

Shades of Green: Communicating Ecological Information in Indigenous Languages.

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Abstract

‘Green economy’ is the new buzzword in development economics and environmental protection, a convergence of concepts hitherto thought to be mutually exclusive. Sustainable development is defined as that which meets the need of the present without compromising the ability of future generations to meet their own needs. A corollary of this is the necessity of making those who meet their needs from the soil and water to understand the imperative of using these resources responsibly. In other words, they need to understand and buy into the greening of the economy. This paper reports a small terminological project for translating “green” and related terms, as a contribution to the grassroots popularization of the green economy concept. The extraction of terms was done manually and concept relationships used in the analysis of source terms prior to term creation, to create morphological series and other paradigms. The major method of term creation used was composition. Fine distinctions in meaning between near synonyms were made. This project demonstrates that any language can express any conceivable concept. 105 terms were created, including derived terms.

Keywords: Development Communication, Green, Terminology, Translation

Ìfààrà-àgékùrú

“Ọrò-ajéelètù”jé ọrò titun nínú èkó ọrò-ajé onídàgbàsókè àti idáàbòbò àyíká. Ó jé àkópò èrò méjì tí wọn dàbí aláìbàratan. Oríkì idàgbàsókè aláìlòtónipé ó jé èyítí ó mójútó àìní àwọn tówà lówólówò, láìṣe ìpalára fún àìní àwọn iran ọjó-òlá. Àwọn tí wọn n lo àwọn ọrò àbáláyé bí ilẹ̀ àti omi fún àtíjẹ-àtímu ní láti mò ìpòndandan lílò àwọn ọrò wònyí ní àlòtò, àti l’òná to sànjùlò. Kí a kuku sọpé, kí ìsọrò-ajé dí èlètù yé wọn, kí wọn sì fowósowópò pèlú àwọn tó n ṣe agbàterù rẹ̀. Àpilẹ̀kọ yìí jé àbò ìṣe-àkànṣe kékeré kan tó dálérí sísèdà ọrò fún “green” àti àwọn ọrò tó bá a tan. A ṣe eléyí láti polongo èrò tó jẹmó “ọrò-ajéelètù”. Àfowosé ní a fí yọ awọn ọrò fún ìṣèdà; a sìṣe ibátan láàárín àwọn ọrò-orisun. A fí eléyí ṣe itólèṣeṣe àwọn èyà-ọrò àti awọn ibátan miiran. A wá ṣe àwọn iyàtò ọ̀rínkínniwin láàárín àwọn ọrò onitumò afarajọra. Ohun ti àpilẹ̀kọ àbò-iwádí yì fihàn ní pé bí ọkàn-èniyàn bá lè rò ó, èdè èniyàn lè sọ ó. Ọrò àpilẹ̀sèdà marún-úndin láàádófà (105) ni ìṣe yígbé jade, nínú èyí tí àwọn ọrò atínú- ọrò-mújáde

Kókó-ọ̀rọ̀: Ìbànisọ̀rọ̀ ajẹmọ̀ idàgbàsókè, Èlètù, Ìṣèdà-ọ̀rọ̀, Aáyàn-ògbufò

1.0 Introduction

This paper investigates connotations and collocation of the adjective green, preparatory to making sense of the concept of “green economy” in the Yorùbá language. ‘Green economy’ is the new buzzword in development economics and environmental protection, a convergence of concepts hitherto thought to be mutually exclusive. The definition of sustainable development that is most frequently used is found in the 1987 report, Our Common Future, of the United Nations World Commission on Environment and Development (WCED), as "development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs" (1987: 1). Intergenerational equity, or treating future generations fairly, is the main objective. A corollary of the definition of sustainable development as that which meets the need of the present without compromising the ability of future generations to meet their own needs is the responsibility laid upon linguists to facilitate that those who meet their needs from the soil can understand and discuss the imperative of using land responsibly. In other words, people need to be helped to understand and buy into the greening of the economy.

Grassroots engagement is crucial for the attainment of the 17 sustainable developments goals (SDGs), specific targets that countries adopted on September 25, 2015 to end poverty, protect the planet and ensure prosperity for all. The SDGs are the most recent of strategies by governments to lead their nations out of the prolonged global energy, food and financial crises, with green economy (in its various forms) being proposed as a means for catalysing renewed national policy development and international cooperation and support for sustainable development (<https://sdgs.un.org/goals>). In a US study, Bruine de Bruin *et al.* (2021) found that non-specialists did not understand eight terms commonly used by scientists, including “sustainable development”, “carbon-neutral”, and “adaptation”. The problem is compounded for those who have no facility in English or one of the other UN working languages. They are doubly excluded because the information is available only in a foreign language.

Growing international interest in green economy has resulted in a rapidly expanding literature including new publications on green economy from a variety of influential international organisations, national governments, think tanks, experts, and non-government organisations (<https://sustainabledevelopment.un.org/topics/greeneconomy>). Nevertheless, there is no internationally agreed definition or universal principles for green economy, and several interrelated but different terms and concepts have emerged over recent years (such as green growth, low carbon development, sustainable economy, steady-state economy etc.).

There is a proliferation of terms, and there is a need to help people who have facility only in their indigenous languages to make sense of it. This is the justification for this research. Technical terminology is crucial in popularizing development programmes of a technical nature. Bamgbose (1994) proposes five elements that should go into a broader definition of development. He suggests, first, that it should be of a sort that is integrated, with economic development being linked to social and cultural development, and the combination of all three designed to improve the condition of all classes of people in society. His fifth suggestion is that economic development must include mass participation and grassroots involvement in order to ensure that it is widespread and genuine. This requirement for mass participation means more people must be reached with information they can understand and respond to: “people must find their own language to articulate the world in their own language, to articulate the world in their own terms and to transform reality in search of their own dreams” (Pasquali 1997:33).

More to the point, in recent publications on green economy or green growth, international organisations have begun to address these knowledge gaps and demystify the different concepts associated with green economy. This paper, a report of a small terminology project in the Yorùbá language of South-Western Nigeria, is a contribution to the demystification. A by-product of this is the revitalization of Yorùbá, for as terminology devised in this and similar works becomes widely known and used, the utility of the Yoruba language increases. As people find out that they can use their language to do more things, younger generations are encouraged to acquire and use the language, and this would prevent language death.

