Co-funded by the European Union

Just Fossil Fuel Transitions
Jean Monnet Centre of Excellence

Università degli Studi di Padova

ICEA

CLIMATE ACTIONS AND JUST TRANSITION: FIRST INTERNATIONAL CONFERENCE

# Research and activism for just transition and leaving fossil fuels underground


Massimo De Marchi

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Coordinator of Jean Monnet Centre of Excellence on
Just Fossil Fuel Transition, ICEA Department, University of Padova


GeoNight

GIScience

Associazione GISHub

www.unburnable.org

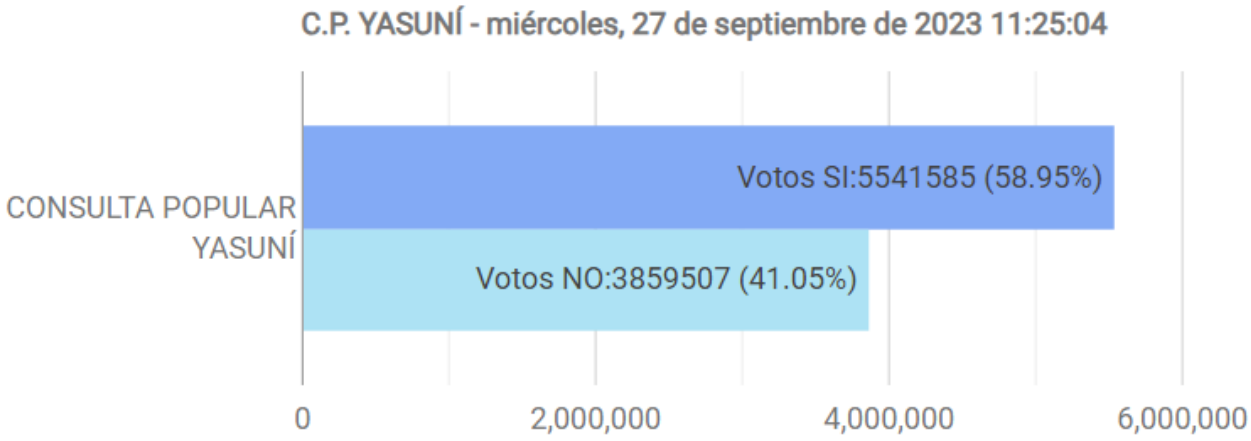
# The popular referendum in Ecuador (August 2023) to leave oil underground in the Yasuni National Park

***¿Está usted de acuerdo en que el gobierno ecuatoriano mantenga el crudo del ITT, conocido como bloque 43, indefinidamente bajo el subsuelo?***

*SÍ* ☐ *NO* ☐


**Referendum 20/08/2023**

# ¿Está usted de acuerdo en que el gobierno ecuatoriano mantenga el crudo del ITT, conocido como bloque 43, indefinidamente bajo el subsuelo?




| Pregunta | Actas válidas | Actas con novedad | Total actas procesadas | |
|---|---|---|---|---|
| C.P. YASUNÍ PREGUNTA | 40,776 | 0 | 40776 de 40776 | 100.00% |

**Referendum**
**20/08/2023**

https://resultados.cne.gob.ec/


https://www.salvalaselva.org/donacion/11568/ecuador-el-petroleo-bajo-tierra-donacion-para-yasunidos

Elecciones Presidenciales 2023

# Ministro de Energía: "No se puede vivir del aire, de los pajaritos y reptiles"



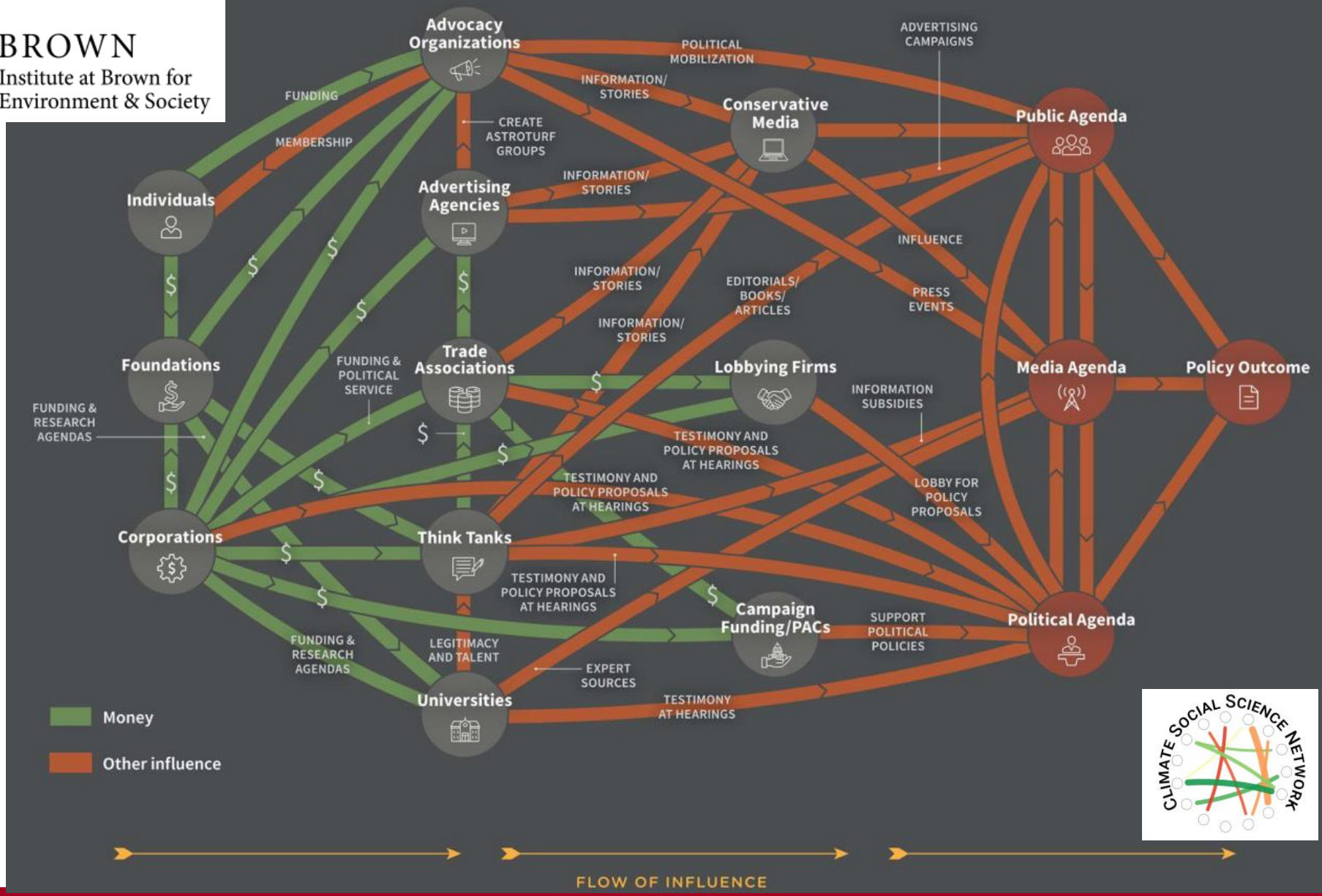
El ministro de Energía, Fernando Santos Alvite, calificó como "un suicidio" prohibir la explotación petrolera en el Yasuní y la minería en el Chocó Andino, como proponen dos consultas populares.

