



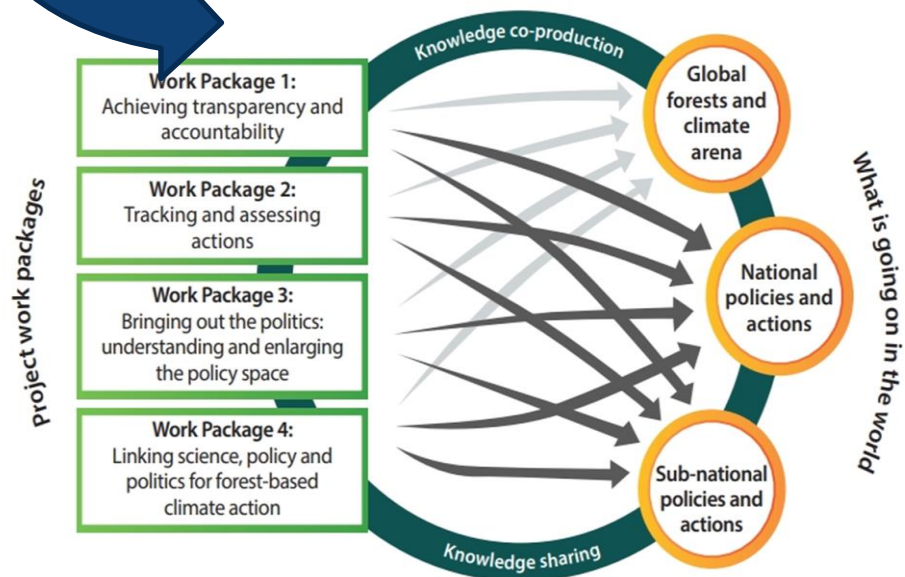
# **FLOWS OF MATERIAL, IDEAS AND FINANCE THROUGH INFRASTRUCTURES OF INEQUALITY**

**Implications for REDD+ and other efforts  
to halt deforestation**

Maria Brockhaus, Grace Wong, Patrice Bigombe, Blaise-Pascal Ntirumenyerwa Mihogo, Symphorien Ongolo, Jianmin Xiao, Samuel Assembe, Helena Varkkey, Aristide Chacgom, Daisuke Naito, Arttu Malkamäki, Sandrine Andong, Ayami Kan, Felicien Kengoum, Roger Kimpesa, Alain Fabrice Mfoulou, Niina Pietarinen, Alizee Ville et al.

# The forestry sector as an inequality machine?

Agents, agreements and global politics of trade and investment in the Congo Basin  
- FOREQUAL -



FairFrontiers

2009 - 2012  
Building a strong knowledge base and community to apply REDD+ expertise in achieving the 3Es

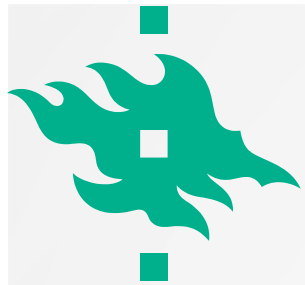
2013 - 2015  
Generating new knowledge to inform and facilitate transformational change

2016 - 2020  
Supporting decision-makers and practitioners in achieving outcomes and assessing REDD+ impacts

2021 - 2023  
Knowledge for action to protect tropical forests and enhance rights

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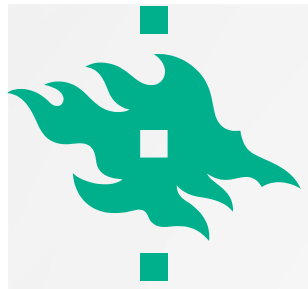




*What enables and who benefits from flows of biomass, incl. timber?*

*How to break and transform long-standing infra-structures of inequality towards more just and equitable futures?*

1. **Defining** infrastructures of inequality
2. **Unpacking** flows of ideas, policy influence and discourse and advocacy coalitions – methods and approaches
3. **Transforming** infra-structures of inequality



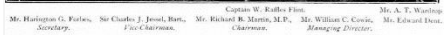
# POWER, COLONIAL EXPLOITATION AND THE (RE) PRODUCTION OF INEQUALITY

## A definition of **Social inequality**

within and among societies in different parts of the world

starting points (opportunities) and finishing lines (outcomes) are multidimensional, socio-political processes that often feed into a machinery of increased 'production' of social inequalities (Afonso et al., 2015)





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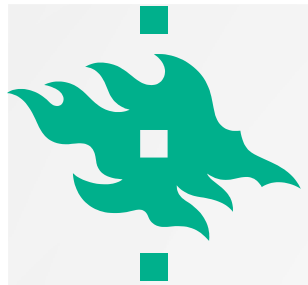


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# INFRASTRUCTURES OF INEQUALITY

Definition: Infrastructure is defined as the basic physical systems of a business, region, or nation and the flows of material, finance and ideas linked to production processes.

Term from late 1880s, derived from French, **with *infra-* meaning below and *structure* meaning building. Infrastructure can mean the foundation upon which the structure of an economy is built.**

Plantations, concessions, roads, buildings

Interconnected processes,

with institutional path dependencies and power relations

**with material, financial and ideational flows as part of infra-structures that (re)produce inequalities**

→ Flows of biomass over time to the benefit of selected actors

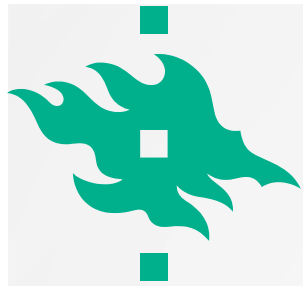
→ **Narratives that legitimate infrastructures of inequality over time**