The rest of the paper is structured as follows. A review of issues in terminology development and how the present research is situated in it is briefly presented. This is followed by a review of issues in colour terminology. The methodology of term creation is presented: the manual extraction of terms, the analysis of concept relationships to create morphological series and other paradigms used in the analysis of source terms prior to term creation, the creation of terminology files, and the proposal of equivalents for the source terms.

2.0 Terminology Development

There are various factors that necessitate terminology development. It frequently occurs in “large” European languages like French, German, or Russian to fill in the gaps brought on by advances in science and technology. According to Beisembayeva and

Zharkynbekova's (2014) review of terminology standardization initiatives in four languages—English, French, German, and Russian—the introduction of new terms into subject areas, particularly in rapidly expanding fields, presents a significant challenge for technical communicators in terms of clarification, definition, and revision of term meanings. Terminology augmentation, which is the most accurate description of this situation, has two strands: “generate and validate” and “extraction from corpora” approaches (Iwai et al., 2016). Automatic term extraction can be performed on parallel corpora, such as those published by Tufis et al. (2004) and Lohar and Way (2020), or on comparable corpora, as in Pinnis et al. (2012). In their excellent review of the literature, Iwai et al. (2016) highlight the fact that the majority of the studies make use of contextual information or co-occurrence inside aligned segments of contextual similarity.

The present work belongs to the extraction from corpora strand. Yoruba terminology development has recorded significant progress in the last ten years. Through a partnership between medical experts (medical doctors, nurses, pharmacists, and microbiologists) and language experts, three bilingual glossaries of HIV, AIDS, and Ebola-related terms were published in 2017 for Hausa (Amfani & Ibrahim 2017), Igbo (Igboanusi & Mbah 2017), and Yoruba (Yusuff, Adetunji & Odoje 2017). The bilingual glossaries provide authoritative definitions and concise explanations for a variety of terms used in HIV, AIDS, and Ebola discourses as well as practices and medical issues connected to the epidemics. They were specifically developed with medical professionals and patients in mind. The entries cover a wide range of topics, including ailments, signs and symptoms, drugs and drug administration, illness management and control, techniques and equipment, health service organizations, therapies, testing and screening, preventive behaviour, and procedures.

The glossary's primary goal was to improve communication between the Hausa-, Igbo- and Yoruba-speaking communities and the healthcare professionals who care for them, to facilitate interaction and lessen the negative perceptions and attitudes about the disease conditions.

Other works include terminology of football (Komolafe, 2020a), human diseases (Olupona, 2020), and agriculture (Komolafe, 2020b), which attempted to revise some terms earlier published. He notes rightly that “pest” \neq *kòkòrò àyònilénu*, as NERDC has it, as a pest is not necessarily an insect. He proposes four candidate terms: *agbógún-tòkò* (lit. attacker of farm); *asèpalàrafòkò* (lit. agent of harm to farm); *ayòkolénu* (lit. troubler of farm); and *abokojé* (lit. destroyer of farm).

The Colour Green

Colour refers to that aspect of an object that may be described in terms of hue, lightness, and saturation, associated with the visible wavelengths of electromagnetic radiation, which stimulate the sensor cells of the eye (Nassau, 2022). This definition may lead one to conclude that colour can be identified by a set of objective criteria. Berlin and Kay (1969) conclude that there are similarities in the ways that different languages with the same number of basic colour terms (BCTs) carve up the colour space, and that there is an order in which languages acquire BCTs. In a revised theory, colour term development is viewed as re-categorisation rather than addition (Kay, Berlin et al., 2009).

Other research shows that languages categorise colour in different ways. In some North American, Mesoamerican Indian and African languages, there is a basic megacategory “grue”, which covers the colour region categorised by English speakers as green and blue (Hardin, 2013). In Russian, “blue” is a megacategory: covering *goluboi*, “light blue”, and *sinji*, “dark blue”. In addition, there are languages that have no words for the concept “colour”, including the Australian language Warlpiri (Wierzbicka, 2008) and Candoshi, spoken by an indigenous people from the Upper Amazon (Surrallés, 2016).

Green is formed as a mix between two primary colours, blue and yellow. Green is a significant colour because it occurs in profusion in nature. It is therefore not strange for it to find its way into the metaphors we create to make sense of the world around us. Green is said to stand for ‘nature, spring, and rebirth’, it is ‘the colour of life, renewal, and nature, is associated with meanings of growth, harmony, freshness, safety, fertility, and environment.’ As the emblematic colour of Ireland, green represents the vast green hillsides, as well as Ireland’s patron saint, St. Patrick, and in the Nigerian national flag, it represents agricultural productivity. Green altar cloths/vestments are used in standard Catholic masses in between seasons of celebration and special observances, being indicative of plants and trees, representing growth and hope for life eternal (<http://peopleof.oureverydaylife.com/catholic-altar-cloth-colors-2303.html>).

Many metaphorical constructs that involve the colour green are culture-specific. According to colour psychologist Smith, green has the following associations in different parts of the world: in Iran, green, alongside blue-green and blue are symbolic of paradise; in Japan, green is regarded as the colour of eternal life (Smith, 2017). In Aztec culture, green was the colour of royalty on account of the quetzal plumes used by the Aztec chieftains and in the Scottish highlands, green was worn as a mark of honour. Green also has close ties with

Islam, and Prophet Mohammed is said to have worn a green cloak and turban

(<https://lammuseum.wfu.edu/exhibits/virtual/faith-five-world-religions/islam/>)

From the perspective of using colours for effective messages, it is useful to be sensitive to both universal and cultural connotations of colours since ethnic and cultural backgrounds inspire specific colour associations. For instance, in many western countries, green symbolizes good luck (shamrock), youthfulness, ecology, and fertility. However, in China green stands for disgrace and exorcism; in the USA it is associated with money and wealth but also with envy and poison; in many South American cultures it represents death. In the Middle East green is the colour of Islam; but in parts of Indonesia it is forbidden. (<http://commdesign.ca/tag/colour-connotations/>).

