10,000 first prize: ‘In our small way, we have tried to change perceptions and improve our local environment.’	Su proyecto “ Basura útil para un futuro mejor “acababa de ganar el primer premio: “En nuestra modesta manera hemos tratado de cambiar las percepciones de la gente y mejorar nuestro medio ambiente local,” agregaron.	TP 3
3	Vol 5 No 3	Dr Caroline Bailie, however, sees them as a way of tackling poverty. A professor of materials engineering at Queen’s University in Canada, she is the brains behind Waste for Life, a network of people seeking solutions that help the environment and empower local people.	Sin embargo, la Dra Caroline Baillie las ve como una manera de tratar de resolver el problema de la pobreza. Profesora de ingeniería de materiales en la Universidad de Queen’s en Canadá, Caroline Baillie es el cerebro detrás de “ Waste for Life” (basura -por-vida), una red de personas que buscan soluciones que ayudan al medio ambiente y habilitan a los habitantes locales.	TP 3
4	Vol 5 No 3	Strengthening plastic with such fibres as jute, flax and agave is not a new idea, but Waste for Life’s innovative approach aims to bring together engineering, the environment and social justice.	Reforzar los plásticos con fibras como yute, lino y agave no es una idea nueva, pero el enfoque innovador de Waste for Life trata de reunir la ingeniería con el medio ambiente y la justicia social.	TP 3
5	Vol 5 No 3	‘Although there are loads of them,’ Baillie explains, ‘plastic bags have no resale value, and go straight to the landfill where they photo-degrade – breaking down into tiny toxic pieces that contaminate soil and water.’ Back at the Waste for Life lab in Canada, engineers are developing a chemical-free hot press that will convert waste plastic bags and salvaged cardboard into ceiling tiles.	“Aunque hay montones de bolsas de plástico,” explica, “no tienen valor de reventa y van derecho al vertedero, donde se descomponen en minúsculos trozos tóxicos que contaminan el suelo y el agua.” En el laboratorio de Waste for Life de Canadá, los ingenieros están desarrollando una prensa caliente barata, libre de sustancias químicas que convertirá las bolsas de plástico usadas y el cartón rescatado en tejas para cielorrasos.	TP 3
6	Vol 6 No 2	Useful waste	Basura útil	TP 3

Appendix 20. Korean TP for “waste”

No	Volume	English	Korean	TP
1	Vol 5 No 2	Their two-year-old project encourages people to separate their rubbish, turning organic wastes into fertilizer using a ‘magic waste basket’ composter; and being creative with their inorganic waste, crafting some of it into bags, photo frames and souvenirs.	그들의 2년에 걸친 프로젝트는 사람들에게 분리 수거를 하도록 장려하고, 유기물 쓰레기를 ‘마법 쓰레기 바구니’에 넣어 비료로 바꾸고, 무기물 쓰레기를 창의적으로 활용하여, 가방과 액자, 기념품 등으로 만드는 활동입니다.	TP 3
2	Vol 5 No 2	Their project ‘Useful Waste for a Better Future’ has won the \$10,000 first prize: ‘In our small way, we have tried to change perceptions and improve our local environment.’	그들의 프로젝트였던 ‘더 나은 미래를 위한 유용한 쓰레기 ’는 10,000 달러의 상금이 주어지는 대상을 수상했습니다. ‘우리의 작은 실천으로, 우리는 인식을 바꾸고 우리의 지역 환경을 개선시키고자 노력했습니다.’	TP 3
3	Vol 5 No 3	Dr Caroline Bailie, however, sees them as a way of tackling poverty. A professor of materials engineering at Queen’s University in Canada, she is the brains behind Waste for Life, a network of people seeking solutions that help the environment and empower local people.	그러나 캐롤라인 베일리(Caroline Bilie) 박사는 비닐봉지로 빈곤을 해결할 수 있다고 말합니다. 캐나다의 퀸스 대학에서 재료공학 박사로서 일하고 있는 그녀는 환경과 지역주민을 돕는 방법을 연구하는 모임인 ‘생명을 위한 쓰레기(waste for life) ’를 이끌며 비닐봉지를 이용하여 합성재료를 만들려는 시도를 하고 있습니다.	TP 3
4	Vol 5 No 3	Strengthening plastic with such fibres as jute, flax and agave is not a new idea, but Waste for Life’s innovative approach aims to bring together engineering, the environment and social justice.	새로운 아이디어는 아니지만, ‘생명을 위한 쓰레기 ’의 접근법은 공학과 환경, 사회의 정의를 한곳에 모으는 것에 주안점을 두고 있다는 점에서 혁신적이라고 할 수 있습니다.	TP 3
5	Vol 5 No 3	‘Although there are loads of them,’ Baillie explains, ‘plastic bags have no resale value, and go straight to the landfill where they photo-degrade – breaking down into tiny toxic pieces that contaminate soil and water.’ Back at the Waste for Life lab in Canada, engineers are developing a chemical-free hot press that will convert waste plastic bags and salvaged cardboard into ceiling tiles.	베일리 박사는 “버려진 비닐봉지는 많지만, 다시 팔아도 돈이 되지 않기 때문에 모두 매립장에 버려지죠. 이렇게 버려진 비닐 봉지는 광분해 되어 토양과 수질을 오염시키는 작은 유독물질이 됩니다.”라고 말합니다. 캐나다에 있는 ‘생명을 위한 쓰레기 ’의 연구실에서는, 버려진 비닐봉지와 재활용을 위해 수거된 보드지가 화학약품을 쓰지 않는 고열고압 과정을 통해 천장타일로 만들어 질 수 있도록 하는 연구가 진행 중입니다.	TP 3
6	Vol 6 No 2	Useful waste	유용한 쓰레기	TP 3