## Unpacking infrastructures of inequality

### 2. Flows of ideas, policy influence and discourse and advocacy coalitions – methods and approaches

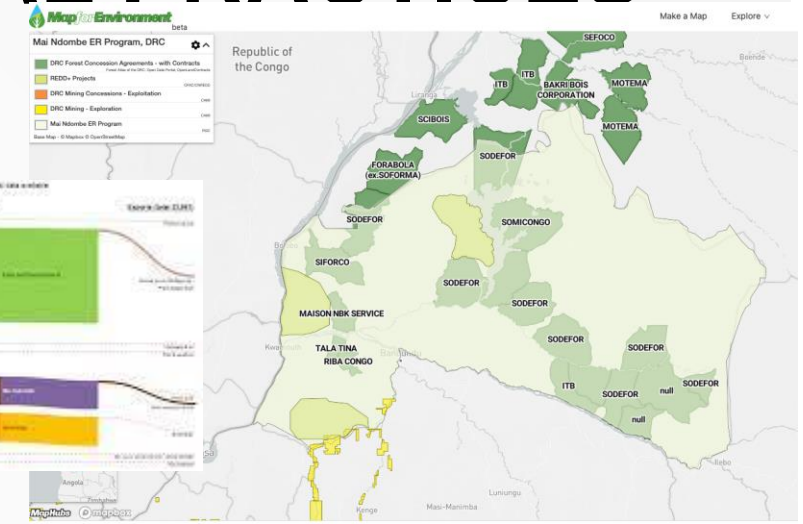
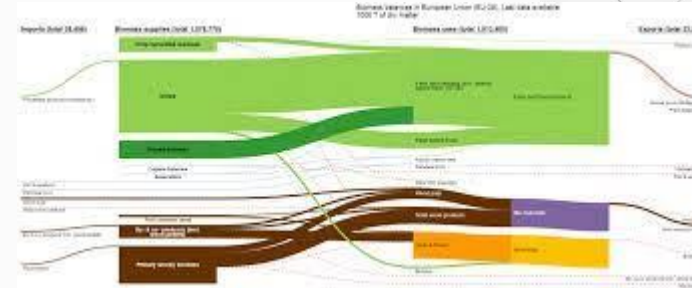


# OUR APPROACH : FLOWS OF BIOMASS, HEGEMONY AND COMMERCIAL PRACTICES

- Archival research, company histories
- Analysis of available datasets, maps

**2022:** [Politicians](#), [business leaders](#), [YouTubers](#) and [celebrities](#) are calling for the planting of millions, billions or even trillions of trees to slow climate change – but on who's land ?

JRC – biomass flows



— 12 —

TABEAU I. — CARACTÉRISTIQUES PHYSIQUES ET MÉCANIQUES COMPARATIVES DU BOIS  
Les chiffres de dureté, de densité, de résistance à la compression, à la flexion

ESPECE	Dureté N	Densité D	Hygroscopie à l'air d	Point de saturation à l'air S	Retrait total B	Coefficients de rétractibilité				Cote de dureté N°	Résistance par cm² à la compression C
						axiale a	radiale r	tangentielle t	volumétrique v		
<i>Picea abies</i> (Vielsalm) .....	1,064	0,448	0,00236	33,17	15,69	0,019	0,140	0,314	0,473	5,30	363
<i>Pinus silvestris</i> (Louveigné) .....	1,425	0,501	—	—	—	0,034	0,130	0,340	0,504	5,41	364
<i>Pinus nigra</i> Calabrica (Louveigné) .....	2,799	0,683	—	—	—	0,027	0,210	0,330	0,570	6,00	475
<i>Larix decidua</i> (Vielsalm) .....	1,958	0,606	0,00279	30,96	16,68	0,020	0,144	0,375	0,539	5,33	417
<i>Larix leptolepis</i> (Gedinne) .....	3,613	0,660	0,00272	26,56	15,62	0,029	0,185	0,374	0,588	8,29	536
<i>Pseudotsuga taxifolia</i> (E.-U.) (*) .....	1,700	0,560	0,00420	61,00	14,10	—	—	—	0,230	5,30	531
<i>Populus canadensis</i> (S. et O.) (*) .....	0,700	0,370	0,00250	33,00	9,80	—	—	—	0,300	6,10	281
<i>Quercus robur</i> (Tronçais) (*) .....	2,200	0,550	0,00420	57,00	12,40	—	—	—	0,220	7,30	365
<i>Quercus robur</i> (Tronçais) (*) .....	3,300	0,670	0,00460	48,00	14,90	—	—	—	0,310	7,10	405
<i>Juglans regia</i> (France) (*) .....	3,200	0,620	0,00400	51,00	12,30	—	—	—	0,240	9,40	477
<i>Ricmodendron africanum</i> (*) .....	0,104	0,207	0,00150	29,49	8,11	0,030	0,078	0,167	0,275	0,24	126
<i>Hammia Ktainiana</i> (*) .....	0,395	0,363	0,00208	32,32	13,80	0,020	0,142	0,265	0,427	3,00	221
<i>Cleistanthus patens</i> (*) .....	0,828	0,423	0,00237	34,92	15,33	0,023	0,142	0,274	0,439	4,63	34
<i>Pterocarpus tinctorius</i> (*) .....	1,726	0,462	0,00292	24,56	9,04	0,019	0,112	0,237	0,368	8,00	34
<i>Entandrophragma utile</i> (*) .....	1,520	0,477	0,00320	28,06	11,73	0,015	0,177	0,213	0,405	5,68	43
(*) .....	2,085	0,592	0,00363	42,17	16,32	0,016	0,160	0,211	0,387	5,94	46
<i>Ficus Mucosa</i> (*) .....	1,385	0,491	0,00266	28,14	12,89	0,021	0,144	0,293	0,458	5,74	37
<i>Gossweilerodendron</i> .....	1,293	0,404	0,00331	29,45	9,69	0,016	0,103	0,210	0,329	5,30	31
<i>Antrocaryon microsternum</i> (*) .....	1,002	0,521	0,00298	30,77	12,14	0,027	0,134	0,266	0,427	5,69	31
<i>Canarium Schweinfurthii</i> (*) .....	1,300	0,529	0,00304	59,34	25,28	0,017	0,151	0,258	0,426	4,65	31

(\*) Ces chiffres sont extraits de l'ouvrage « Nos bois coloniaux. Etude physique et chimique des bois tropicaux », collection C. DONIS.  
(\*\*) Echantillons originaires de la région de Mayumba, collection C. DONIS.  
(\*\*\*) Echantillons originaires de la région de Yangambi, collection J. LOUIS.

*"We must tend to develop the **inexhaustible wood reserves of our Colony**, as the tenacious effort of our early pioneers has exploited its bountiful mineral wealth."*

Pr. Joseph Fouarge (1950) –  
director of the State Forest Laboratory, Gembloux University.