A related issue is that of colour hues. Green has been identified as having the following shades: emerald, sea green, sea foam, olive, olive drab, pea green, grass green, apple, mint, forest, lawn green, lime, spring green, leaf green, aquamarine, beryl, chartreuse, fir, kelly green, pine, moss, jade, sage, yellow-green, sap, viridian. In Nigeria, one can get wedding invitations requesting guests to wear army-green or GLO-green. Different shades of green may signify different things: dark green represents greed, ambition, and wealth, while yellow-green stands for sickness, jealousy, and cowardice, and olive green is the traditional colour of peace.

These colours show up in metaphors, some with positive and others with negative connotations. Someone with a “green thumb” (US) or “green fingers” (UK) has an unusual ability to make plants grow. Performers relax in a “green room”, projects get the “green light” on which they might get to spend the “greenback” (a US dollar bill) even though they might employ greenhorns (trainees/novices). From Psalm 23 has come the metaphor of “greener pastures” and “grass is greener”, a reference to a place of better opportunities. Contrariwise, a “green-eyed monster” is a jealous person and is usually “green with envy”, and someone who is “green around the gills” has a sickly or pale appearance. Someone who “turns green”, looks pale and ill as if s/he is going to vomit but when they “go green”, they make changes to help protect the environment, or reduce waste or pollution.

Green in the Yorùbá Language

Green has several equivalents in the Yoruba language. For the concept ‘unripe’, the preferred designation is ‘*dudu*’, as in the proverb, *ògèdè dúdú kò yáa búṣán; ọmọ burúkú kò yáa lù pa* (green plantains cannot easily be eaten raw; a recalcitrant child cannot be easily flogged to death). In biblical translation, two other terms are used in addition to *dudu*. For

example, **green** pastures (Psalm 23:2) is translated: *papa oko tutu* (*BibéliMímó*, *Bibeli Ìròyìn Ayò*), green plants (Psalm 37:2) is *eweko tutu*, green leaf (Proverbs 11:28) is *koriko tutu*. Other terms are descriptive of freshness. For example, **green** in Job 8:16 is *tí a bomirin* (*Bibeli ÌròyìnAyò*), or *tutu yòyò* (*BibéliMímó*) and green figs (Songs of Solomon 2:13) is *èsoòpòtò tuntun*. None of these equivalents for **green** conceptualize a colour.

Yorùbá basic colours are *dudu* (black, dark), *pupa* (red) and *funfun* (white). In recent times, equivalents have been derived for other colours. For example, Odetayo (1993) presents the following equivalents for the colour spectrum: red is *epón*, orange is *osàn*, yellow is *iyeyè*, green is *ewé*, blue is *oféfe*, indigo is *aró* and violet is *èsè-àlùkò*. Other proposed equivalents for green are *àwöewéko/ aligà* (<https://www.abibitumikasa.com>); *ewé*; *aláwò ewéko*, *aláwò óbè*, *dúdú*, *àwoewé*, *òdò*, *àipón*, *àidè*, *tutu*, *òbèdò* (<https://glosbe.com/en/yo/red-green-blue>), *àwò obedo* (www.awayoruba.com/forum) *àwò ewé* (polymath.org/yoruba_colors.php).

The problem is that these equivalents would not be appropriate in concepts like “green revolution”, “green growth”, or “green economy”. For example, “green growth” cannot be rendered as *ìdàgbàsókè aláwò ewéko*, *ìdàgbàsókè dúdú* or *ìdàgbàsókè tutù*. *Ìdàgbàsókè ewé* would even be worse because development does not contain the feature plus colour. The nonsense sentence used in elementary linguistics classes comes to mind: “Colourless green ideas sleep furiously”. Since these equivalents obviously do not capture the concept of “green” that is required, a concept analysis is called for, and the creation of a new set of designations for “green’ and other related terms.

3.0 Research Method

3.1 Generation of Source Terms

This is a two part process: term identification and term extraction. The first part involved the recognition and selection of designations. Basically, this meant going over texts and choosing the terms to be retained for study and possible dissemination. The basic skill needed here is the recognition of the terminological units. In specialized languages, a term is a linguistic unit made of a single word or a word combination, and is usually associated with the same conventional definition when used by speakers of a given specialized language, including symbols, chemical or mathematical formulae, official titles, etc. (Gorodetsky 1990). The second part involved going through a corpus in order to identify concepts and their designations (terms, abbreviations), recording them and noting any relevant information about a concept such as definitions, contexts, and usage labels. In this work, source terms

were taken from ten online general purpose texts dealing with green economyⁱ. The terms were manually extracted after manual highlighting the beginning and the end of each term's context so the data could subsequently be transcribed on a terminological record for analysis. A total of 143 terms were initially extracted in this manner.

3.2 Concept Analysis

Concepts enter into different kinds of relationships among themselves. The relationships are of two kinds, namely, hierarchical and associative. Hierarchical relationships are sub-divisible into two: generic-specific and part-whole. All these relationships were used to structure knowledge and assign source terms to paradigms to ensure concept-designation monosemy, create generic-specific and associative morphological series, following Olubode-Sawe (2010). As Odetayo (1993:1) suggested, near synonymous terms were treated together by assembling synonyms in the target language and matching them. Existing terms were sought from the following texts with the following short forms: *Quadrilingual Glossary of Legislative Terms* (QG), *Yoruba Modern Practical Dictionary* (YMPD), *A Dictionary of the Yorùbá Language* (DYL) and *A Yoruba Vocabulary of Building Construction* (YVOC).

Where an existing suitable equivalent could not be found, a term was devised for the source term, based on terminological definitions extrapolated from definitions taken from online general purpose dictionaries.

4.0 Results and Discussion

From the 10 texts studied, green occurred in such noun phrases as 'green buildings', 'green business', 'green economy', 'global green economy', 'green economy policies', 'green economy programmes', 'green growth', 'green industry', 'green industry sector', 'green investment', 'green job', 'green market', 'green options', 'green sectors', 'green technologies', 'greener policies and regulations', and 'greenhouse gas emissions'. It also occurred as complement of verbs: as in 'be... green', 'make...green', 'being green', 'go green', 'considered green'.