Appendix 21. Spanish TP for “youth”

No	Volume	English	Spanish	TP
1	Vol 5 No 2	transfer successful initiatives to other countries and develop new youth programmes.	transferir iniciativas exitosas a otros países y organizar nuevos programas juveniles .	TP 3
2	Vol 5 No 2	youth environmental networks in Asia Pacific, Africa and Latin America,	redes juveniles sobre medio ambiente en Asia-Pacífico, África y América Latina,	TP 3
3	Vol 5 No 2	How can outdoors youth movements educate the wider population about ecological and environmental issues?	¿Cómo pueden los movimientos juveniles de actividades al aire libre educar a la población más amplia sobre asuntos ecológicos?	TP 3
4	Vol 5 No 4	Youthful heritage	Patrimonio juvenil	TP 3
5	Vol 6 No 1	The group convened in Bali as a self-organized delegation, meeting daily in the ‘ youth bunker’ – a makeshift space under a stairwell in the conference centre – to discuss strategy, make plans and write press releases.	El grupo se reunió en Bali como una delegación autoorganizada, reuniéndose diariamente en el “búnker juvenil ” –un espacio improvisado bajo el hueco de una escalera en el centro de conferencias- para discutir estrategias, hacer planes y redactar comunicados de prensa.	TP 3
6	Vol 6 No 1	Curious about the growing youth climate movement?	¿Curiosos de enterarse del creciente movimiento juvenil para el clima?	TP 3
7	Vol 6 No 1	Sara Svensson is on the Tunza Youth Advisory Council representing Europe.	Sra Svensson es integrante del Consejo de Asesoramiento Juvenil Tunza, representante para Europa.	TP 3

Appendix 22. Korean TP for “youth”

No	Volume	English	Korean	TP
1	Vol 5 No 2	transfer successful initiatives to other countries and develop new youth programmes.	여기에는 현재 진행되는 프로젝트 뿐만 아니라 성공적인 이니셔티브의 확산 및 새로운 청소년 프로그램의 개발이 포함됩니다.	TP 2
2	Vol 5 No 2	youth environmental networks in Asia Pacific, Africa and Latin America,	아태지역 청소년 환경네트워크 형성	TP 2
3	Vol 5 No 2	How can outdoors youth movements educate the wider population about ecological and environmental issues?	어떻게 청소년 들의 야외활동이 생태적, 환경적 문제들에 관해 더 많은 사람들을 교육시킬 수 있습니까?	TP 2
4	Vol 5 No 4	Youthful heritage	오래되지 않은 유산	TP 2 TP 4
5	Vol 6 No 1	The group convened in Bali as a self-organized delegation, meeting daily in the ‘ youth bunker’ – a makeshift space under a stairwell in the conference centre – to discuss strategy, make plans and write press releases.	자가구성단체로서 발리에서 새로 조직된 그룹들은 매일 회의장에 있는 계단 아래에 임시로 만든 공간인 ‘ 청년 벙커’에 모여 전략을 토의하고, 계획을 만들고 언론보도자료를 작성하였습니다.	TP 2
6	Vol 6 No 1	Curious about the growing youth climate movement?	증가하는 청소년 기후 활동에 대해 궁금하세요?	TP 2
7	Vol 6 No 1	Sara Svensson is on the Tunza Youth Advisory Council representing Europe.	사라 스벤슨은 tunza 청소년 자문위원 유럽대표입니다.	TP 2