*"The exploitation of Congolese forests is still not very **profitable** at present. [...] It is therefore in our interest to look for ways to make better use of the woody material by studying **the possibility of creating new industrial complexes** capable of making greater use of the forests."*

Istas, (1959) –  
engineer at the Laboratoire de Recherches Chimiques du Ministère des Colonies

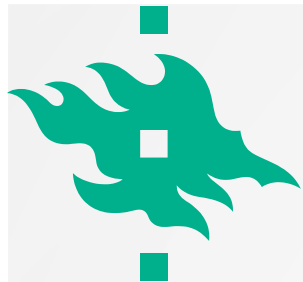


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# OUR APPROACH: INVESTIGATING THE ROLE OF SCIENCE IN THE MAKING OF INFRASTRUCTURES OF INEQUALITY



World Development  
Perspectives  
Volume 27, September 2022, 100451



The making of resource frontier spaces in the Congo Basin and Southeast Asia: A critical analysis of narratives, actors and drivers in the scientific literature

Wong, G.Y., Holm, M., Pietarinen, N., Ville, A. and Brockhaus, M., 2022. The making of resource frontier spaces in the Congo Basin and Southeast Asia: A critical analysis of narratives, actors and drivers in the scientific literature. *World Development Perspectives*, 27, p.100451.

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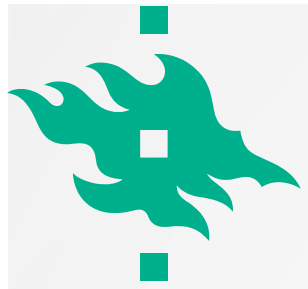
**Multiple search strings using the following keywords:** forest, frontier, plantation, agriculture, concession, deforestation, degradation, land use change, conversion, transition, governance, investment, conservation, extraction, shifting cultivation, pioneer, development, conflict, benefit, equity

**Sources:** Scopus, Web of Science, referrals

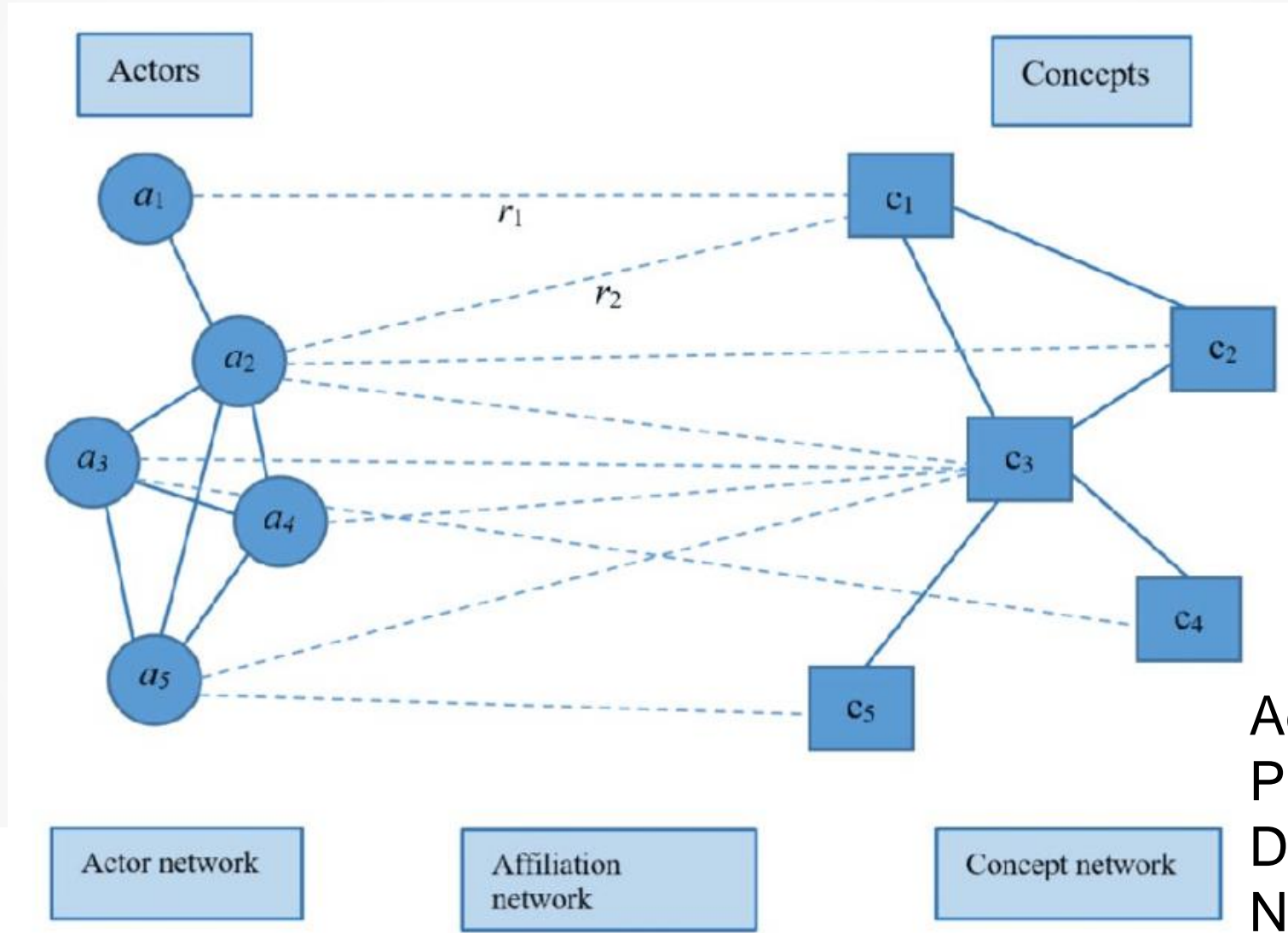


**Final sample:** 296 articles  
**Qualitative text analyses:**  
open coding and an  
inductive-deductive  
analytical approach

How has science portrayed forest frontiers in the Congo Basin and Southeast Asia? What are the different narratives, problematizations and proposed solutions?

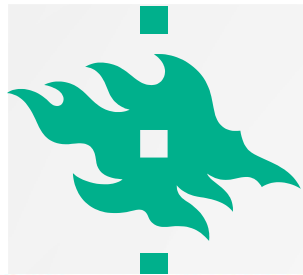


# OUR APPROACH : INVESTIGATION OF ACTORS, AFFILIATIONS AND ARGUMENTS



Adapted from  
Philip Leifeld:  
Discourse  
Network Analyser





# INVESTIGATION OF ACTORS, AFFILIATIONS AND ARGUMENTS

Bornean communities locked into 2-million-hectare carbon deal they don't know about

by John C. Cannon on 9 November 2021



- Leaders in Sabah, a N agreement on Oct. 28 meaningful participati
- The agreement, with the consultancy Tierra Australia and a private equity-backed funder from Singapore, calls for the marketing of carbon and other ecosystem services to companies looking, for example, to buy credits to offset their emissions.