From six selected definitions of "green terms", some recurring meanings were isolated: 'environmental friendliness', and 'a concern with sustainability and with natural resources'. It was decided that designations for 'green' would focus on these meanings. Related concepts found in the corpus include: *bioenergy, carbon, climate change, degradation, depletion of ecological assets, ecology, environment, renewable energy and*

sustainability. It was decided to focus on these concepts that are somewhat related to the environment, and propose designations for these key terms, and thereafter generate terms for related concepts. The relationships were highlighted using a concept diagram, shown in Figure 4.1 below.

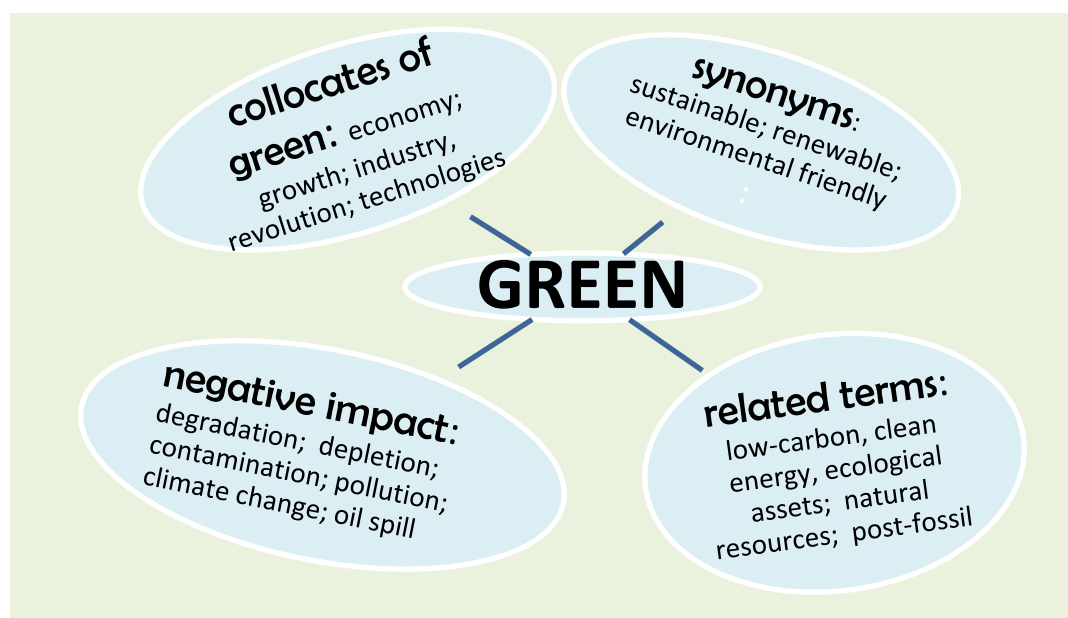


Figure 4.1: Concept Diagram of GREEN and Related Terms.

After an understanding of relationships between the concepts for which terms were to be created, terminological information was recorded in terminology case files (TCF) which show the ISO 639-1 language code (en for English and yo for Yorùbá); then the term and its word class in brackets. On the next line is a terminological definition (DEF), the source of the term, if borrowed from another language or its morphological composition, if an indigenous term (←), synonyms or variants (SYN) and any equivalents (EQ). Observations, in form of comments by specialists (OBS) and References (R) indicating the textual sources, where available, are also included. The TCFS for **green**, **biodiversity** and **habitat** are presented below. The slot for equivalent is still empty because no term has been found for **green**.

En	GREEN (ADJ)	simple term, ADJ
DEF	environmentally responsible and resource-efficient; producing no negative impact the local or global environment	
SYN	renewable; sustainable	

Yo	Lónà to bẹ̀wọ̀ fúnàyíká, tíkòsì fí àlùmónìṣòfò; tí kò sí mu ìpalàrabaàyíká, yálàtiagbẹ̀gbẹ̀kàntàbíkàriáyé.	
EQ	?	
OBS	Terms must be created separately for synonyms	

Figure 4.2: Terminology Case File for ‘Green’

n	BIODIVERSITY (N)	complex term, N
DEF	the variety of plant and animal life in the world or in a particular habitat, a high level of which is usually considered to be important and desirable all species and living things on Earth or in a specific ecosystem	
SYN	biological variety; ecological diversity (narrower); ecosystem diversity (narrower)	
Yo	bíonírúúrúewékoàtièranko(ohunoníyè) sẹ̀pọ̀ tóníàgbáyétàbíníibùgbé-àbáláyé	
EQ	?	
OBS	Terms must be created separately for synonyms	

Figure 4.3: Terminology Case File for ‘Biodiversity’

En	HABITAT (N)	simple term, N
DEF	The conditions suitable for an organism or population of organisms to live and thrive	
SYN	natural environment; natural home	
Yo	àwọnibátí ó fàyègbáoníyètàbiàgbájọ̀pọ̀ oníyèlátigbéàtilátipọ̀ síí	
EQ	ibùgbé-àbáláyé	
OBS	synonyms are merely descriptive; terms not needed	

Figure 4.4: Terminology Case File for ‘Habitat’

After the creation of terminology case files, the next step was to generate candidate terms as equivalents. First, existing dictionaries and terminological works were scanned to see if appropriate terms existed for any of the source terms. Table 4.1 shows the results of the matching of existing terms for three concepts.