CSSN Primer:

# The Structure of Obstruction:

## Understanding Opposition to Climate Change Action in the United States

BROWN
Institute at Brown for Environment & Society




CLIMATE SOCIAL SCIENCE NETWORK

- 1990 Amazonia for life
- 1996 Oilwatch is born
- *2003 Leave Crude Underground (Oilwatch)*
- 2007 Launch of the Yasuní Initiative – ITT
- 2013 (August 15) Abandonment of the initiative, parliament approves the oil operation as "National Interest"
- 2013 Yasunidos is established, the collection of signatures begins to call a referendum and leave the oil underground
- 2014 750,000 signatures are collected and cancelled, appeals and all possible legal actions by Yasunidos are initiated.
- 2015 McGlade, Ekins, 2015, "Unburnable Fossil Fuel Resources", *Nature*
- 2015 The Paris Agreement does not mention fossil fuels, “common, but differentiated responsibilities” … five-year global stocktake (art. 14) (first 2023), national (and global) balance sheets for mitigation and adaptation
- 2016 Oil production begins at ITT Yasuní
- 2021 Welsby D, Price J, Pye S and Ekins P 2021 "Non-extractable fossil fuels in a 1.5 ◦C world", *Nature*
- 2021 Glasgow Climate Pact
- 2023 The constitutional court approves the referendum
- 2023, August, winning the referendum
- 2023 COP28, Dubai, first commitment to abandon fossil fuels in energy systems

# Around climate justice and fossil fuel transitions


UNDP, 2023

THERE IS NO PLANET B
CLIMATE JUSTICE
PAY UP

# Justice issues related to fossil fuels

At least four broad categories of actors:

- those excluded from affordable energy supply and transport services
- those experiencing the socio-environmental effects of climate change
- those living in sacrifice zones where energy is produced, fossil fuels are extracted, transport services are delivered, infrastructure are settled, living daily with contaminants, noise, environmental degradation, slow violence
- those working in transport and energy sectors

# Some climatic justice issues

- Different contribution on emissions of carbon dioxides
- Different contributions on land use change
- Disproportion among impacts of climate change (heat wave risks, floods risks, sea level rising…)
- Different access to climate adaptation solutions (… green gentrification)
- Intersectionality: geographicalness / economic conditions / cultural conditions / gender / …
- …

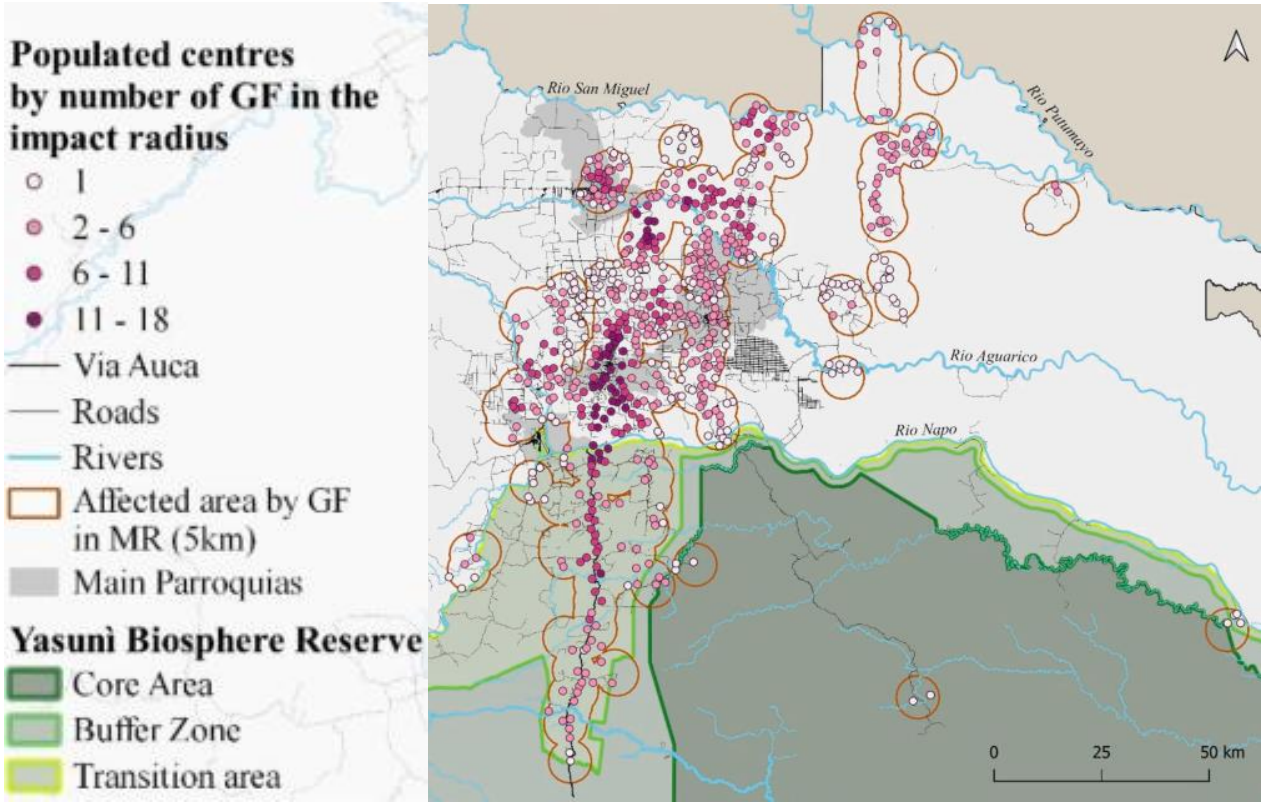
Contents lists available at ScienceDirect

2023 Landscape and Urban Planning

journal homepage: www.elsevier.com/locate/landurbplan

# The Apaguen los Mecheros campaign: Supporting climate justice in the Amazonian cities of Ecuador by estimating the health risks of gas flaring

Francesco Facchinelli [a,*], Edoardo Crescini [b], Giuseppe Della Fera [c], Massimo De Marchi

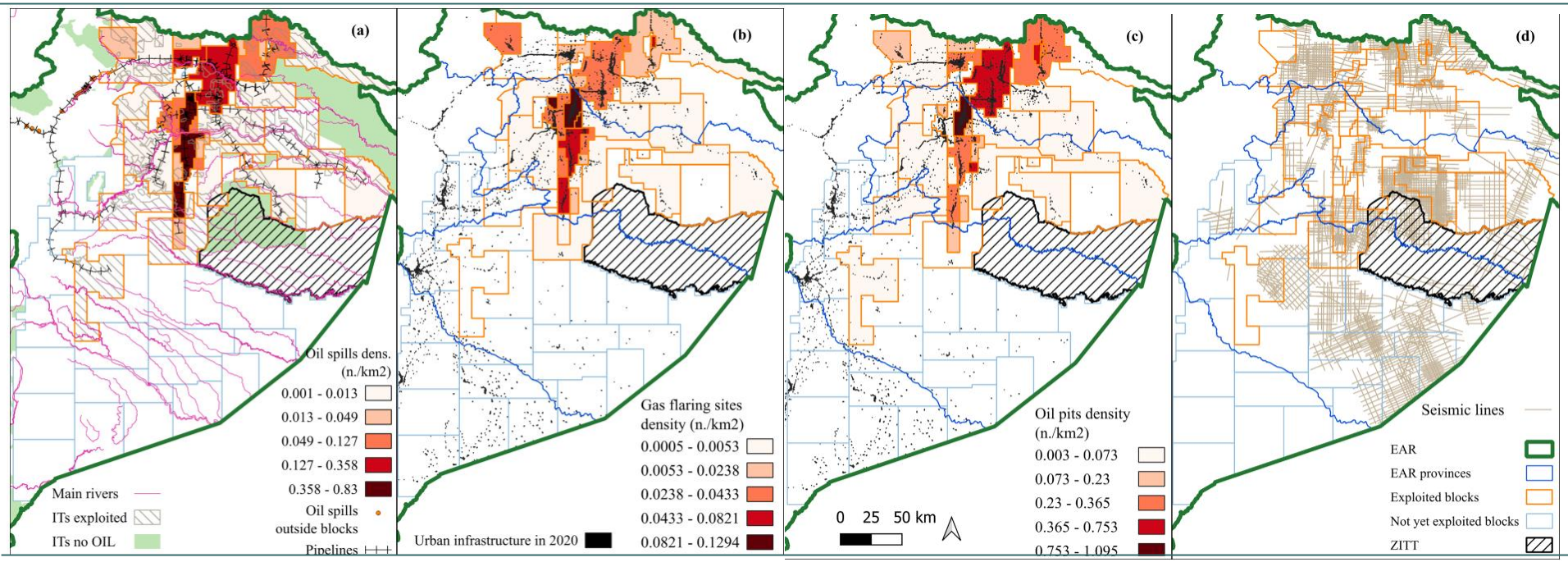
Contents lists available at ScienceDirect