The Guardian Post No 1730

NEWS

Tuesday September 17, 2019 Page 10

## Campo, Nyete communities worried over expropriation of 60,000 hectares of land

From Kiven Brenda  
in Kribi

The communities of Nyete and Campo in the Ocean Division of the South region have expressed concerns over a new palm project which will occupy over 60,000 hectares of their land, despite the fact that other companies operating in their community have brought little development.

They expressed their frustration at the conference hall of the Divisional Officer of Nyete, Mbotiji Hotison Babila, on

to start by cutting off 2,500 hectares progressively.

The company according to its project outlined by a geo-consultant, Georges Chekuie, wants to develop the communities of Campo and Nyete by creating over 6000 plantation jobs, 2,500 at the industry and 15,000 indirect jobs through the palm plantation and oil industry. They also intend open schools, health centres, provide water, roads, training centres to the communities. Nyete has to give out 3000 to 4000 hectares of land and the rest

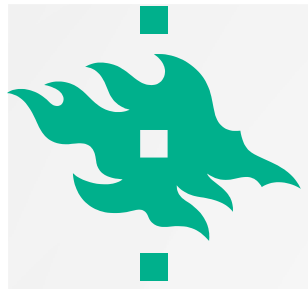
that, the presence of other oil companies such as HELVECAM and SOCAPALM, hasn't brought much change to the community, as it is still impoverished.

"We all want development but our concern is that agro-industries on our land do not bring to us any development. In reference to other enterprises close to this place, we have the impression that they want some certification and after that nothing... We want local development. We have nothing. You used the road Kribi to Adish, you saw the communi



Dissatisfied Nyete community

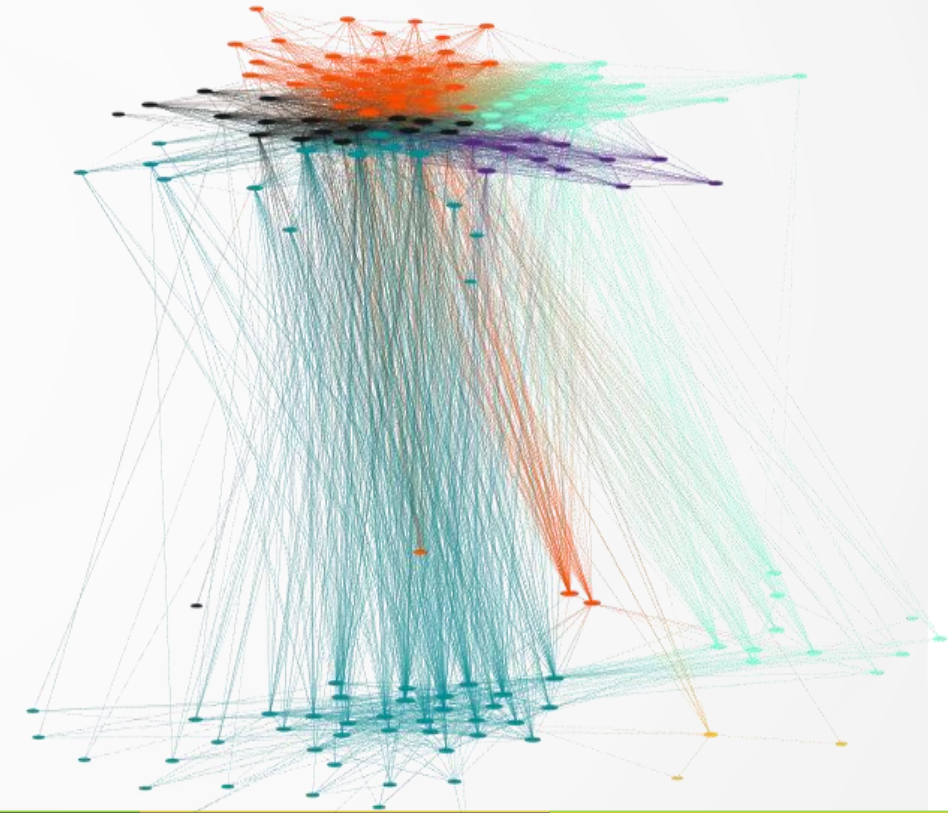




# OUR APPROACH : INVESTIGATION OF POLICY INFLUENCE THROUGH TWITTER - ADVOCACY COALITIONS in DRC

Coalitions in the multilevel policy process for halting deforestation in the Democratic Republic of the Congo based on the retweet network among 156 policy actors spanning the period of January 2017 through May 2022; nodes at the lower and upper levels refer to Congolese and international organisations, respectively

A. Malkamäki, M. Brockhaus, F. Kengoum, R. Kimpesa, B-P. Ntirumenyerwa Mihigo. 2022. Connective action and the boomerang pattern for halting deforestation in the Democratic Republic of the Congo. In Osei-Kojo | Weible (eds). Advocacy Coalitions and Policy Change in Africa. Forthcoming.



**Establishment+**

**Science-policy  
regime**

**Forest  
watchdog**

**Development  
industry**

**Financial  
justice**

**Family farming**



## Influencing policy

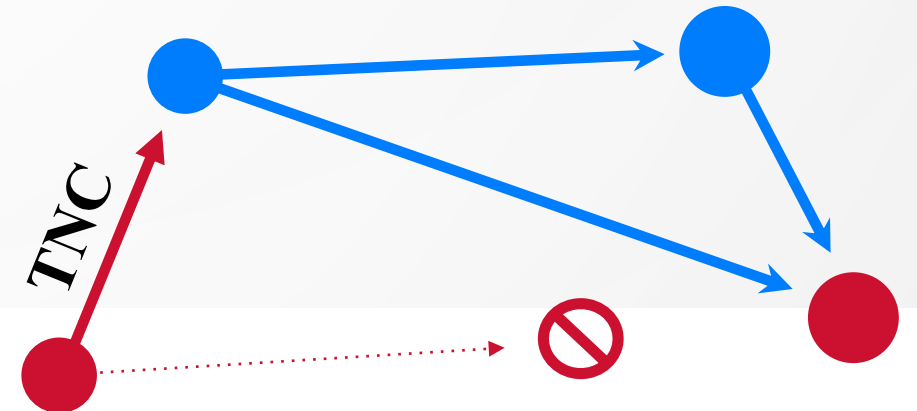
Policy actors that share policy beliefs do pool resources and align strategies to achieve joint policy goals (Weible et al. 2020, Sabatier 1988)

