Does Trade Governance adapt to Ecological Change? The Integration of Biodiversity in Preferential Trade Agreements

Simon Happersberger (1), David Leclère (2), Nadejda Komendantova (2)

(1) Vrije Universiteit Brussel, (2) International Institute for Applied Systems Analysis

PRESENTED AT:

INTRODUCTION - TRADE & BIODIVERSITY

International trade embodies large amounts of biodiversity pressure through species invasions, and through habitat loss caused by telecoupled consumption. Although trade governance is a key indirect factor for these trends, it has remained understudied how Preferential Trade Agreements (PTA) have adapted to declining global biodiversity. PTAs might evolve towards polycentricity through the participation of stakeholders (Ostrom 2010), or nonlinearly create legal innovations as complex adaptive system (Morin et al. 2017), or react to the interferences of telecoupling in socio-ecological systems (Biggs et al 2021).

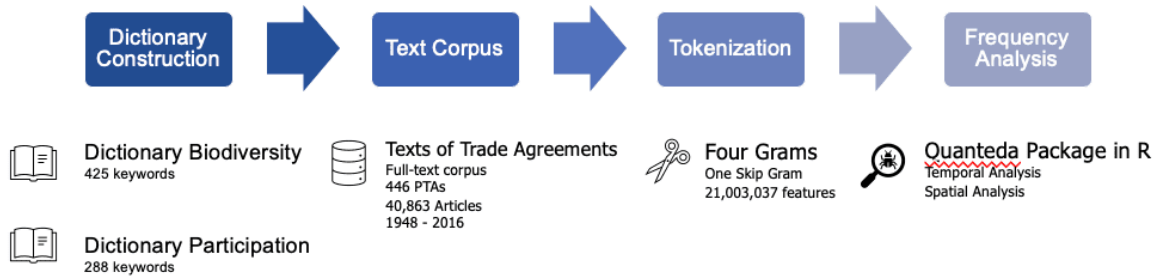
LITERATURE REVIEW - BEYOND DUALISM

It is common in the trade literature to distinguish between non-trade issues and trade issues (Zamara 1992, Lechner 2016), trade objectives and non-trade objectives (Limão 2007), or trade objectives and non-trade policy objectives (Yildirim et al. 2019, Basedow et al. 2020, Ferrari et al. 2021, Borchert et al. 2021). This study departs from this dualism and adopts a social-ecological systems perspective. From this perspective the "delineation between social and natural systems is artificial and arbitrary" (Berkes and Folke 2002). We problematize the dualist perspective, as "many of the serious, recurring problems in natural resource use and management stem precisely from the lack of recognition that ecosystems and the social systems that use and depend on them are inextricably linked" (Folke et al. 2010).