2023 Landscape and Urban Planning

journal homepage: www.elsevier.com/locate/landurbplan

# The multiple injustice of fossil fuel territories in the Ecuadorian Amazon: Oil development, urban growth, and climate justice perspectives

Daniele Codato *, Francesca Peroni, Massimo De Marchi




**Oil spills** **Gas flaring** **Oil pits** **Seismic lines**

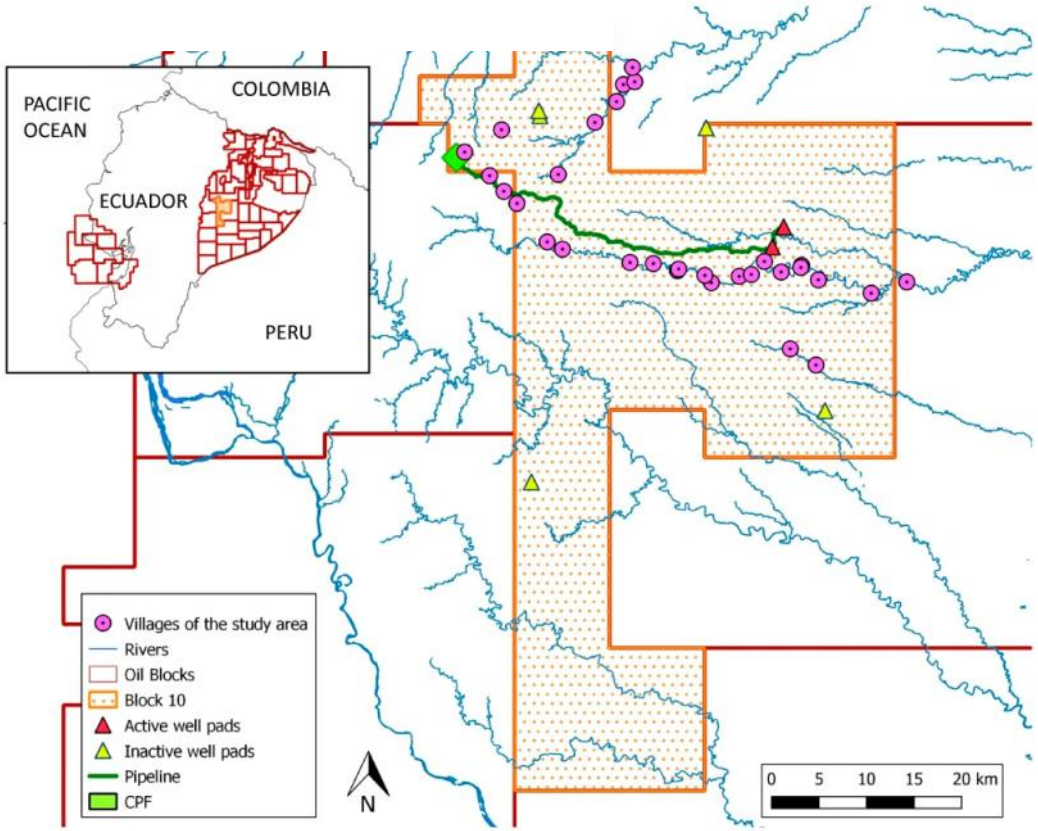
sustainability 2020 MDPI

*Article*

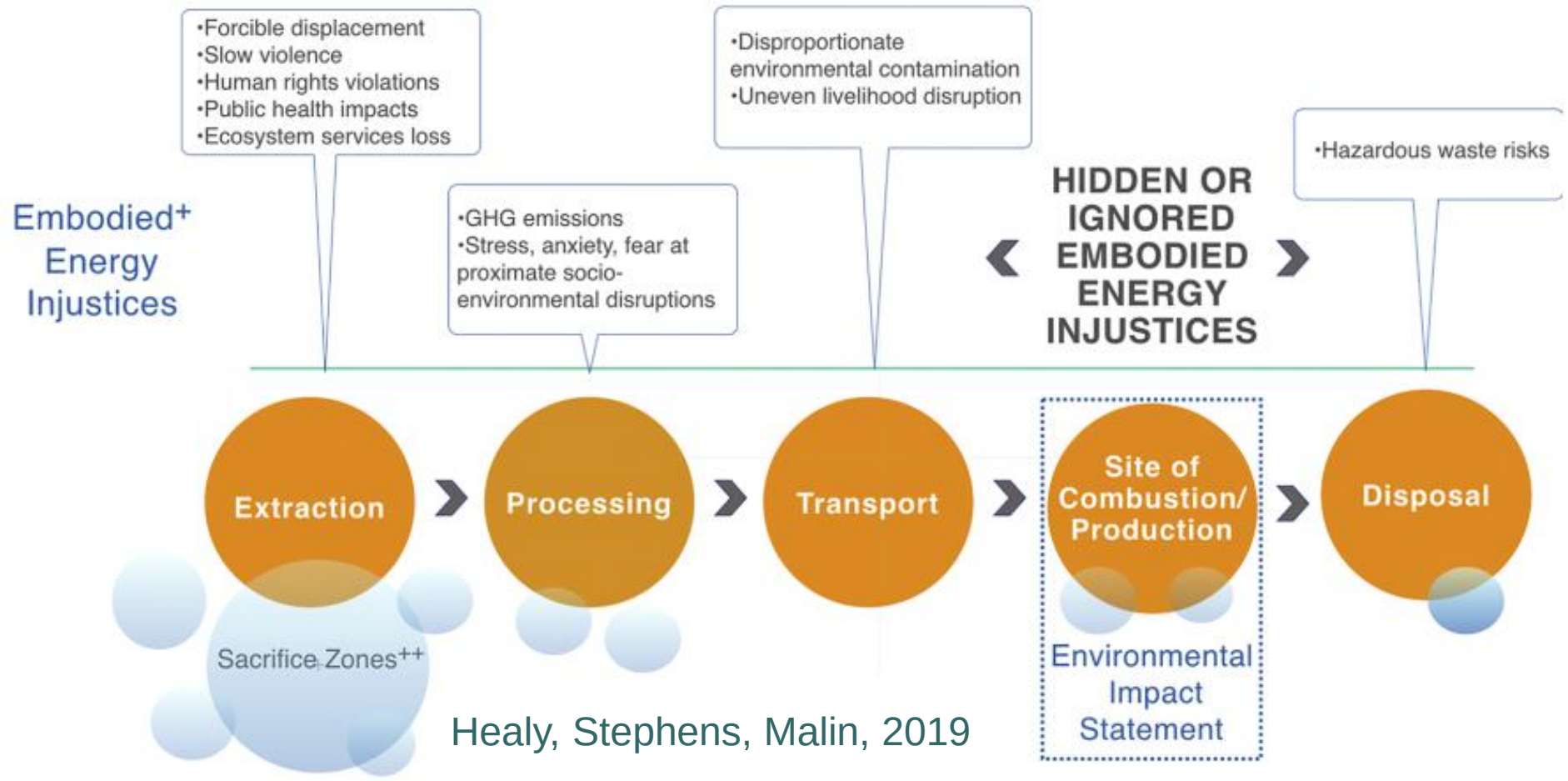
# Is this a Real Choice? Critical Exploration of the Social License to Operate in the Oil Extraction Context of the Ecuadorian Amazon