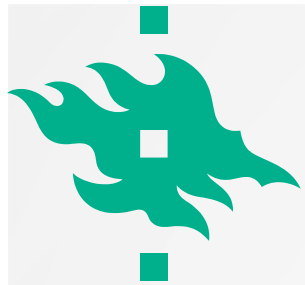
- (Advocacy) **Coalitions**
- understanding the contribution of coalitional politics to policy gridlocks as in DRC is important

Actors accessing the state from the outside, diverse roles (and interests), interaction across levels

- The **"international"**
- understanding role of internationals in coalition formation and for policy change towards less deforestation (Kukkonen et al., 2018; Nwalie, 2019), e.g. through **brokerage of selected or societal interests, resource transfer (aid), domestication of global norms**, etc.

- **Connective Action, Boomerang effect**
- **New media (e.g. twitter) removes costs,**
- **more internationals, more change?**
- **Legitimacy?**





## Data and methods to analyse Twitter data on deforestation in DRC

**Twitter data on retweets and mentions among 159 policy organisations since 2017 - May 2022**

**Retweets – belief homophily as an act of endorsing and spreading political content.**

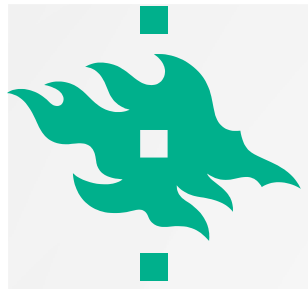
**Mentions – extra-coalitional influence attempts and intra-coalitional relevancy boosts.**

Organisational presence on Twitter – different types of accounts [Chen 2021] – **(6148 accounts)**.  
initial roster of organisations (205), not all are active ...

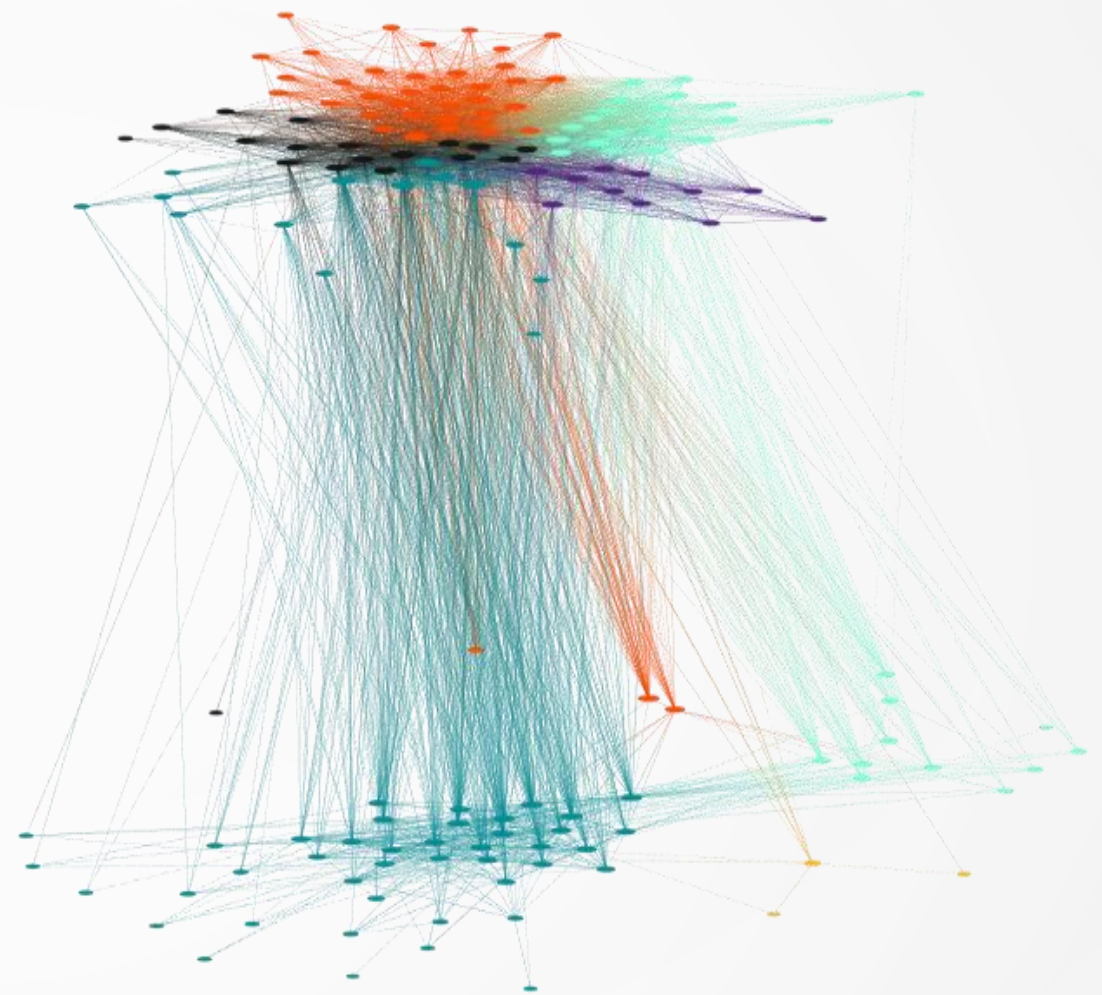
**Coalitions** identified from the weighted + undirected + keyword-filtered retweet network via **consensus Leiden partitioning** [Traag et al. 2019; Peixoto 2021].

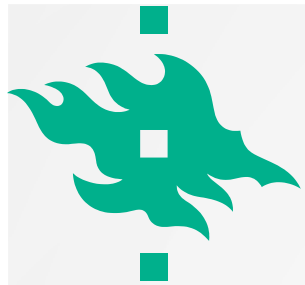
Influence attempts inferred from the binary + directed + keyword-filtered mention network via exponential random graph modelling [Cranmer et al. 2017].