Table 4.1: Matching of Existing Terms for Near Synonyms

	QG	YM	DYL	YVOC
Contaminate	----	latifiabuku kan nnkan	ba...je	----
contaminant	asọdidibaje	----	----	----
Contamination	isọdidibaje	----	Ibaje	
Degrade	----	ẹlọ	re...sile; ye nipo	----
Degradation	----	----	----	----

Biodegradation	----	èlò èlà-iyè	----	----
Pollute	----		ba...je; so di aimo	
Pollution	Ìtoróṣí	ibayikaje	ibaje; aimo; eeri	ìṣodeléèèrí
atmospheric pollution	----	----	----	ìsojú-sánmò-deléèèrí

As can be noticed, there are many gaps, representing concepts for which no terms currently exist. In addition, they are concepts for which the same terms are used. It is therefore necessary to propose terms for these gaps and ensure that they are used in a consistent manner, with an eye on the derivations that may arise. For example, **degradation** occurs as a source term in data, but not **degrade**, **degradable**, **biodegradable**, **non-biodegradable** or **biodegradation**. However, it is necessary that whichever term is chosen or created for **degradation** should be of a kind that will generate the base morpheme **degrade** and all its derivations.

Most of the terms in this work were created by composition. Composition is the process of combining morphemes, words, or even phrases from a language to produce new expressions that signify new concepts.(Olubode-Sawe, 2013). The three compositional strategies of description, translation, and idiomatisation make use of these combinations. Composition by description includes describing a tangible object while mentioning a few of its essential features, which may include the object's function or application, its construction or use, its physical appearance, its behaviour, and any other peculiar characteristics. The second method of composition is loan translation. This requires morphemes from the source term to be translated into the target language. Each morpheme in a borrowed phrase therefore has an equivalent in the recipient language. Like the second method of composition, idiomatisation, which also combines morphemes, words, and phrases, the meaning of the word or term formed does not come from the combined meanings of its combining components. Rather, the combining units are used in puns, euphemisms, and other ways that show innate intelligence. Three Yoruba instances are given by Olubode-Sawe (2010): *adéedádì*, *àrùngbajúmò* and *bósìkòrò*. In *adéedádì*, *adé*, (“crown,”) and *dádì*, (“daddy,”) are combined in *adéedádì* (literally, “daddy's crown”) for “condom”.

Table 4.2 shows three concepts describing negative impacts on the environment and their derivations.

Table 4.2: Creation of Terms for Near Synonyms

Base Source Term	Derivations	Proposed Equivalents	Another equivalent?
CONTAMINATE		sọ...dàimò;	
	contaminated	àsọdàimò	
	contaminant	asọdàimò	
	Contamination	isọdàimò	
DEGRADE		díbàjẹ (non-trans) sọdídibàjẹ (trans) wópàlẹ (trans./non-trans)	
	Degradation	isọdídibàjẹ/iwópàlẹ	
	Degradable	aşéwópàlẹ	
	biodegradable	aşéfohun-abẹmiwópàlẹ	aşéfoníyèwópàlẹ
	non-biodegradable	aláişéfohun-abẹmiwópàlẹ	aláişéfoníyèwópàlẹ
	biodegradation	ifohun-abẹmiwópàlẹ	ifoníyèwópàlẹ
POLLUTE		toró...sí	
	Pollution	Ìtorósí	
	atmospheric pollution	ìtorósíju-sánmò	
	environmental pollution	ìtorósíàyíkà	

In creating terms for **green** and related terms, it became obvious that the semantically transparent options could not be used for green because the concept of “green economy” itself involves metaphorical construal. This matter had been earlier raised when it was pointed out that *idàgbàsókè aláwọ ewéko*, *idàgbàsókè dúdú* or *idàgbàsókè tutù* would not be appropriate equivalents for “green growth”. From the definitions of “green” terms, some distinguishing characteristics appeared and were grouped under three as shown in Table 3. In creating the term for bio- (living), the options were *abẹmí* (having a spirit) or *oníyè* (having life). It is conceivable that plants have life, but not spirits. This is subject to debate: with questions about whether plants have souls or consciousness. Marder 2011 addresses the issue of plant soul, and a 1968 experiment by Cleve Backster seems to support that plants have feelings. Plants react to pain and seem to be able to react to the thought of being harmed. I have side-stepped the issue, by selecting *oníyè*, using that term in all bio- constructions.

Table 4.3: Green and Related Terms

Definitions of green	Environmental friendliness	sustainability	Natural
environmentally responsible and resource-efficient	environmentally responsible	resource-efficient	-
no negative impact is made on the local or global environment	no negative impact on environment	-	-

reducing environmental risks and ecological scarcities, ...aims for sustainable development without degrading the environment	without degrading the environment	sustainable	-
uses natural resources in a sustainable manner	-	sustainable	natural resources
environment friendly	environment friendly	-	-
conservation of natural resources... environmentally conscious	environmentally conscious	conservation	natural resources

Based on the information in Table 4.3, candidate target terms were generated for “green” and back-translated into English, as shown in Table 4.4 below.

Table 4.4: Candidate Target Terms

Candidate Target Term	Back Translation	Remarks
aláilolèṣá,	that does not use the soil till it loses its nutrients	
aláibalèjé,	that does not spoil the soil	
aláijelèrun,	that does not consume the soil	
alálòtúnlò,	that can be used and re-used	
alálòpé,	that can be used for long	
alálòtò	that can be used in the right manner OR that can be used in a long-lasting manner	intentional ambiguity * long lasting * rightful use
asàyíkà-dòtun	that renews the environment	
abayìkà-dòrèṣe	that makes friends with the environment	

Green is of course all these and more. The main task was to find a culturally relevant Yorùbá expression that will recall the characteristics of retained fertility, abundance, comfort. (These candidate terms will not be wasted but be used in the definition of the term.) The proposed term is *ilè-ẹlẹ̀tùlọ́jú*. This phrase is traditionally used to describe soil that is fertile; as a matter of fact, it calls up associations of life, renewal, and nature, growth, harmony, freshness, safety, fertility, and environment; all the associations of green, except the colour. Previous uses of *ẹlẹ̀tùlọ́jú* includes *ilú-ẹlẹ̀tùlọ́jú* in the anthem of Áwẹ town in Òyó State, and ‘*Wanihin, wanihin, si’lẹ-ẹlẹ̀tùlọ́jú*’, in the refrain of CAC Hymn 956. *Ilẹ̀-ẹlẹ̀tùlọ́jú* is a ‘green land’, the noun-head has been deleted and the qualifier *ẹlẹ̀tùlọ́jú* retained as the equivalent for **green**. Examples of *ẹlẹ̀tùlọ́jú* and its collocates are: *ibá-ìkólẹ ẹlẹ̀tùlọ́jú* (green building), *ilana ọ̀rọ̀-ajẹ ẹlẹ̀tùlọ́jú* (green economy policies), *idàgbàsókẹ ẹlẹ̀tùlọ́jú* (green growth) and *idókòwò ẹlẹ̀tùlọ́jú* (green investment). Other terms include *ìsọ-tẹ́dátàyíkà-dìdibàjẹ* (ecological

degradation) *àìfàlùmónìṣòfò* (resource efficiency), *àwùjòasàìfàkèkù-oníyèsagbára* (post-fossil society), and *àwọnorìsunalálòtúnlò* (renewable sources). One hundred and five designations were created in this manner.