Alberto Diantini [1,*], Salvatore Eugenio Pappalardo [1], Tim Edwards Powers [2], Daniele Codato [1], Giuseppe Della Fera [3], Marco Heredia-R [4], Francesco Facchinelli [5], Edoardo Crescini [5] and Massimo De Marchi [1]

- Procedural fairness
- Real acceptance and approval of the company
- Community's autonomy to decline company operation
- Distribution of project benefits
- Community concerns and protests
- Free prior informed consent procedure
- Community dependence on companies



# Sacrifice zones



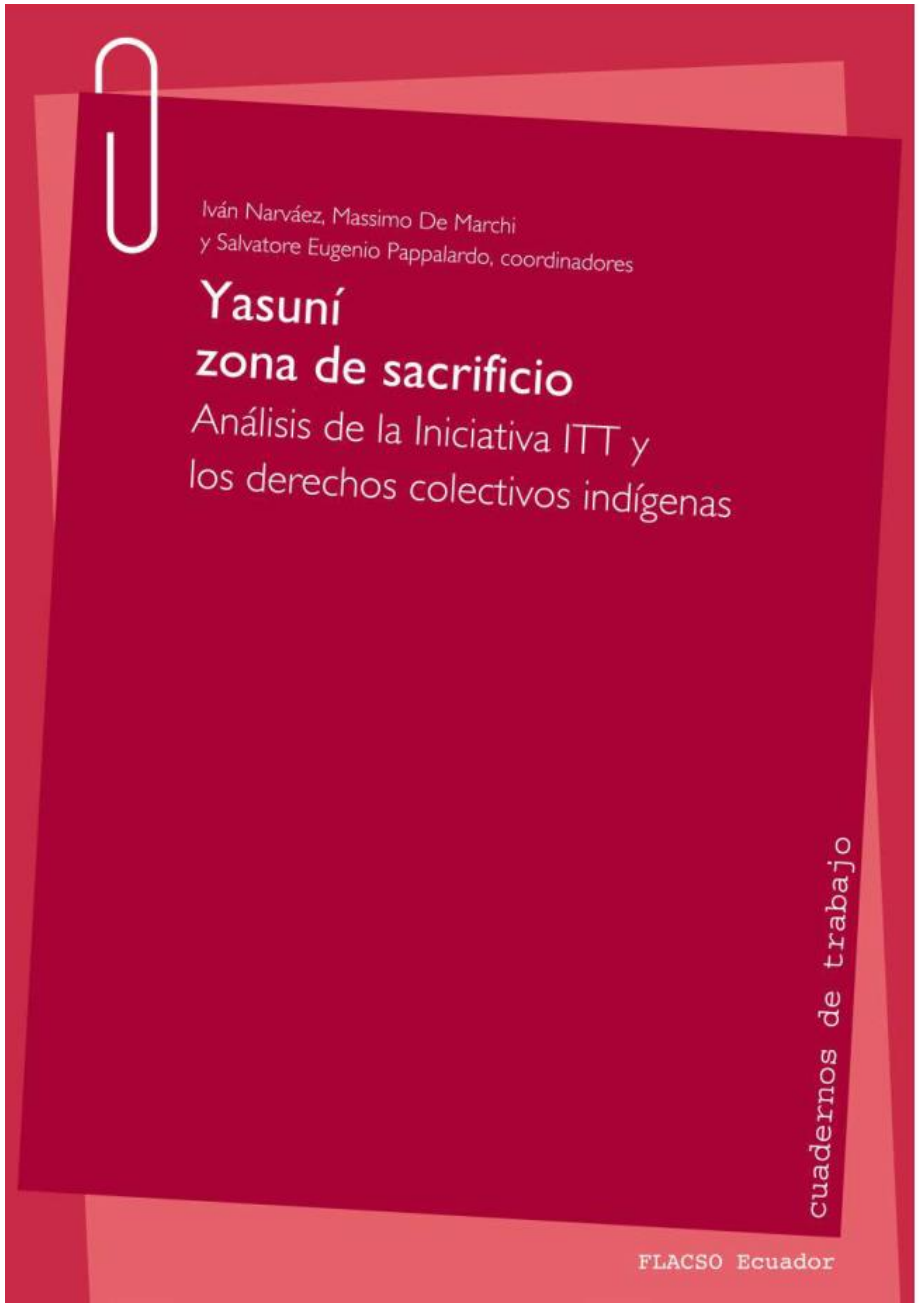

Healy, Stephens, Malin, 2019

## 2013

Iván Narváez, Massimo De Marchi y Salvatore Eugenio Pappalardo
(Coordinadores)

# Yasuní
# zona de sacrificio
## Análisis de la Iniciativa ITT y los derechos colectivos indígenas

Adriana Chamorro
Yomar Álvarez
Juan Carlos Franco
Rodrigo López
María José Narváez



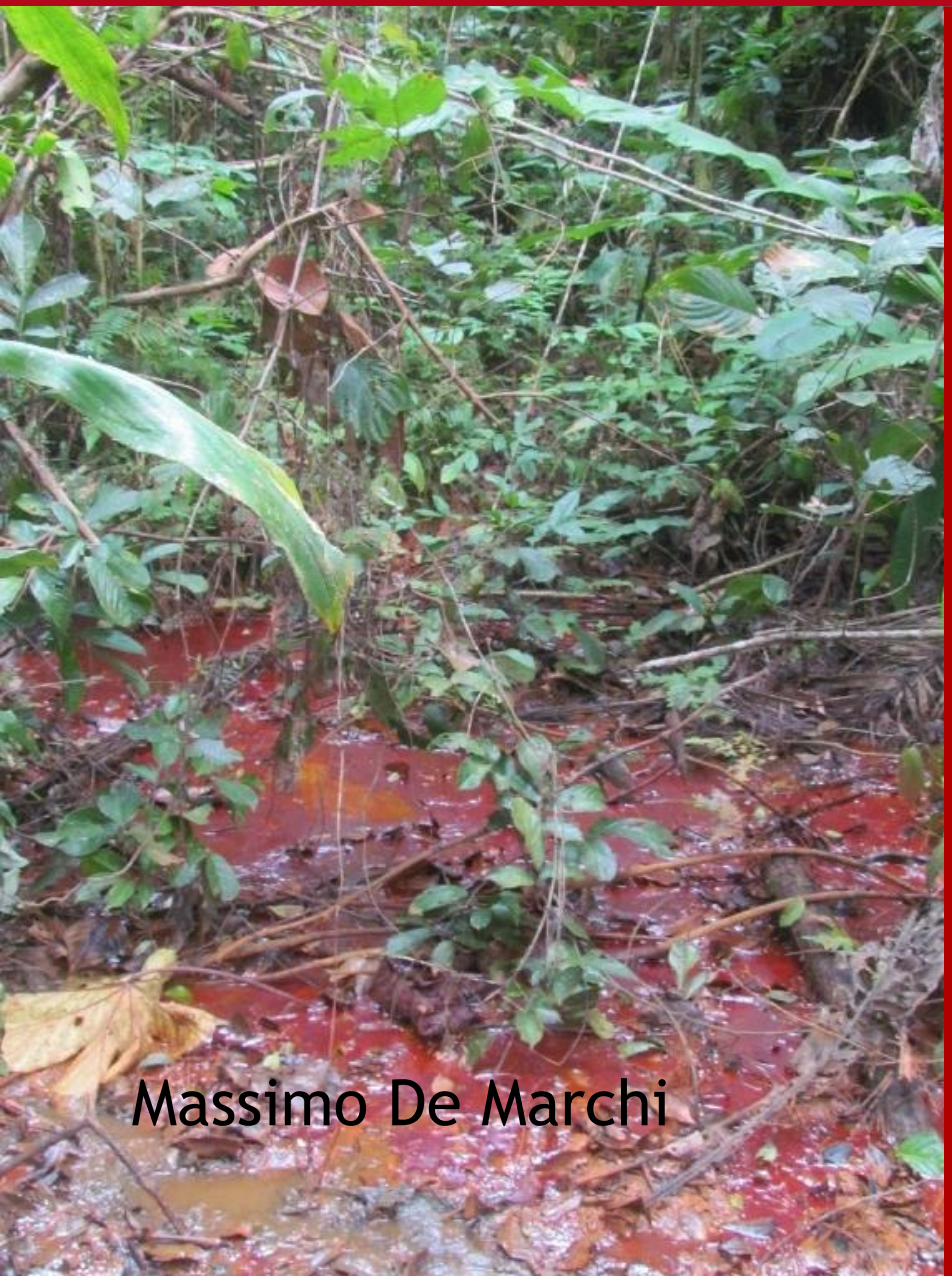

Massimo De Marchi, 04/05/2019


Salvatore Pappalardo,06/2018

# Campo marginal Tiwino *26/08/2011*


Massimo De Marchi

# Water conditions - *09/08/2011*




# Animal interactions - *09/08/2011*

Massimo De Marchi

800 ANNI 1222-2022 · Università degli Studi di Padova · ICEA · GIScience · CCD-STeDe · Climate Justice Jean Monnet Centre of Excellence · With the support of the Erasmus+ Programme of the European Union