## 2 transnational coalitions

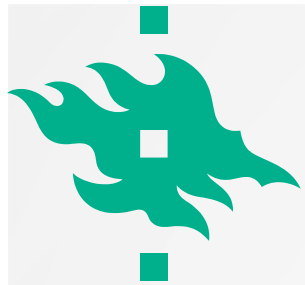




## Forest watchdog coalition

- Connects 23 national non-governmental organisations working on the environment and social justice with their 13 international counterparts putting pressure on the government and international third parties.
- **Structural power** (operationalised through eigenvector centrality) with International **Institute for Environment and Development (research)**, **Greenpeace (activism)**, and **Mongabay (journalism)**
- some **recent social movement organisations**, the **Extinction Rebellion** and the **Rise Up Movement** both of which have Congolese chapters.

→ **More or less radical ?**

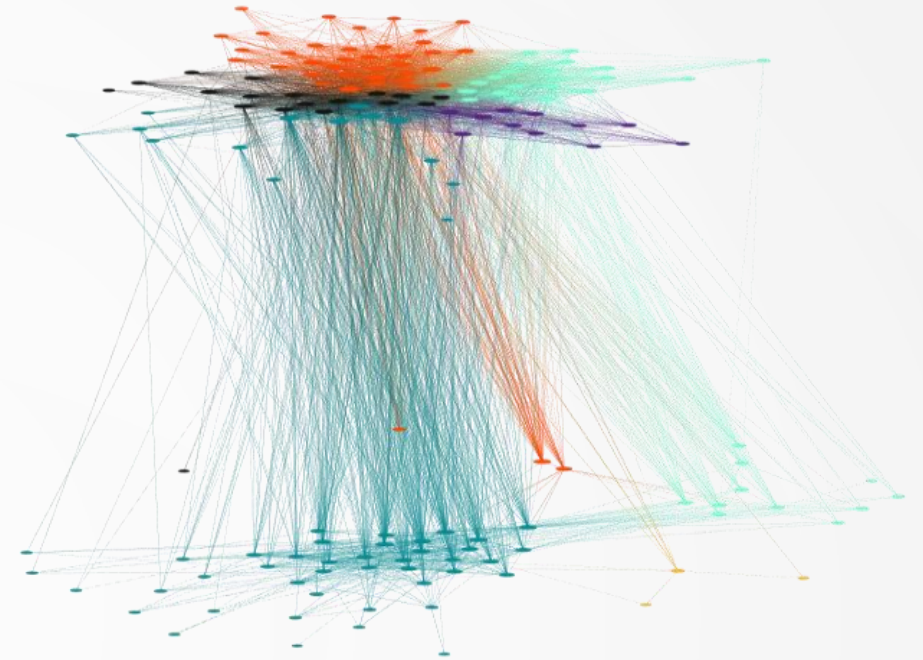
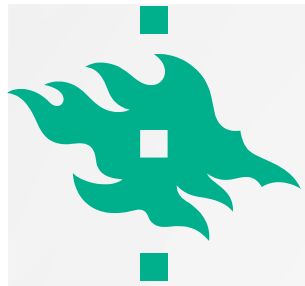


## Establishment+

- largest of the six coalitions with 50 members, connecting the **powerful organs of the state** (e.g., Office of the President) with the **main political blocks and business interests in the DRC** with international organisations, namely **transnational corporations**
- **+ = foreign aid bureaus from the US, the UK, and China**, assigned to this group based on their online interactions – hence, do not qualify as third parties.
- most central is **youth activist organisation** Lutte pour le Changement (Fight for Change) – youth dominance contributes to understand centrality; belonging to internal camps, professionalization during transition from Kabila to Tshisekedi regime all provide possible explanations for coalition belonging

→ **More change within establishment or more international B –AU ?**





4 other coalitions,  
3 of which predominantly operate at the international level and are  
largely divided by sectorial focus: land use, aid money, and  
financial integrity.



## Science-Policy Regime:

36 members, most central actor the relatively small but media-present CongoPeat Programme, FAO, WWF, captures the collection of established scientific and intergovernmental organisations that constitutes the cornerstone of international forest policy.

- specialises in producing expert **knowledge of forests** and **facilitating science-policy** dialogue for national **institutions**
- more **conservative in rhetoric**, have been operating professionally within the existing institutions for decades, and **collaborate more closely with governments and corporations** to steer policy.

→ **close or too close to power to speak ‘truth’- implications for credibility and reachability?**



**Development Industry:** coalition of **international finance institutions with financial leverage over deforestation policy** in recipient countries.

- All major donor governments (except the American, British, and Chinese agencies which are in the Establishment+), endorsing the deforestation-oriented content of one another on social media.

→ **Implications for accountability of state towards donors rather than society?**

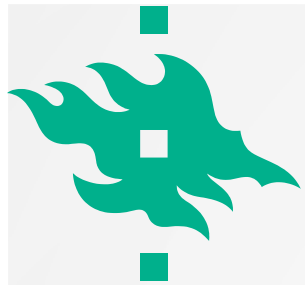
**Financial Justice:** represents organisations that work on financial integrity (e.g., capital flight, financial secrecy, tax evasion)

- Even though it focuses on an important structural dimension underlying tropical deforestation, it shares few ties with other coalitions,

→ suggesting that **financial integrity has not penetrated current debates on deforestation?**

**Family Farming:** comprises three Congolese agricultural interest groups

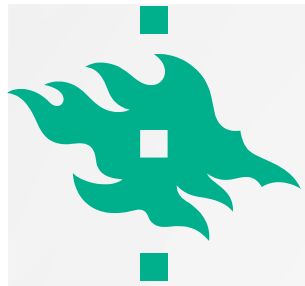
→ implying that **smallholder farming is not well embedded in the politics of deforestation?**



## Selected key findings :

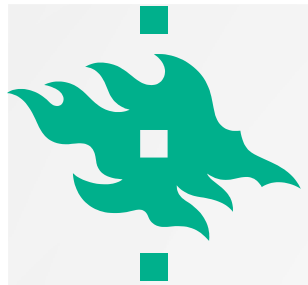
**Connective action**, but largely to build coalitions, missing boomerang as transnational coalitions not necessarily pressure domestic establishment → **trust in who's willing to put the pro-change agenda forward? (since some powerful third parties are already bed fellows with establishment) , except for some INGOs inside the Forest Watchdog which are however outside the Forest Science Policy regime**





*How to break and transform long-standing infra-structures of inequality towards more just and equitable futures?*

### 3. Key findings and possible implications for research



# IDENTIFYING AND ENGAGING IN TRANSFORMATIVE JUST PATHWAYS

## ***What are infra-structures that (re)produce inequality?***

Histories, politics and capital & material flows reflected in narratives that are persistent over time, with

‘Quiet’ private sector interests

Enabled through established state and forest regime actors (incl. science)

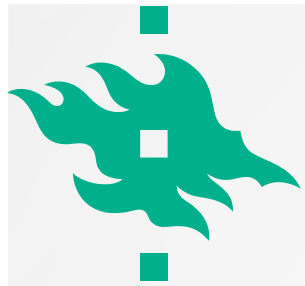
Promising development and welfare at the expense of local people and nature

## ***How can research contribute to break and transform these towards more just and equitable futures?***

Questions the politics and dissects the discourses – whose interests are served and who benefits.