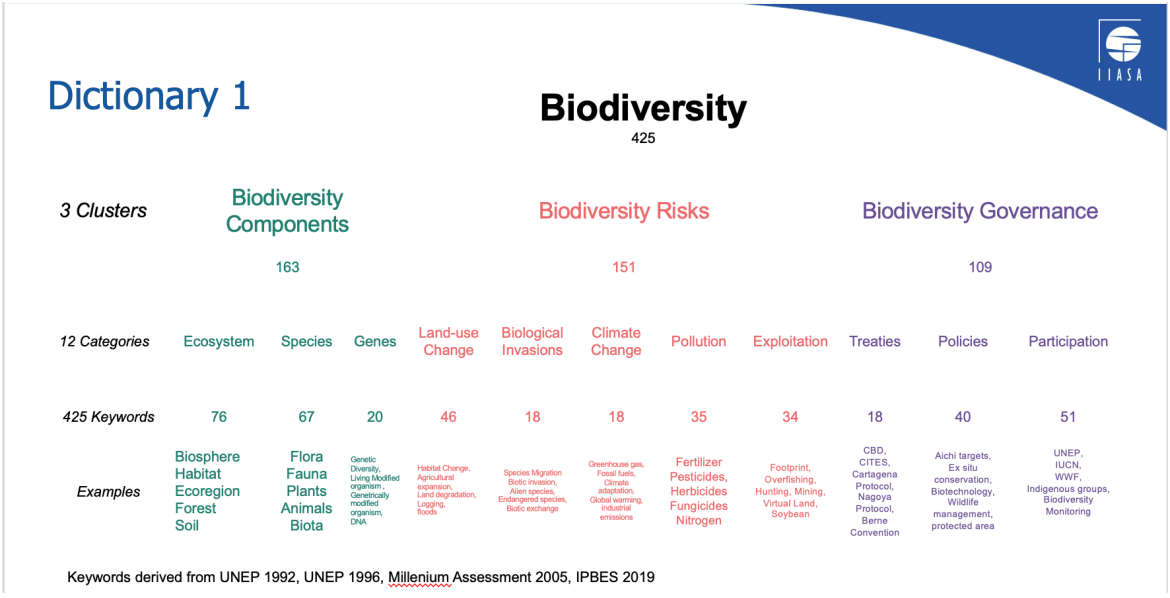
THEORETICAL FRAMEWORK - TOWARDS A SOCIAL-ECOLOGICAL SYSTEMS PERSPECTIVE

We focus on three different but interrelated systemic perspectives which treat the trade regime as (i) complex adaptive system (CAS) (Morin et al. 2017), (ii) polycentric governance system (PGS) (Ostrom 2010), or (iii) telecoupled spillover system (TSS) (Liu et al. 2018). From the CAS perspective, the trade regime coevolves with other complex social and natural systems and may adapt by non-linear legal innovation. From the PGS perspective, the trade regimes is formed by independent centres of decision-making which evolve in a sponteanous order and adapt similarly. From the TSS perspective, social-ecological systems are context-dependent, distant consumption decouples consumption from env. awareness, and accountability and efforts to govern for sustainability in one place will create ripple effects in other places. We apply these different theoretical perspectives on the interaction between biodiversity and participation in Preferential Trade Agreements.

METHOD - A TEXT-AS-DATA APPROACH



To assess the coverage of biodiversity and participation, we apply a text-as-data approach to the full-text corpus of 446 PTAs (1948-2016) from the Text of Trade Agreements project. More specifically, we construct two dictionaries on biodiversity and on participation with 425 and 288 keywords derived from the literature and complemented with keywords retrieved from bibliometric data from Scopus. The biodiversity dictionary is organized in biodiversity components, drivers of biodiversity loss, and biodiversity governance. It is further subdivided into the three established levels of biodiversity (ecosystems, species, and genes), the five drivers of biodiversity loss included in the IPBES (2019) report (land-use change, biological invasions, climate change, exploitation, pollution), and three issues reflecting biodiversity governance (biodiversity agreements, biodiversity policies, biodiversity specific participation). The participation dictionary corresponds to three levels of Arnstein's ladder of Participation (1969), nonparticipation, tokenism, and citizen power, which are each subdivided into stakeholders, forms, and purpose. Whereas the participation dictionary is directional, the biodiversity dictionary is not. Word counts reflect biodiversity relevance rather than biodiversity protection. The analysis of keyword frequencies, dynamics and co-occurences is conducted with the R package quanteda based on 4-grams allowing for one skip-gram. The machine-readbale full-text corpus of 446 Preferential Trade Agreements signed between 1948 and 2016 is retrieved from the Text of Trade Agreements project.