An entry for green economy would therefore be as follows:

En	Green economy (NP)	simple term, N
DEF	A system of production in which activities are carried out in an environmentally responsible and resource-efficient manner, with little or no negative impact on the local or global environment	
Yo	orò-ajé ẹlẹ̀tù	
Oríkí	Ètò isenńkan-jáde nínú ẹ̀yí tí àwọn àgbẹ̀ṣe jẹ́ abòwòfáyiíkà àti aláìfàlùmónìṣòfò, tí kò sì ẹ̀ ipalára (púpò) fún àyíkà, yálà ní itòsì tàbí káráiyé	

Figure 4.5: Terminology Case File for “green economy”

The terms were shared via WhatsApp with a group of ten competent Yoruba speakers: three linguists, two engineers, one applied geologist with special interest in ecology, one cooperative official who attends a Yoruba-speaking church and ministers in the medium of Yoruba and two others. Their suggested modifications are presented in bold red letters and asterisked. A strikethrough indicates that the suggestion is problematic in some way. For example, “omi-ilẹ̀ àti ilẹ̀ tó ti dàimọ̀” is not only too long, it lacks the agentive morpheme “sọ di-”. The point of contamination is not that something is unclean, but has been made unclean by an external agency.

5. 0 Conclusion

This paper set out to do two things: first, to show that we need to carry monolingual users of our indigenous languages along in development efforts. A revolution involves mass action, and English-speaking scientists in their rarefied laboratories and technical sessions of conferences cannot constitute the critical mass needed to start or sustain a revolution. The sustainable development goals must be owned by the masses; all things green must be demystified so that people can participate. Ondo State Oil Producing Area Development Commission (OSOPADEC) commissioned indigenous language versions of their vision and mission in 2017. In preparing the Vision, Mission and Core Values of the Commission, ecological responsibility was listed as a core value. But what does it mean? The phrase was unpacked in the following manner:

Ecological Responsibility

Using natural capital in a resource-efficient and sustainable manner, as trustees
of present and future generations

Ìbòwò fún Àyíká

Lílo àwọn ọrọ̀ àbáláyé ní àyíká l’ónà to sànni jùlọ̀, ti yóó sì ní àlòtọ̀; gégé bí
àlámòòjútó ogún àwọn ìran òní àti àrómọ̀dọ̀mọ̀ wọ̀n

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The second goal was to show that it can be done. Therefore terms were created by locating, evaluating, using, transforming, and/or modifying existing resources, relying on the compositional strategies of description, translation, and idiomatisation. The analysis of word meanings and semantic fields was linked to the analysis of the characteristics of specialized concepts (to be designated) and the disciplinary knowledge structure formed by the links between the concepts. Devising a designation for the key term, “green economy” involved metaphorical construal, since the source concept itself is a metaphor. The task was to select an existing metaphor that fit, rather than create a new one. Nevertheless, composition still featured in the process.

In attaining the second goal, what is required is the will, the cooperation of technical and language experts, and enough respect for our indigenous languages to know that if we can conceptualize an idea, our languages can express it. The terms may not sound very smooth to start with, and there are times that it will seem cheaper to just keep the information conveniently in foreign languages. Respect for our indigenous languages must, therefore, be accompanied by a respect for the rights of those whose only way of making sense of the world is in these languages.

The first goal of this paper was to demonstrate that terminology development can contribute significantly to development communication. The second goal was to demonstrate the feasibility of creating terms using existing resources and compositional strategies. The analysis of word meanings and semantic fields was linked to the identification of specialized concepts and the disciplinary knowledge structure.

Postscript: 2022¹

OSOPADEC commissioned me to do the Yoruba version of their vision and mission in 2017. I checked the website of OSOPADEC in 2022. I did not find the indigenous

¹The first version of this paper was written in 2017. Since then it has gone through several rewrites and revisions.

language versions there. So, I called the consultant. He informed me that regrettably, they did not upload the indigenous language versions. In other words, even after terms have been created, users (who may have commissioned the terms) are reluctant to popularise them. We can take the horse to the river, but we cannot force it to drink.

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Appendix: PROPOSED YORÙBÁ TERMS FOR “GREEN” AND RELATED TERMS