# Sludge management - *09/08/2011*

# Chiru isla 14/08/2011


Massimo De Marchi

# Dimensions of climate justice

Climate justice must take into account five key principles (Heffron, 2020; Sunio, 2021):

- Distributive
- Procedural
- Recognition
- Cosmopolitan
- Reparative

Article

# Safe and just Earth system boundaries

**Nature, 31/05/2023**

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Check for updates

Johan Rockström[1,2,3]✉, Joyeeta Gupta[4,5], Dahe Qin[6,7,8], Steven J. Lade[3,9,10]✉, Jesse F. Abrams[11], Lauren S. Andersen[1], David I. Armstrong McKay[3,11,12], Xuemei Bai[10], Govindasamy Bala[13], Stuart E. Bunn[14], Daniel Ciobanu[3], Fabrice DeClerck[15,16], Kristie Ebi[17], Lauren Gifford[18], Christopher Gordon[19], Syezlin Hasan[14], Norichika Kanie[20], Timothy M. Lenton[11], Sina Loriani[1], Diana M. Liverman[18], Awaz Mohamed[21], Nebojsa Nakicenovic[22], David Obura[23], Daniel Ospina[9], Klaudia Prodani[4], Crelis Rammelt[4], Boris Sakschewski[1], Joeri Scholtens[4], Ben Stewart-Koster[14], Thejna Tharammal[24], Detlef van Vuuren[25,26], Peter H. Verburg[27,28], Ricarda Winkelmann[1,29], Caroline Zimm[22], Elena M. Bennett[30,31], Stefan Bringezu[32], Wendy Broadgate[9], Pamela A. Green[33], Lei Huang[34], Lisa Jacobson[9], Christopher Ndehedehe[14,35], Simona Pedde[9,36], Juan Rocha[3,9], Marten Scheffer[37], Lena Schulte-Uebbing[25,38], Wim de Vries[38], Cunde Xiao[6,39], Chi Xu[40], Xinwu Xu[7,8], Noelia Zafra-Calvo[41] & Xin Zhang[42]

Justice:

- between species
- between generations
- between states, communities, individuals

# ‘Just’ framework for the Just Transition

| | | | |
|---|---|---|---|
| J | TRANSITION | Justice | Justice takes the form of 3 forms of justice<br>Distributional<br>Procedural<br>Restorative |
| U | | Universal | Universal takes the form of two universal forms of justice<br>Recognition<br>Cosmopolitanism |
| S | | Space | Space brings in location, where are ‘events’ happening ? (in principle, at local, national and international levels) |
| T | | Time | Time brings into transition timelines such 2030, 2050, 2080 etc. and also ‘speed’ of the energy transition (i.e. is it happening fast enough?). |

Heffron, McCauley, 2018

# Framing Just transition

# Frameworks of Just transition

| Type | Key characteristics | Example(s) |
|---|---|---|
| Neoliberal | • Corporate-driven<br>• Commodification of social and environmental policies<br>• Targeted opportunities and assistance rather than universal policies and rights | • Corporate-centred retraining, education and pension schemes |
| Managerial reform | • Driven by crisis or exigency to stabilise rules of neoliberal political economy<br>• Targeted decommodification<br>• Strategic protections rather than universal protections or rights | • Counter-cyclical policies<br>• Recession and pandemic-driven policies |
| Structural reform | • Modifies rules of political economy, including role of state<br>• Significant decommodification<br>• Broader protections and rights | • Stronger social democracy<br>• Socialised health care in liberal* countries |
| Transformative | • Changes rules of political economy<br>• Generalised decommodification<br>• Generalised rights and universal public provision | • Global and eco-social Green New Deal |

JTRC, 2018

# …The risks of technocratic just transitions …

- The transition challenge shows different combinations between technocratic ecological modernization and inclusive transformative approaches
- There is no single just transition that emerges from the debate between industrial relations, climate policies, union proposals, climate justice movements, political ecology scholars (Krause et Al., 2022)
- Just transitions challenge the techno-optimistic win-win framework to highlight the reality of winners and losers
- Protecting workers, communities and the planet requires going well beyond the narratives of the green growth paradigm to enter into the creative transformation framework of creative conflict (McIlroy, Brennan, Barry, 2022)
- Policy makers, activists and researchers in the field highlight the need for a paradigmatic change to build a new eco-social contract that deepens the regulatory framework of the 2030 Agenda

# Toward transformative Just Transitions

UNRISD (2021), new ecosocial contract from the normative framework of Agenda 2030

*(i) human rights for all to make social contracts fully inclusive*

*(ii) a progressive fiscal contract for fair burden sharing and distributive justice*

*(iii) transforming economies and societies for sustainability and equality*

*(iv) a contract with nature recognising that humans are part of the global ecosystem*

*(v) addressing historical injustices through decolonisation and remedial action*

*(vi) a contract for gender justice, redistributing care and promoting diversity*

*(vii) new forms of solidarity and progressive alliances for bottom-up transformative change*

# Building places of decarbonization

# Key issue

The de-carbonization of economy and society …

The transition from fossil fuel to renewable,,,

The change in energy matrixes from zombie energy to green energies…

Do not mean we automatically achieve inclusion, justice human and nature rights

… the naïve technocratic positivist narrative of technological transition will automatically generate a new layer of climate injustice”

# Approaches for policies (1)

Reveal green extractivism and lucrative transitions (Lang, Bringel, Manaham, 2024; Dietz, 2024)

Decolonize energy transition (Hamouchene, 2024; Bassey, 2024)

Avoid accumualtion and dispossession by decarbonization (Yanez, Moreno, 2024)

Do we rely on greater polluters to save the planet? (Feffer, Lander, 2024)

Designing systemic regional transition (Campo, Escobar, 2024)

Building transformative eco-social justice and New Eco-territorial internationalization (Lang, Bringel, Manaham, 2024; Bringel, Fernandes, 2024)

# Approaches for policies (2)

Form just transiton to radical transformation (Clarke, Lipsig-Mummé 2020)

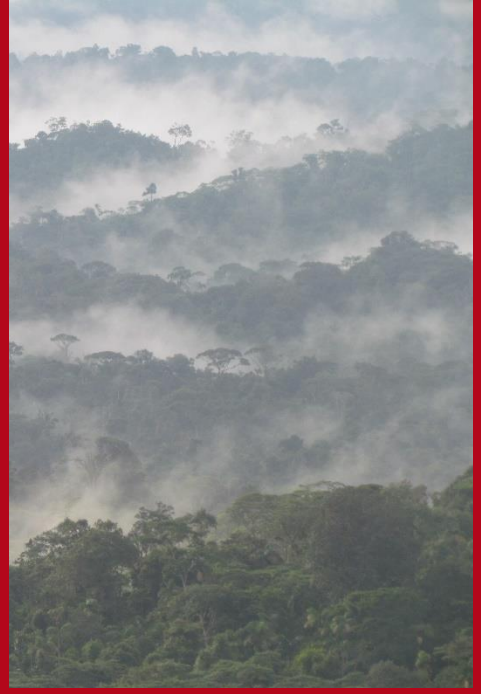
- To accelerate academic awareness
- Growing awareness of transformative changes
- Future conditional and climate apartheid

Using conflict transformation approaches (McIlroy, Brennan, Barry, 2022)

- Winners
- Losers
- Limits of Social Dialogue in the Eco-Modernist Frame

Making low-carbon places (Sareen et Al., 2023)

- The inclusive collective process of making
- The framing of low carbon
- Focusing on places not jut project



# Decostructing petroleumscapes

The transition requires recognition of the hydrocarbon landscape

Recognizing oil landscapes, and critically discussing them, is the first step towards any change.