Dictionary 2

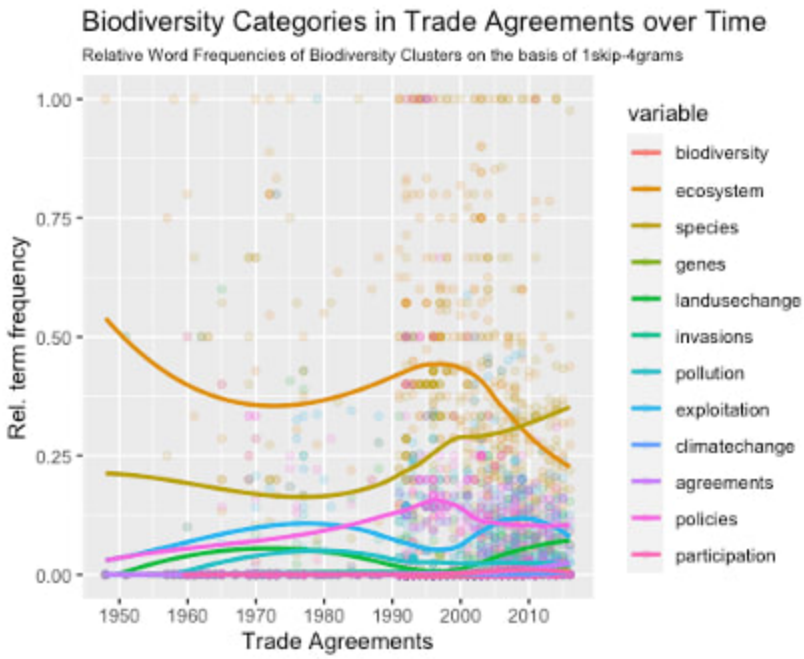
Participation

288

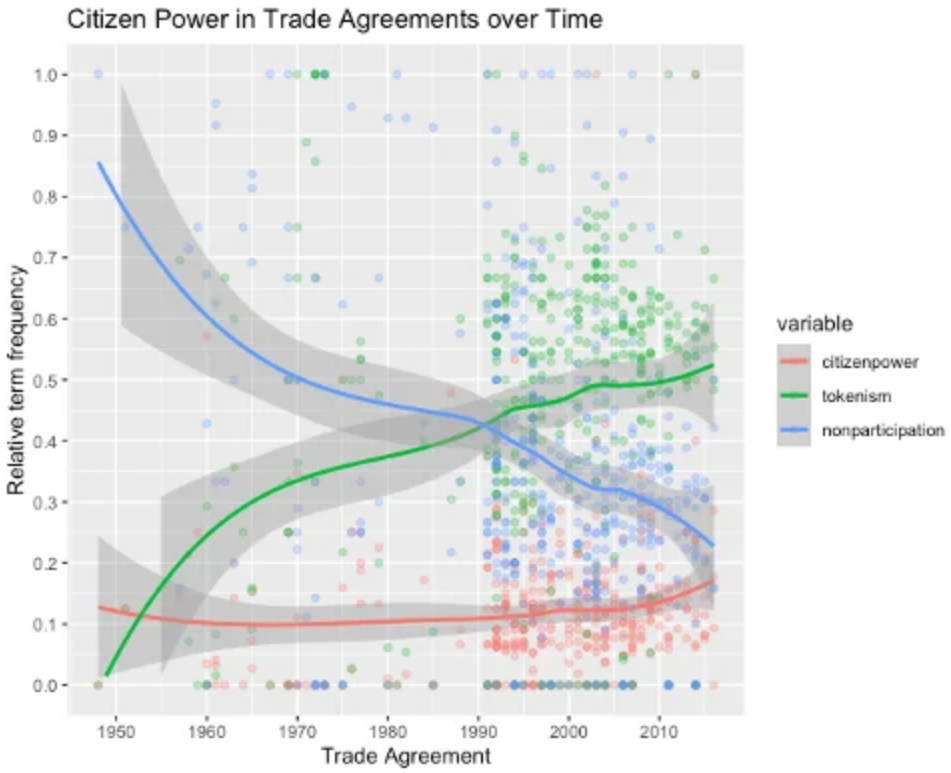
3 Levels	Citizen Power			Tokenism			Non-Participation		
	154			78			56		
9 Categories	Stakeholder	Forms	Purpose	Stakeholder	Forms	Purpose	Stakeholder	Forms	Purpose
288 Keywords	42	36	76	12	47	19	22	26	8
Examples	Civil Society, Municipalities, Indigenous communities, city, Citizen	Civic engagement, stakeholder participation, local autonomy, multi-stakeholder	Participation, Citizen involvement, power sharing, minority rights	Academia, Experts, Media, Scientists, parliament	Survey, Opinion poll, information campaign, public hearing	Citizen concern, Awareness, Acceptability, social acceptance	Shareholders, firms, decision-makers, public administration, policy makers	Public relations, top-down, communication, information dissemination	Credibility, Public Trust, Public Management, corporate governance