SOURCE TERM	CANDIDATE TERM 1	CANDIDATE TERM 2	SELECTED TERM	RATIONALE
1. alternative fuels	ohun-àmúdánámiiran	ìdánámiiran	ìdánámiiran àmúdáná miiran*	Brevity
2. atmospheric pollution	ìtorósíojusánmò		ìtorósíojusánmò	sole term
3. biodegradation	ìfoníyèwópalẹ	ìfohun-abẹmiwópalẹ	ìfoníyèwópalẹ	
4. biodegradable	àṣeéfóníyèwópalẹ	àṣeéfóhun-abẹmiwópalẹ	àṣeéfóníyèwópalẹ	Transparency
5. non-biodegradable	aláìṣeéfóníyèwópalẹ	aláìṣeéfóhun-abẹmiwópalẹ	aláìṣeéfóníyèwópalẹ	
6. biodiversity	onírúuru-oníyè		onírúuru-oníyè	sole term
7. bioenergy	àmúṣagbáraoníyè	Okunoníyè	àmúṣagbáraoníyè	
8. biomass	ohun-àmúṣagbáraoníyè		ohun-àmúṣagbáraoníyè	sole term
9. carbon	kábòṇ	Èédú	kábòṇ	
10. carbon economy; 11. carbon-based economy	orọ-ajéadàléríkábòṇ		orọ-ajéadàléríkábòṇ	sole term
12. carbon emissions	ìbìjádèkábòṇ		ìbìjádèkábòṇ	sole term
13. carbon footprint	ìpasẹ kábòṇ		ìpasẹ kábòṇ	sole term
14. clean energy	okunaláìṣèéírí	Okunaláìléèéírí	okunaláìṣèéírí	more exact
15. climate change	ìyípadà-ojú-ojojó	ìyípadà-ojú-ojó	ìyípadà-ojú-ojó	Brevity
16. climate change policy (policies)	(àwọṇ) ilànàìyípadà-ojú-ojó	(àwọṇ) ilànàìràpadàìyípadà-ojú-ojó	(àwọṇ) ilànàìràpadàìyípadà-ojú-ojó	removes ambiguity
17. Contaminate	sọ...dàimò		sọ... dàimò	sole term
18. contaminant	àsọdàimò	asọhundàimò*	àsọdàimò	sole term
19. contaminated	àsọdàimò	tótídàimò	àsọdàimò	sole term
20. contaminated groundwater and soil	omi-ilẹ àtiilẹ àsọdàimò	omi-ilẹ àtiilẹ tótídàimò*	omi-ilẹ àtiilẹ àsọdàimò	sole term
21. Contamination	ìsọdàimò		ìsọdàimò	sole term
22. Degrade	sọdì...dìbàjẹ	wó... palẹ	wó... palẹ	Brevity
23. Degradable	àṣeéwópalẹ	àṣeésọdìdìbàjẹ	àṣeéwópalẹ	retains the base word 'wópalẹ'
24. Degradation	ìsọdìdìbàjẹ	ìwópalẹ	ìwópalẹ	retains the base word 'wópalẹ'
25. Deplete	lò...gbẹ			sole term
26. Depletion	ìlògbẹ	lílògbẹ		Brevity
27. depletion of ecological assets	ìlògbẹorọ àyíká	lílòorọ àyíkágbẹ	ìlògbẹorọ àyíká	keeps the pattern of the head word
28. Ecology	ẹkọ nípaèdà-ínú-àyíká	ẹkọ ajẹmọ-tẹdátàyíká	ẹkọ (ajẹmọ-) tẹdátàyíká	Brevity
29. Ecological	ajẹmédàà-ínú-àyíká	ajẹmọ-tẹdátàyíká	ajẹmọ-tẹdátàyíká	more euphonious
30. ecological crises	ìrúkerúddàajẹmédàà-ínú-àyíká	ìrúkerúddò (ajẹmọ-) tẹdátàyíká	ìrúkerúddò (ajẹmọ-) tẹdátàyíká	keeps the pattern of the head word
31. ecological degradations	ìsọdìdìbàjẹ ajẹmédàà-ínú-àyíká /ìwópalẹ ajẹmédàà-ínú-àyíká	ìwópalẹ(ajẹmọ-) tẹdátàyíká/ìwópalẹ ajẹmédàà-ínú-àyíká	ìwópalẹ (ajẹmọ-) tẹdátàyíká	ajẹmọ can be omitted in most constructions
32. ecological economics	orọ-ajéajẹmédàà-ínú-àyíká	orọ-ajé(ajẹmọ-) tẹdátàyíká	orọ-ajé (ajẹmọ-) tẹdátàyíká	
33. ecological resources	orọ ajẹmédàà-ínú-àyíká	orọ (ajẹmọ-) tẹdátàyíká	orọ (ajẹmọ-) tẹdátàyíká	
34. ecological scarcities	òwọṇajẹmédàà-ínú-àyíká	òwọṇ(ajẹmọ-) tẹdátàyíká	òwọṇ(ajẹmọ-) tẹdátàyíká	
35. ecologically sustainable	alálòtọ ajẹmọ-tẹdátàyíká	alálòtọ tẹdátàyíká	alálòtọ (ajẹmọ-) tẹdátàyíká	
36. ecological sustainability	ìlòtọ ajẹmọ-tẹdátàyíká	ìlòtọ tẹdátàyíká	ìlòtọ (ajẹmọ-) tẹdátàyíká	Brevity
37. Energy	àmúṣagbára	Okun	àmúṣagbára/okun	context dependent
38. environment	Àyíká		àyíká	existing term
39. Environmental	ajẹmáyiíká	Àyíká	ajẹmáyiíká/ àyíká	context dependent
40. environmental damage	ìbàjẹ àyíká		ìbàjẹ àyíká	