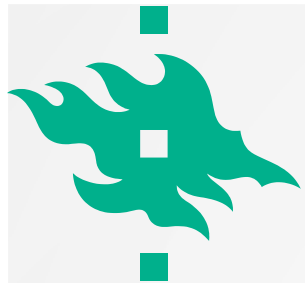
Examines power relations in policies and practices related to forest access, forest land conversion, trade and finance.

Engages and gives voice to those not heard in policy processes.



# ACKNOWLEDGEMENTS

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the Volkswagen Foundation (FOREQUAL, Grant number 96964),  
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NORAD through CIFOR GCS-REDD+.



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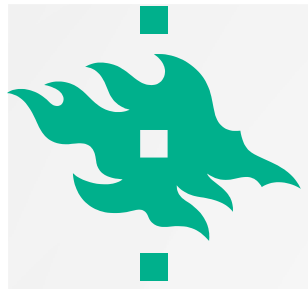
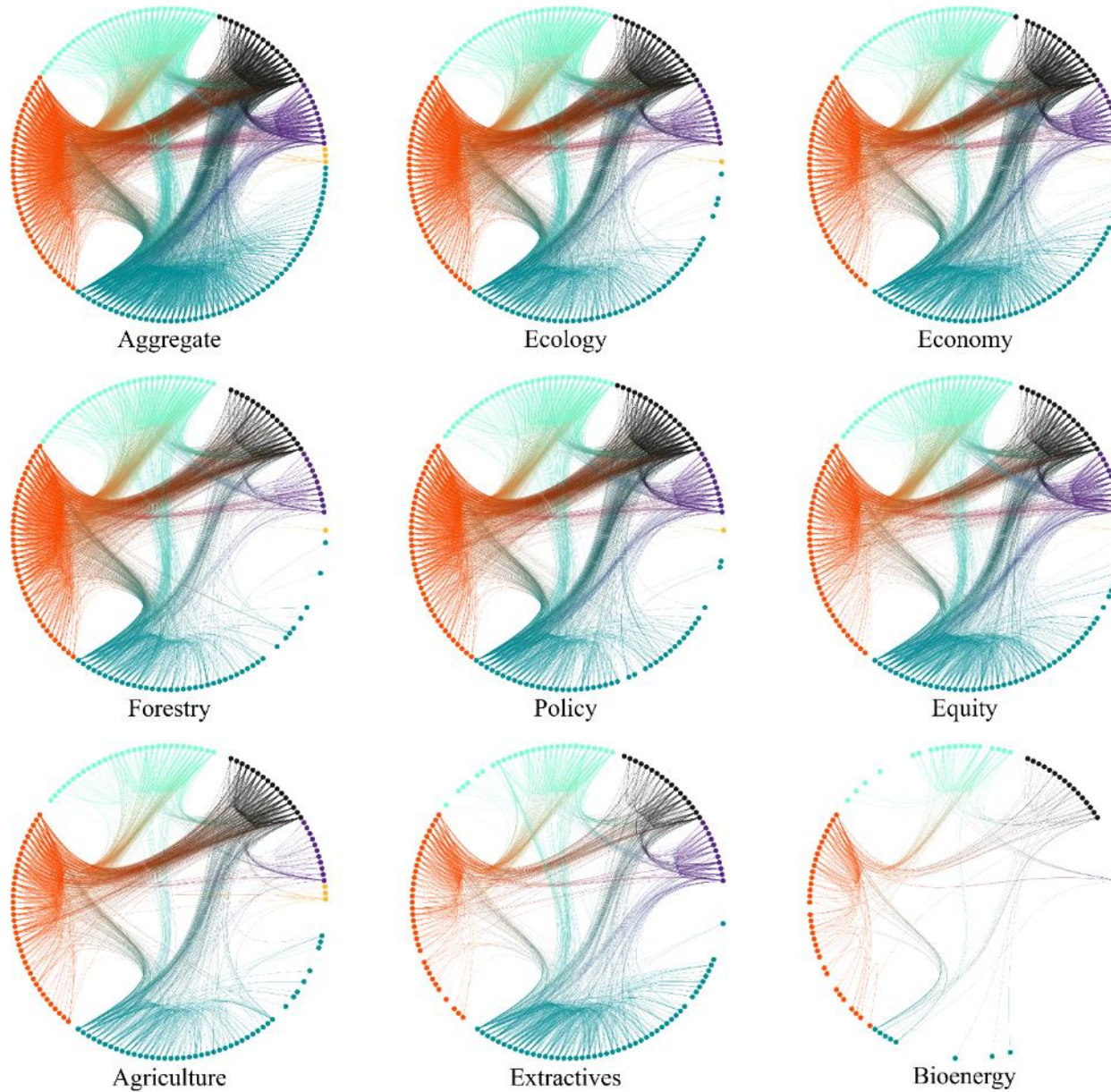
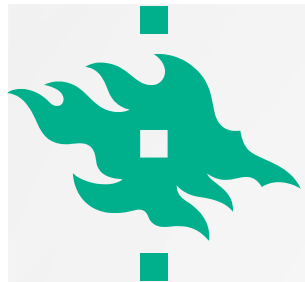


Figure 3. Retweets by deforestation-related topic; colours match the coalitions in Figure 2; aggregate network is simply another visualisation of the network in Figure 2.