Keywords derived from Arnstein (1969), Komendantova et al. (2018), and UNIDO (2022) complemented by bibliometric keywords from SCOPUS

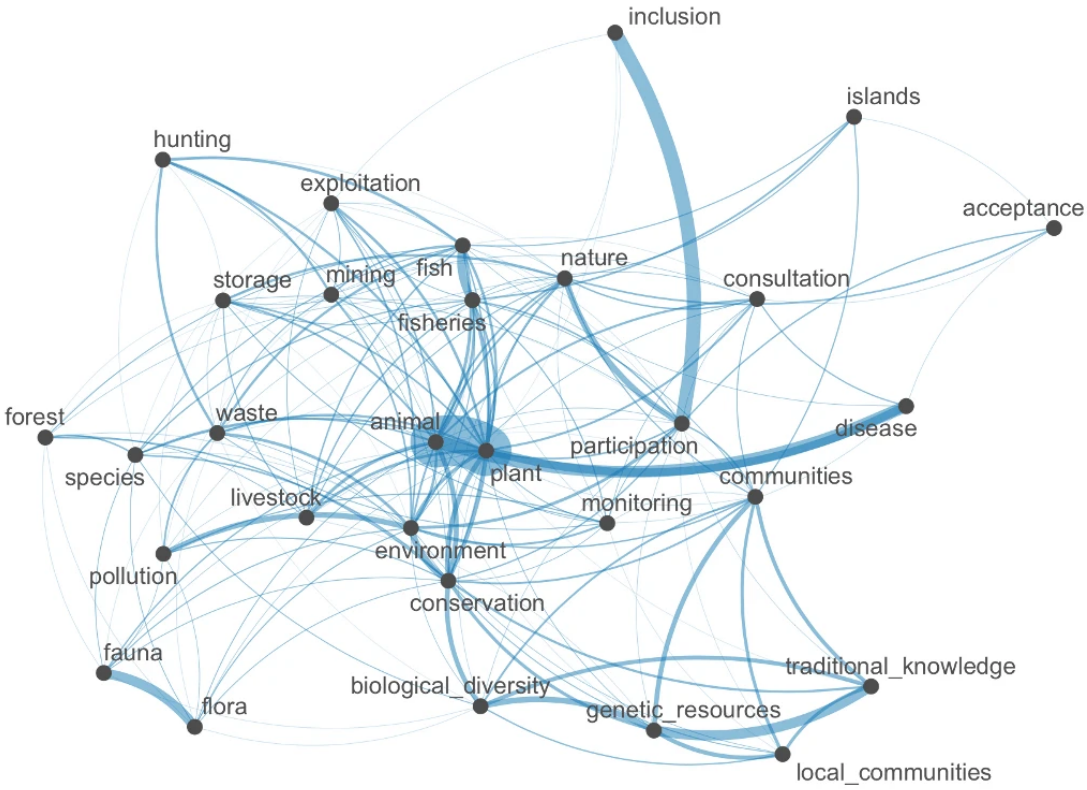
PRELIMINARY RESULTS

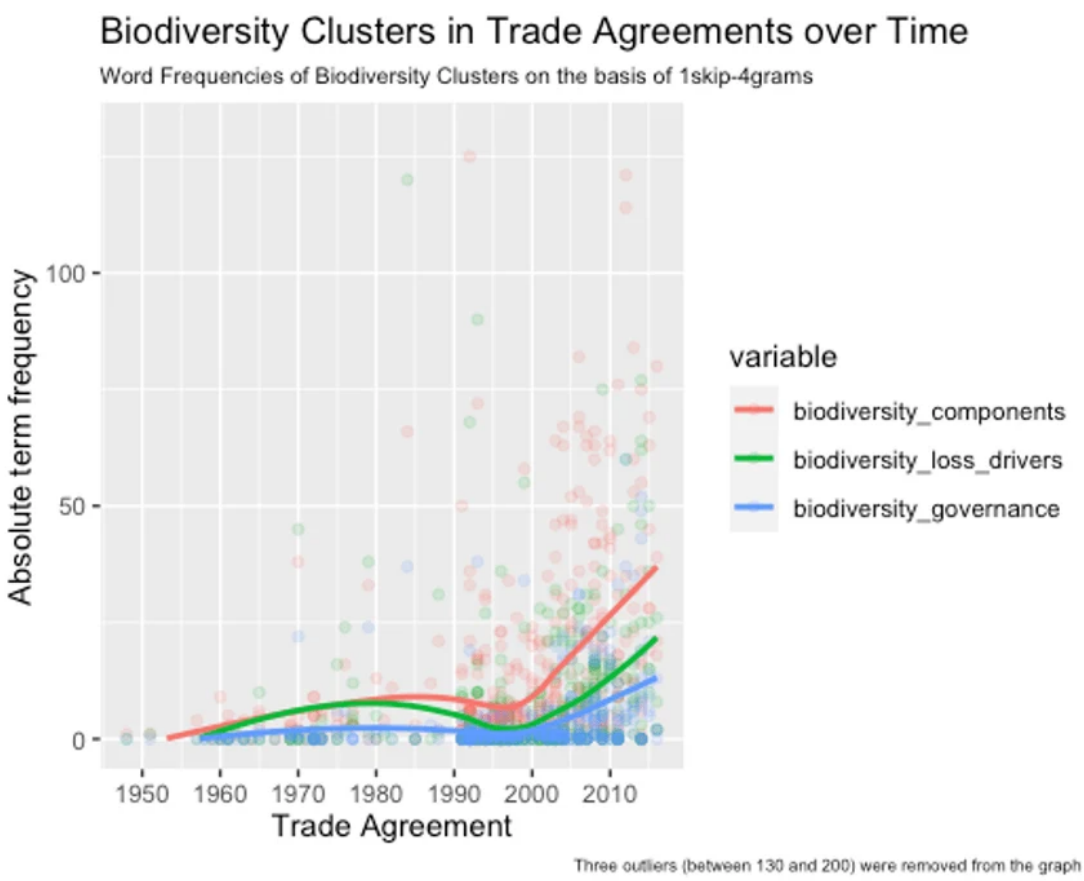


In absolute terms, PTAs have increasingly integrated biodiversity from 1950s to the 1970s and from the end of the 1990s again. In the first phase the focus is on ecosystems, however in the end-of the 1990s biodiversity keywords are becoming more diverse. Ecosystems (29%) were the most important category from 1948 until 2008, when they were replaced by species (28%). Among the drivers, exploitation (14 %) has been the focal point since 1948, however land-use change (7%) has risen rapidly since 1995. Biodiversity policies are mentioned increasingly since 2000 but have lost in relative importance since 1995. Genes, climate change, biological invasions, and agreements are all rarely mentioned, although agreements have been rising recently. PTAs have also become more participatory over time, but non-participation was replaced mainly by tokenism. Citizen power has only minimally increased since 1948. Traditional knowledge, local communities, and biological diversity cooccur as seperate subcommunity.



Top 30 Features Co-Occurrence Network




Biodiversity Clusters in Trade Agreements over Time
Word Frequencies of Biodiversity Clusters on the basis of 1skip-4grams
Absolute term frequency
100
50
0
1950
1960
1970
1980
1990
2000
2010
Trade Agreement
variable
biodiversity_components
biodiversity_loss_drivers
biodiversity_governance
Three outliers (between 130 and 200) were removed from the graph

CONCLUSION & FURTHER STEPS

PTAs have adapted only to a limited extent to declining global biodiversity. Biodiversity keywords have slightly increased and shifted focus from ecosystems to species, and from exploitation to land-use change but we do not observe a phase shift: biodiversity governance seems still to be a separate rather than an integral part of PTAs. Participation has increased in terms of tokenism, whereas citizen power has remained low for over 60 years. Future work may analyse geographical patterns around biodiversity hotspots and include data on trade and biodiversity.