41. environmental degradation	iwópalèajemàyiiká	isàyikádídibàjé	iwópalèàyiiká/ ajemàyiiká	
42. environmental friendliness	ibayiká-dòrèé		ibayiká-dòrèé	
43. environmental friendly	abayiká-dòrèé		abayiká-dòrèé	
44. environmentally responsible			abòwòfàyiiká	
45. environmental impacts	àpálàràayiiká		àpálàràayiiká	
46. environmental pollution	ìtorósíayiiká		ìtorósíayiiká	
47. environmental risks	ewuajemáyiká	Ewuayiiká	ewuayiiká	Brevity
48. environmental sustainability	ìlòtò àyiiká		ìlòtò àyiiká	
49. fossil fuels	epoàkèkù-eranko	epoàkèkù-oniyè	epoàkèkù-oniyè	terminological exactitude
50. Green	elètùlójú	elètù	elètù	Brevity
51. be green	di elètùlójú; jé elètùlójú	di elètù; jé elètù	di elètù; jé elètù	Brevity
52. being green	jíjé elètùlójú	jíjé elètù	jíjé elètù	Brevity
53. green building technology	ibá-ìkóléelètùlójú	ibá-ìkóléelètù	ibá-ìkóléelètù	regularization
54. green building	iléelètùlójú	iléelètù	iléelètù	regularization
55. green business	isè-òwòelètùlójú	isè-òwòelètù	isè-òwòelètù	regularization
56. green economy	orò-ajéelètùlójú	orò-ajéelètù	orò-ajéelètù	regularization
57. green economy policies	ìlànàorò-ajéelètùlójú	ìlànàorò-ajéelètù	ìlànàorò-ajéelètù	regularization
58. green economy programmes	ètòorò-ajéelètùlójú	ètòorò-ajéelètù	ètòorò-ajéelètù	regularization
59. global green economy	orò-ajéelètùlójúakáriayé	orò-ajéelètùakáriayé	orò-ajéelètùakáriayé	Brevity
60. green growth	ìdàgbàsókèelètùlójú	ìdàgbàsókèelètù	ìdàgbàsókèelètù	regularization
61. green industry	isòwò-şèdáelètùlójú	isòwò-şèdáelètù	isòwò-şèdáelètù	regularization
62. green industry sector	abalaisòwò-şèdáelètùlójú	abalaisòwò-şèdáelètù	abalaisòwò-şèdáelètù	regularization
63. green investment	ìdókòwòelètùlójú	ìdókòwòelètù	ìdókòwòelètù	regularization
64. green job	isè elètùlójú	isè elètù	isè elètù	regularization
65. green market	ojàelètùlójú	ojàelètù	ojàelètù	regularization
66. green sectors	(àwọn) abala (orò-ajé) elètùlójú	(àwọn) abala (orò-ajé) elètù	(àwọn) abala (orò-ajé) elètù	regularization
67. green technologies	(àwọn) ogbón-àmúşeeelètùlójú	(àwọn) ogbón-àmúşeeelètù	(àwọn) ogbón-àmúşeeelètù	regularization
68. greenhouse	ilé-iba			semantic extension
69. greenhouse gas	aláféfè amáyé-móorusódi		aláféfè amáyé-móorusódi	
70. greenhouse gas emissions	ìbijadealáféfè amáyé-móorusódi		ìbijadealáféfè amáyé-móorusódi	
71. Habitat	ibùgbé-àbáláyé	ibùgbé-adèrùn	ibùgbé-àbáláyé/ ibùgbé-adèrùn	context dependent
72. low carbon, low-carbon	oníkábòn-kíún	alokábòn-kíún	oníkábòn-kíúnalokábòn-kíún	context dependent
73. low carbon transition	(àsiko) àyípadàsìilokábòn-kíún		(àsiko) àyípadàsìilokábòn-kíún	
74. low-carbon goods and services	ojààtiisè-ifisèrànwò alokábòn-kíún	ojààtiisè-ifisèrànwò oníkábòn-kíún	ojààtiisè-ifisèrànwò alokábòn-kíún	
75. low-carbon infrastructure	ìhun-àkòtè-ìlúoníkábòn-kíún	ìhun-àkòtè-ìlúalokábòn-kíún	ìhun-àkòtè-ìlúalokábòn-kíún	
76. low-carbon investments	ìdókòwòoníkábòn-kíún	ìdókòwòalokábòn-kíún	ìdókòwòalokábòn-kíún	
77. low-carbon sector	(àwọn) abala (orò-ajé)alokábòn-kíún	(àwọn) abalaalokábòn-kíún	(àwọn) abalaalokábòn-kíún	
78. low-carbon technologies	ogbón-àmúşeoníkábòn-kíún	ogbón-àmúşealokábòn-kíún	ogbón-àmúşealokábòn-kíún	
79. make...green	sò di elètùlójú	sò... di elètù/ sò ... deletù	sò... di elètù/ sò ... deletù	
80. natural capital	orò àbáláyé	orò àdánidá	orò àbáláyé	

81. natural ecosystem	tèdátà yíkààdánidá	tèdátà yíkààbáláyé	tèdátà yíkààbáláyé	
82. natural systems	ètòàdánidá	Ètòàbáláyé	ètòàbáláyé	
83. Pollute	torósí (ta orósí)		torósí	
84. Pollution	ìtorósí		ìtorósí	
85. Pollutant	Oró		oró	
86. atmospheric pollution	ìtorósíojusánmò		ìtorósíojusánmò	sole term
87. environmental pollution	ìtorósíà yíkà		ìtorósíà yíkà	
88. oil pollution	ìtorósíepo		ìtorósíepo	
89. oil spills	ifòndànùepo		ifòndànùepo	
90. post- fossil society	àwùjòqasàifàkèkù- erankosagbára	àwùjòqasàifàkèkù- oniyèsagbára	àwùjòqasàifàkèkù- oniyèsagbára	
91. Recycle	tún...şefúnitúnlò	túnşefúnitúnlò;	túnşefúnitúnlò; tún ...şefúnitúnlò	
92. Recycled	àtúnşe-túnlò		àtúnşe-túnlo	
93. Recycling	itúnşe-túnlò		itúnşe-túnlo	
94. renewable energy	ohunàmúşagbáraalálòt únlò	àmúşagbáraalálòtúnlò	àmúşagbáraalálòtúnlò	brevity
95. renewable resource	àlùmòniàlálòtúnlò		àlùmòniàlálòtúnlò	
96. renewable sources	(àwọn) orísunalálòtúnlò		(àwọn) orísunalálòtúnlò	
97. resource efficiency	àifàlùmònişòfò	àifàlùmònişòfò	àifàlùmònişòfò	
98. resource efficient	tíkò fi àlùmònişòfò	aláifàlùmònişòfò	láiifàlùmònişòfò/ aláiifàlùmònişòfò	
99. reuse (v)	tún ... lò		tún ... lò	
100. reuse (n)	ìtúnlò	ìtúnlò	ìtúnlò	
101. Sustainability	ilòtò			
102. sustainable development	ìdàgbàsókèalálòtò			
103. sustainable development goals	ilépaidàgbàsókèalálòtò	ifojúnsùnidàgbàsókèalálòtò	ilépaidàgbàsókèalálòtò	
104. sustainable development policy	ilànàidàgbàsókèalálòtò	ilànàidàgbàsókèalálòtò	ilànàidàgbàsókèalálòtò	
105. sustainable development path	ipanàidàgbàsókèalálòtò	ipanàidàgbàsókèalálòtò	ipanàidàgbàsókèalálòtò	

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