*Multiscalar actions 1:*

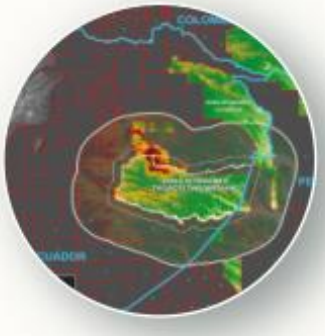
# Geovisualize: the World Atlas of Unburnable Carbon

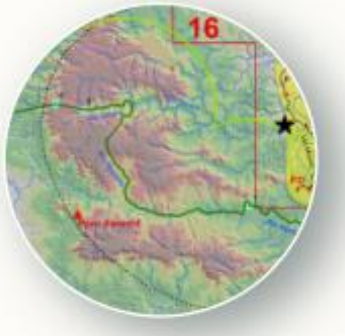
Università degli Studi di Padova · ICEA · U · C · ces · GIScience · GEOYASUNI.ORG · Associazione GISHub

ciclo di seminari

# YASUNIZZARE LA TERRA

## verso un atlante mondiale dell'unburnable carbon, geografie plurali dell'Amazzonia e della giustizia climatica




***Leave the oil in the soil***
***Leave the coal in the hole***
***Leave the tar sands in the land***
***Leave the gas under the grass***

**I will not dance to your beat**
**Nnimmo Bassey**
**Cochabamba - 20 April 2010**

CUENCAS SAGRADAS
DEL NAPO Y DEL MARAÑON
ECUADOR-PERÚ

# PLAN BIORREGIONAL

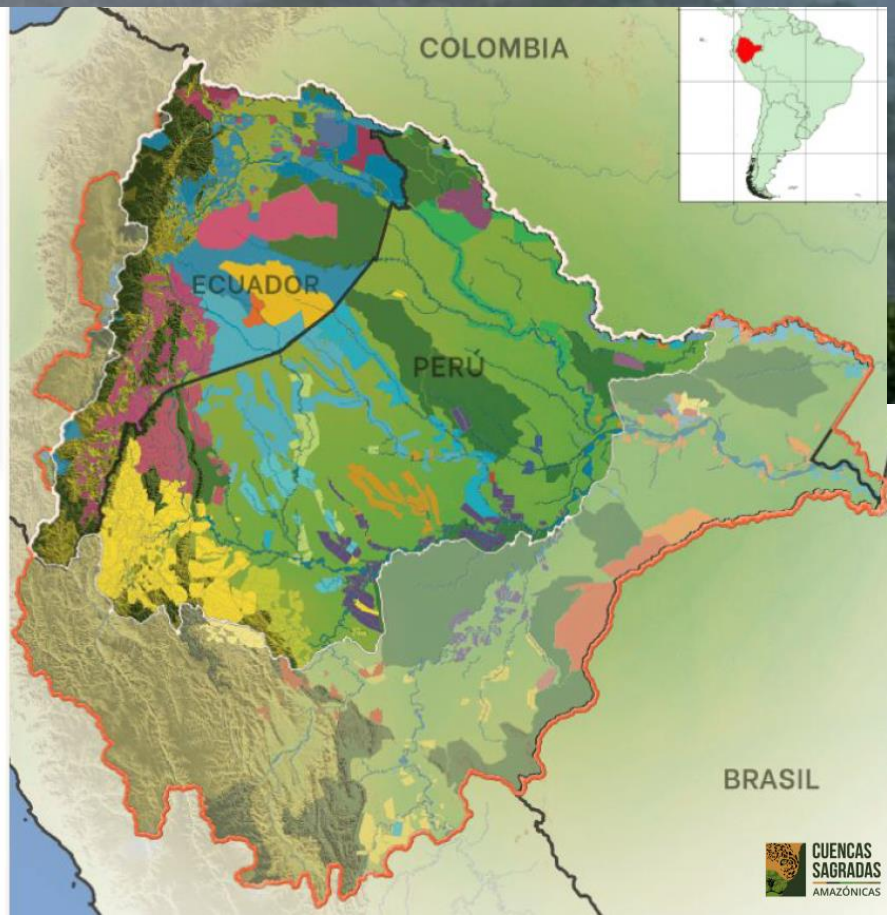
## Caminos de transición para la vida de las Cuencas Sagradas Amazónicas de Ecuador y Perú hacia 2030

*"Nosotros, los pueblos indígenas del Perú y Ecuador todavía vivimos en nuestros territorios ancestrales. Queremos vivir vidas dignas para asegurar el buen vivir en el planeta".*

*AIDESEP y CONFENIAE –*

**PUEBLO / NACIÓN / NACIONALIDAD**

- Achuar
- Awajún
- Andoa
- Arabela
- Bora
- Kandozi
- Capanahua
- Chamicuro
- Shawi
- Kukama-Kukamiria
- Cofán
- Wampis
- Huitoto
- Iquito
- Shiwilu
- Kichwa
- Matsés
- Ocaina
- Maijuna
- Yine
- Quechua Lamas (Kichwa)
- Kichwa del Napo
- Quechua
- Quechua del Pastaza
- Sápara
- Secoya
- Chapra
- Shipibo-Conibo
- Shiwiar
- Shuar
- Siona
- Ticuna
- Urarina
- Waorani
- Yagua




*Mapa 2*
*Pueblos, Naciones y Nacionalidades indígenas que habitan la biorregión*

Applied Geography 102 (2019) 28–38

Contents lists available at ScienceDirect

Applied Geography

journal homepage: www.elsevier.com/locate/apgeog

# Oil production, biodiversity conservation and indigenous territories: Towards geographical criteria for unburnable carbon areas in the Amazon rainforest

Daniele Codato[a,*], Salvatore Eugenio Pappalardo[a], Alberto Diantini[b], Francesco Ferrarese[b], Federico Gianoli[a], Massimo De Marchi[a]