**Regardless of the topic, retweeting patterns occur → consistent retweeting behaviour**



## Mention network

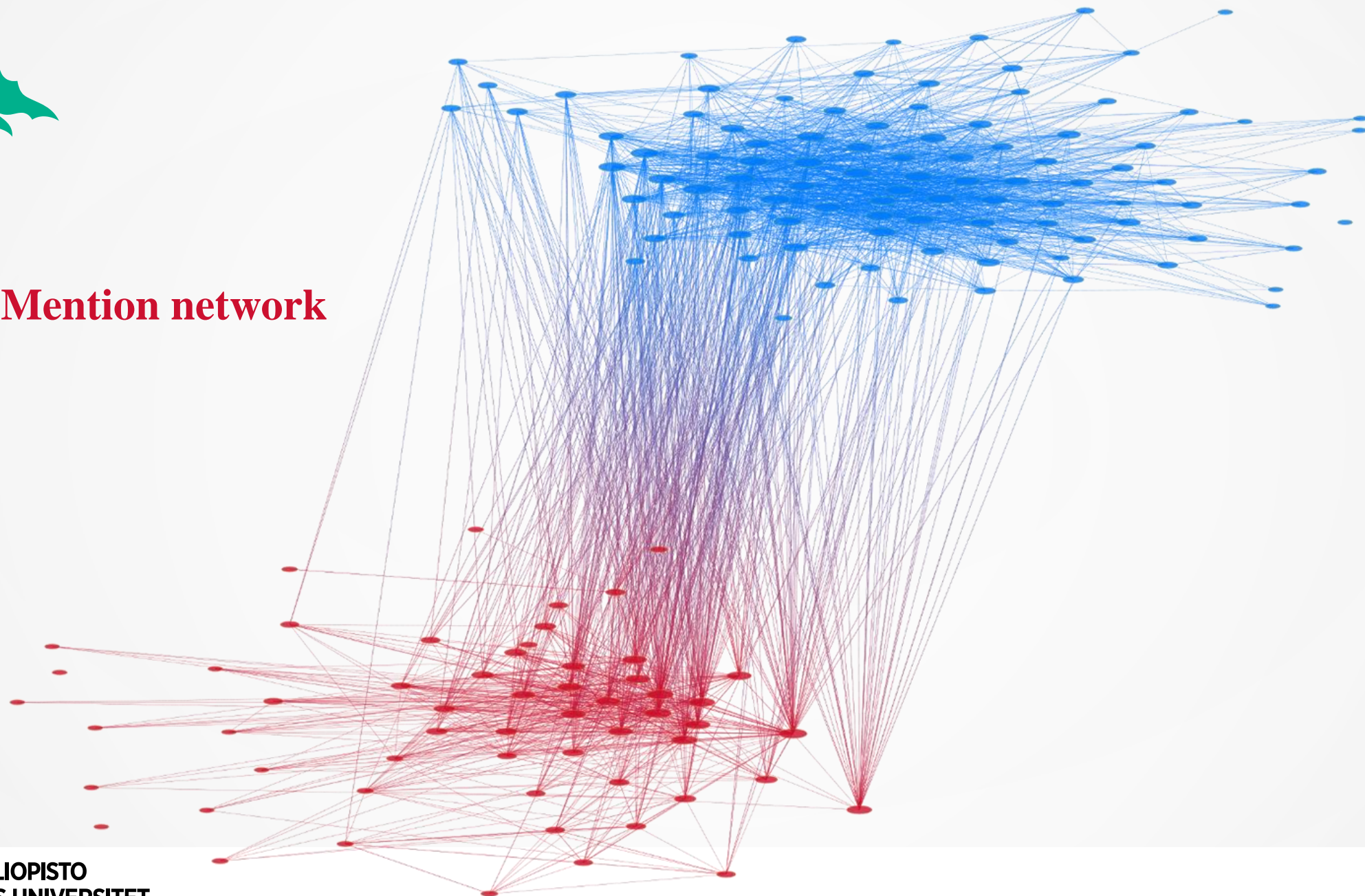




Table 2. Results for the two ERGMs for the mention network; *without IGOs* refers to the category *Powerful third party* including only international development agencies and development finance institutions, while *with IGOs* includes also intergovernmental organisations; standard errors in parentheses; 1 and 2 refer to actors at the global and local levels, respectively.

Predictor	Without IGOs	With IGOs
Ties	-6.81 (0.17) ***	-6.82 (0.17) ***
Coalition homophily: Development industry	1.52 (0.13) ***	1.52 (0.13) ***
Coalition homophily: Establishment+	1.83 (0.06) ***	1.83 (0.06) ***
Coalition homophily: Financial justice	2.84 (0.18) ***	2.86 (0.18) ***
Coalition homophily: Science-policy regime	1.37 (0.08) ***	1.38 (0.08) ***
Coalition homophily: Forest watchdog	1.29 (0.06) ***	1.31 (0.06) ***
Target: policy doyen	5.47 (0.25) ***	5.50 (0.25) ***
Target: policy broker	0.62 (0.20) ***	0.60 (0.20) ***
Advocate: policy doyen	4.67 (0.24) ***	4.63 (0.23) ***
Advocate: policy broker	-1.18 (0.19) ***	-1.15 (0.19) ***
Reciprocity	1.47 (0.07) ***	1.47 (0.07) ***
Popularity	-0.73 (0.30) **	-0.74 (0.30) **
Activity	0.92 (0.51) *	0.91 (0.50) *
Open triads: network level	-0.08 (0.00) ***	-0.08 (0.00) ***
Transitive triads: cross-layer	-0.24 (0.04) ***	-0.22 (0.04) ***
1 Transboundary coalition >> 1 Powerful third party [H2 <sub>x</sub> ]	0.12 (0.13)	0.24 (0.11) **
1 Transboundary coalition >> 2 State apparatus	-0.47 (0.21) **	-0.46 (0.21) **
2 Transboundary coalition >> 1 Powerful third party [H2 <sub>y</sub> ]	-0.50 (0.28) *	-0.30 (0.20)
2 Transboundary coalition >> 2 State apparatus	1.67 (0.20) ***	1.66 (0.20) ***
2 State apparatus >> 1 Powerful third party	-0.08 (0.17)	-0.26 (0.14) *
2 State apparatus >> 1 Transboundary coalition	-2.55 (0.59) ***	-2.57 (0.59) ***
2 State apparatus >> 2 Transboundary coalition	-0.34 (0.57)	-0.32 (0.57)
1 powerful third party >> 2 State apparatus [H3]	0.07 (0.15)	0.15 (0.13)
Deviance	7227	7224

**Forest watchdog putting pressure on powerful third parties (financing organisations) when also intergovernmental organisations are included**