Appendix 23. Spanish TP for “global”

No	Volume	English	Spanish	TP
1	Vol 5 No 4	Which is the only country in the world that provides both a high level of human development for its people and a globally sustainable demand on the Earth’s natural resources?	¿Cuál es el único país del mundo que provee un alto nivel de desarrollo humano para su pueblo al mismo tiempo de hacer una demanda mundialmente sostenible sobre los recursos naturales de la Tierra?	TP 3
2	Vol 5 No 4	Many Cuban youth organizations understand the need to look after the present in order to have a better future, and adopt it as a guiding principle, inspiring a new generation to ‘think global , act local’.	Muchas organizaciones juveniles cubanas comprenden la necesidad de cuidar el presente a fin de tener un futuro mejor, y la adoptan como un principio de guía, inspirando a una nueva generación a “pensar globalmente y actuar localmente”.	TP 3
3	Vol 5 No 4	With islands dotted around every continent and so many as yet unspoiled, ecotourism may entail thinking globally , but visiting locally.	Con tantas islas salpicadas alrededor de cada Continente y tantas de ellas con su belleza natural aún intacta, el ecoturismo bien podría implicar la idea de pensar globalmente , pero visitar localmente.	TP 3
4	Vol 6 No 1	UNICEF gave its blessing, dubbing it the ‘launch of the global youth environment movement’.	UNICEF, que se refirió a ella como “el lanzamiento del movimiento medioambiental mundial de la juventud”.	TP 3
5	Vol 6 No 1	Southeast Asia’s peat lands are thought to contain up to 21 per cent of global land-based carbon stores,	Se cree que las tuberías de Asia Sudoriental contienen hasta 21% de los almacenes de carbono basados en tierra del mundo ,	TP 3
6	Vol 6 No 2	We take cuttings and plant them in orphanages and public gardens. I am content to believe that we’re adding our organic drop to the global green reserves.	Cortamos esquejes y los plantamos en orfanatos y jardines públicos. Me complace pensar que estamos añadiendo nuestra gota orgánica a las reservas verdes del mundo .	TP 3

Appendix 24. Korean TP for “global”

No	Volume	English	Korean	TP
1	Vol 5 No 4	Which is the only country in the world that provides both a high level of human development for its people and a globally sustainable demand on the Earth’s natural resources?	지구상에서 유일하게 높은 수준의 인적자원 개발과 지속가능한 환경개발을 하는 국가는 어느 나라일까요?	TP 1
2	Vol 5 No 4	Many Cuban youth organizations understand the need to look after the present in order to have a better future, and adopt it as a guiding principle, inspiring a new generation to ‘think global , act local’.	많은 쿠바의 청소년단체들은 보다 나은 미래를 갖기 위해선 현재를 관리하는 것이 중요하다는 것을 깨닫고, 새로운 세대에게 ‘생각은 글로벌 하게, 행동은 지역적으로’라는 마인드를 전파하고 있습니다.	TP 3
3	Vol 5 No 4	With islands dotted around every continent and so many as yet unspoiled, ecotourism may entail thinking globally , but visiting locally.	전 세계 모든 대륙에 많은 섬들이 흩어져 있고 자연 그대로의 상태를 유지하고 있습니다. 우리 주변에 섬은 많습니다. 진정한 친환경 관광이라면 먼저 주변의 가까운 섬부터 방문해야 하는 것이 아닐까요?	TP 1
4	Vol 6 No 1	UNICEF gave its blessing, dubbing it the ‘launch of the global youth environment movement’.	이에 유니세프는 “ 전세계 청소년들의 환경 활동의 시작”이라고 칭하며 찬사를 보냈습니다.	TP 3
5	Vol 6 No 1	Southeast Asia’s peat lands are thought to contain up to 21 per cent of global land-based carbon stores,	남동부 아시아 토탄 삼림은 지구 토지에 저장된 탄소 중 약 21%를 포함하고 있는 것으로 알려져 있습니다.	TP 2
6	Vol 6 No 2	We take cuttings and plant them in orphanages and public gardens. I am content to believe that we’re adding our organic drop to the global green reserves.	우리가 키운 나무를 고아원과 공원 등에 심어주고 있으며 이를 통해 글로벌 녹지 보존에 이바지하고 있다는 사실이 매우 뿌듯합니다.	TP 3

Appendix 25. Spanish TP for “planet”