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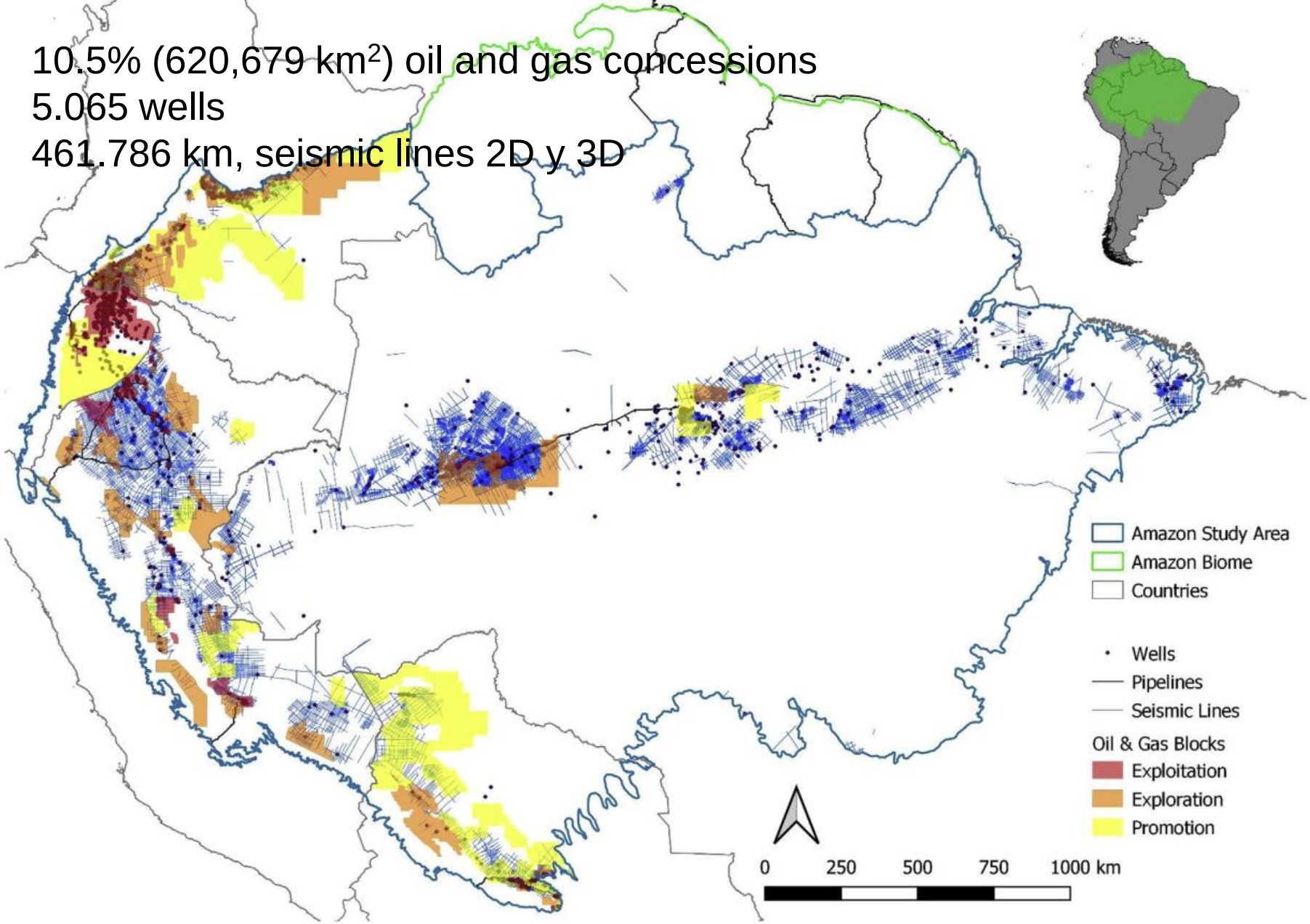
[b] University of Padova, Department of Historical and Geographic Sciences and the Ancient World, Section of Geography, Via del Santo n. 26, Padova, Italy

# Oil and Gas in the Amazon rainforest

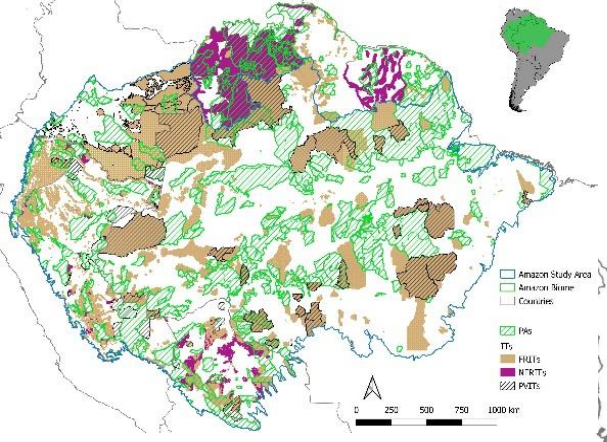
- In January 2019, the first article in the world that presents a synthesis of fossil fuel extraction activities in the Amazon was published
- And it defines geographical criteria for leaving fossil fuels underground

10.5% (620,679 km$^2$) oil and gas concessions
5.065 wells
461.786 km, seismic lines 2D y 3D



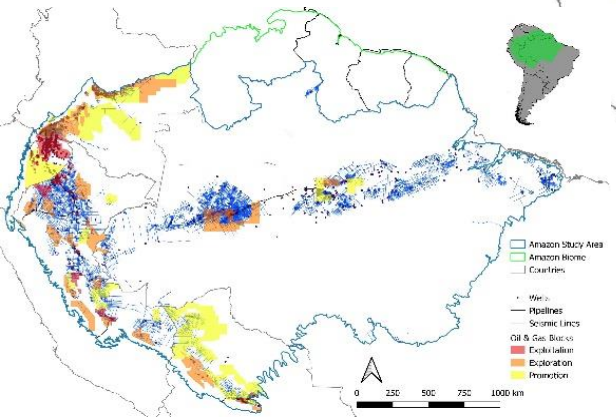

**Codato et Al., 2019**

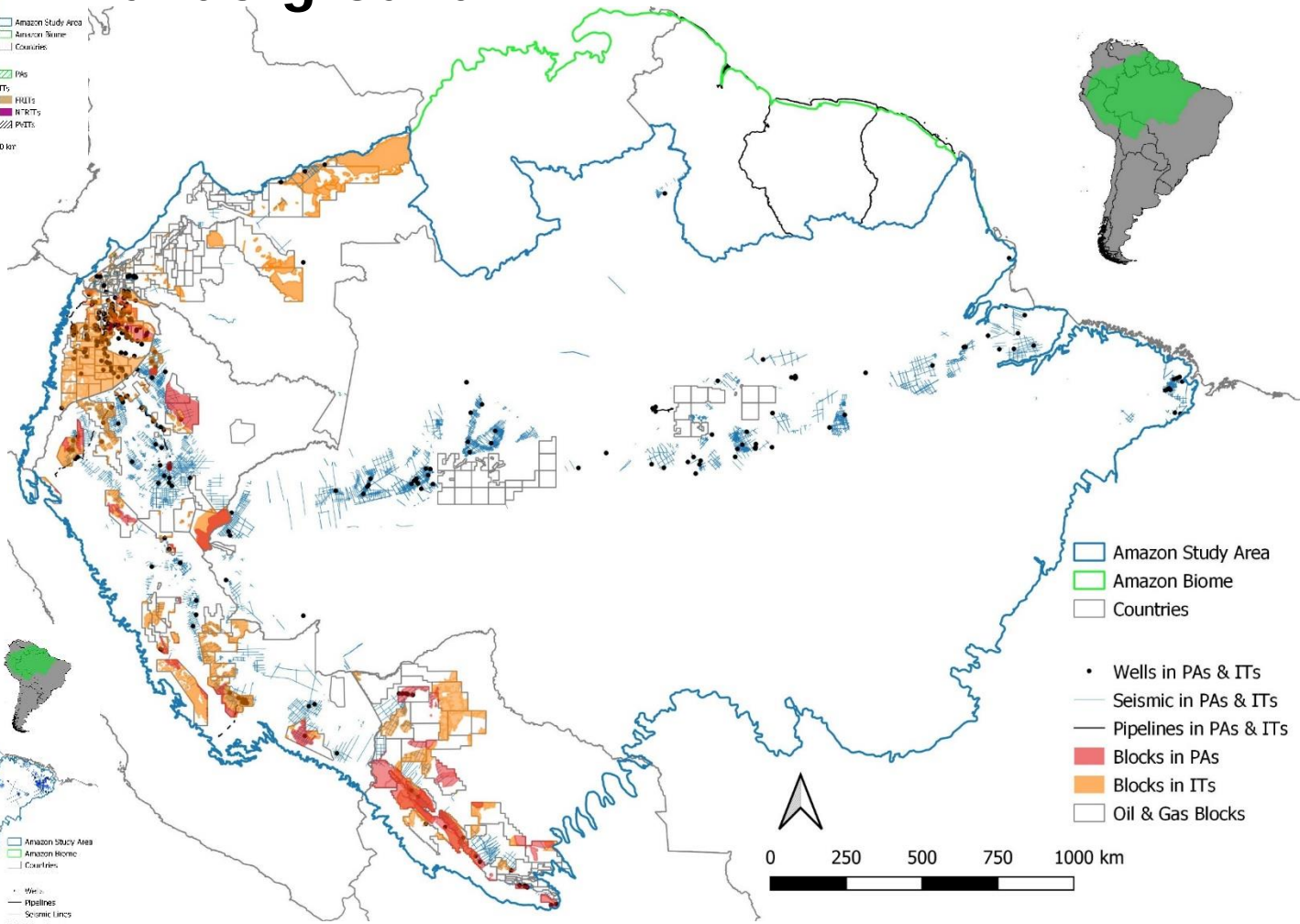
# Geovisualizing interactions: Where to leave hydrocarbons underground