No	Volume	English	Spanish	TP
1	Vol 5 No 3	It should be used for development, not destruction, it should benefit humanity as a whole rather than just the already wealthy few and, rather than be used to promote economic growth at all costs, it must continue to be underpinned by the vital services provided by a healthy planet .	La tecnología debería utilizarse para desarrollar, no para destruir, para beneficiar a la humanidad como un todo más bien que para enriquecer a los pocos que ya son ricos, y, en vez de promocionar el crecimiento económico a toda costa, debe asegurar que siga estando respaldada y sustentada por los servicios vitales provistos por un planeta sano.	TP 3
2	Vol 5 No 3	‘I feel all adults have a duty to pass on a pristine planet to our children.	“Pienso que todas las personas adultas tenemos la obligación de entregar un planeta prístino a nuestros hijos.	TP 3
3	Vol 5 No 4	The 2006 Living Planet Report identified it as my home, Cuba.	El Informe Planeta Vivo 2006 lo identifiqué como mi patria: Cuba.	TP 3
4	Vol 6 No 1	‘Our future is at stake. History will judge whether you did enough to give us a planet worth living in.	“NUESTRO FUTURO ESTA EN JUEGO. La historia juzgará si habéis hecho lo suficiente para dejarnos un planeta en el cual vale la pena vivir.	TP 3
5	Vol 6 No 1	It is his third environmental documentary, preceded by two short films for a web audience: <i>Global Warming</i> in 2001 and <i>Water Planet</i> in 2004, both still available on his site.	Ya había producido dos cortos para una audiencia en la web: El Calentamiento de la Tierra en 2001 y Planeta de Agua en 2004, que ambas todavía pueden verse en su sitio.	TP 3

Appendix 26. Korean TP for “planet”

No	Volume	English	Korean	TP
1	Vol 5 No 3	It should be used for development, not destruction, it should benefit humanity as a whole rather than just the already wealthy few and, rather than be used to promote economic growth at all costs, it must continue to be underpinned by the vital services provided by a healthy planet .	기술은 파괴가 아닌 발전을 위해, 소수 부유층과 경제성장을 위해서만이 아닌 전체 인류의 이익을 위해 사용되어야 하고 건강한 지구 가 제공하는 소중한 자원을 토대로 발전해 나가야 합니다.	TP 4
2	Vol 5 No 3	‘I feel all adults have a duty to pass on a pristine planet to our children.	모든 어른들은 우리의 아이들에게 깨끗한 지구 를 물려줄 의무가 있다고 생각합니다.	TP 4
3	Vol 5 No 4	The 2006 Living Planet Report identified it as my home, Cuba.	‘2006 살아있는 지구 보고서(2006 Living Planet Report)’에 의하면 이 국가는 제 모국이기도 한 쿠바입니다.	TP 4
4	Vol 6 No 1	‘Our future is at stake. History will judge whether you did enough to give us a planet worth living in.	“우리의 미래는 위험에 처해있습니다. 역사는 미래세대에게 살기 좋은 지구 를 물려주기 위해 우리가 충분한 일을 했는지 결정할 것입니다.	TP 4
5	Vol 6 No 1	It is his third environmental documentary, preceded by two short films for a web audience: <i>Global Warming</i> in 2001 and <i>Water Planet</i> in 2004, both still available on his site.	이것은 짧은 2편의 영화인 2001년의 ‘지구온난화’와 2004년의 ‘물의 행성 ’에 이은 그의 세 번째 환경 다큐멘터리로, 두 영화 모두 그의 웹사이트에서 볼 수 있습니다.	TP 3

Appendix 27. Spanish TP for “people”

No	Volume	English	Spanish	TP
1	Vol 5 No 2	Birds are like people . They stick to TV, not to miss the news. Actually, animals have adapted to human circumstances and use equipment that is left over by us.	Los pájaros actúan como la gente . Viven pegados a la TV para no perderse las noticias de la tarde. En efecto, los animales se han adaptado a circunstancias humanas y usan el equipo que nosotros deseamos.	TP 3
2	Vol 6 No 1	PEOPLE MOVERS	MOVIENDO A LA GENTE	TP 3

Appendix 28. Korean TP for “people”

No	Volume	English	Korean	TP
1	Vol 5 No 2	Birds are like people . They stick to TV, not to miss the news. Actually, animals have adapted to human circumstances and use equipment that is left over by us.	새들은 사람 과 같습니다. 그들은 텔레비전에 붙어 지내며, 뉴스를 놓치지 않습니다. 실제로, 동물들은 인간 환경에 적응해 오면서 우리가 버린 장비들을 사용하고 있습니다.	TP 3
2	Vol 6 No 1	PEOPLE MOVERS	일으키는 사람들	TP 4