Protected areas and indigenous territories

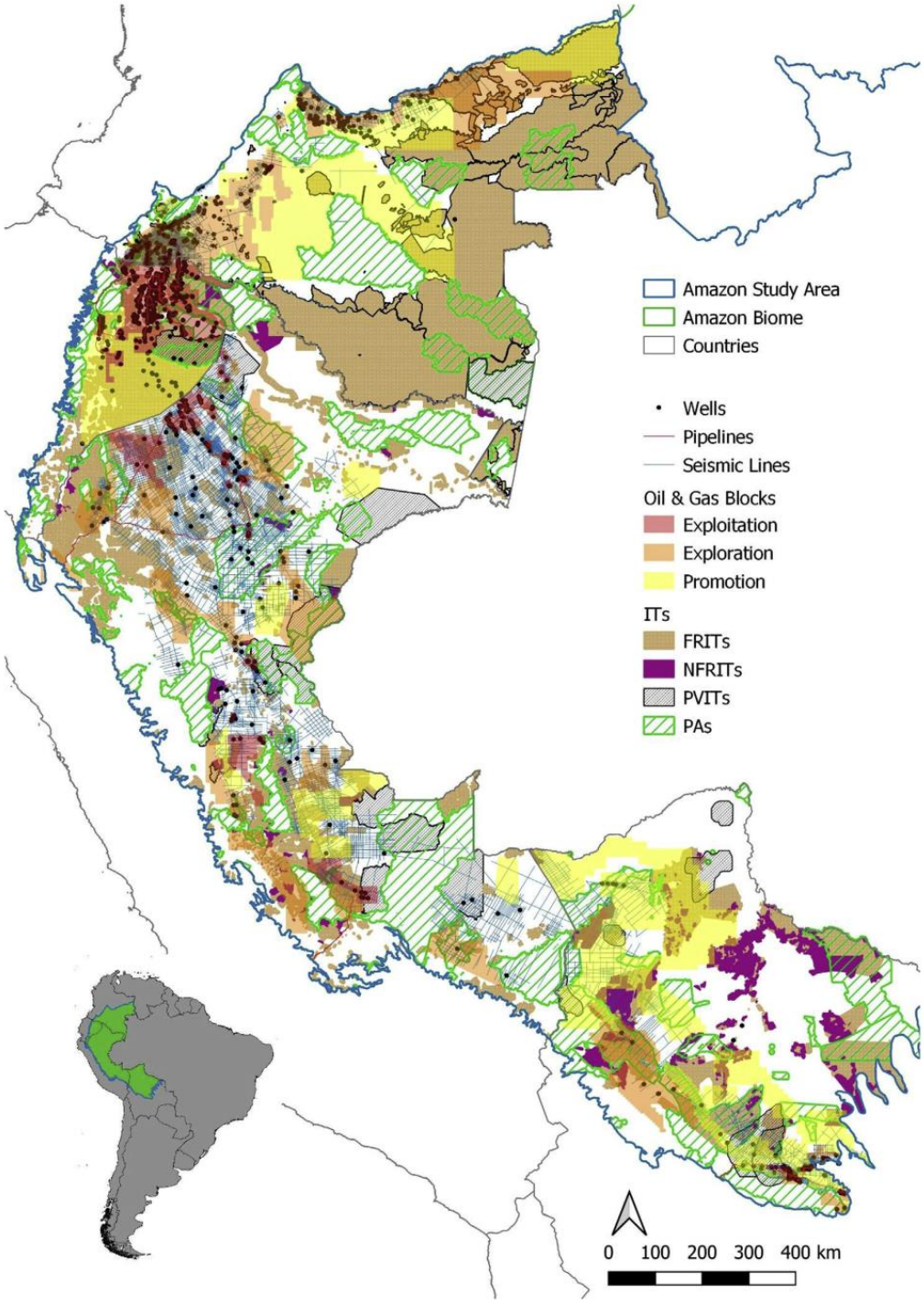
Exploration and exploitation of hydrocarbons



# Oil and Gas in the Amazon

- 35% of the Bolivian and Colombian Amazon is covered by oil and gas blocks.
- In Peru, around 24% of indigenous territories are covered by oil and gas blocks.



# Codato et Al. 2022

LETTER

OPEN ACCESS

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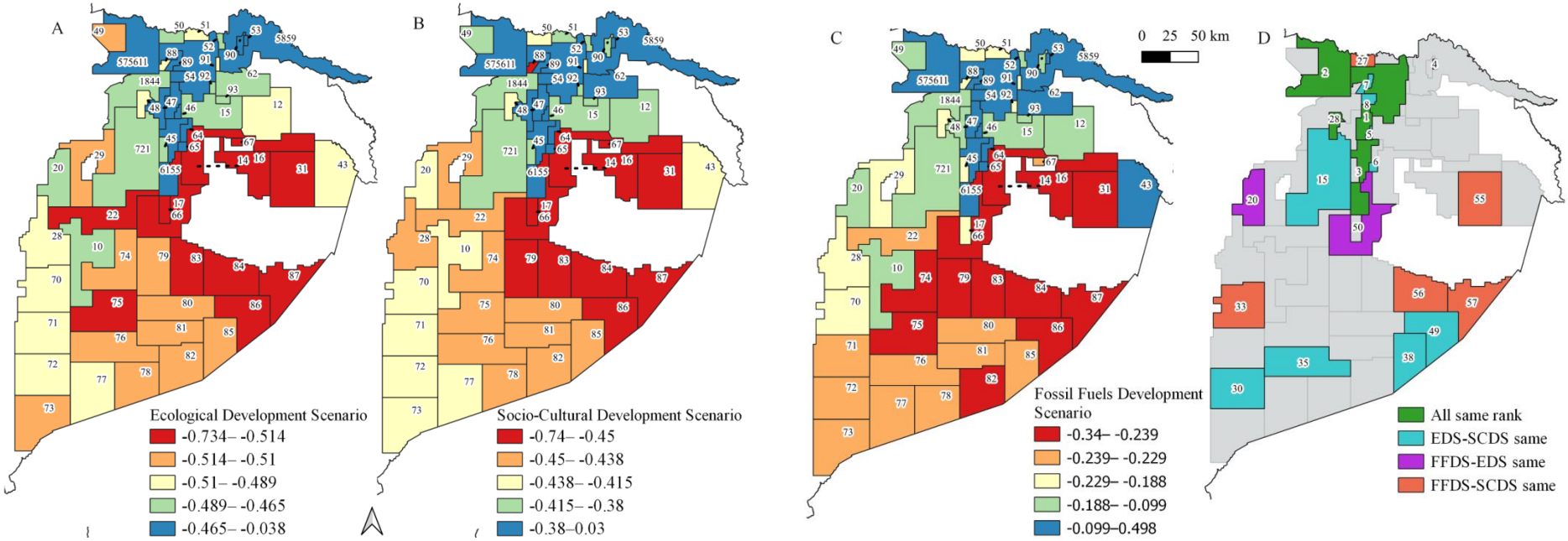
ACCEPTED FOR PUBLICATION
30 November 2022

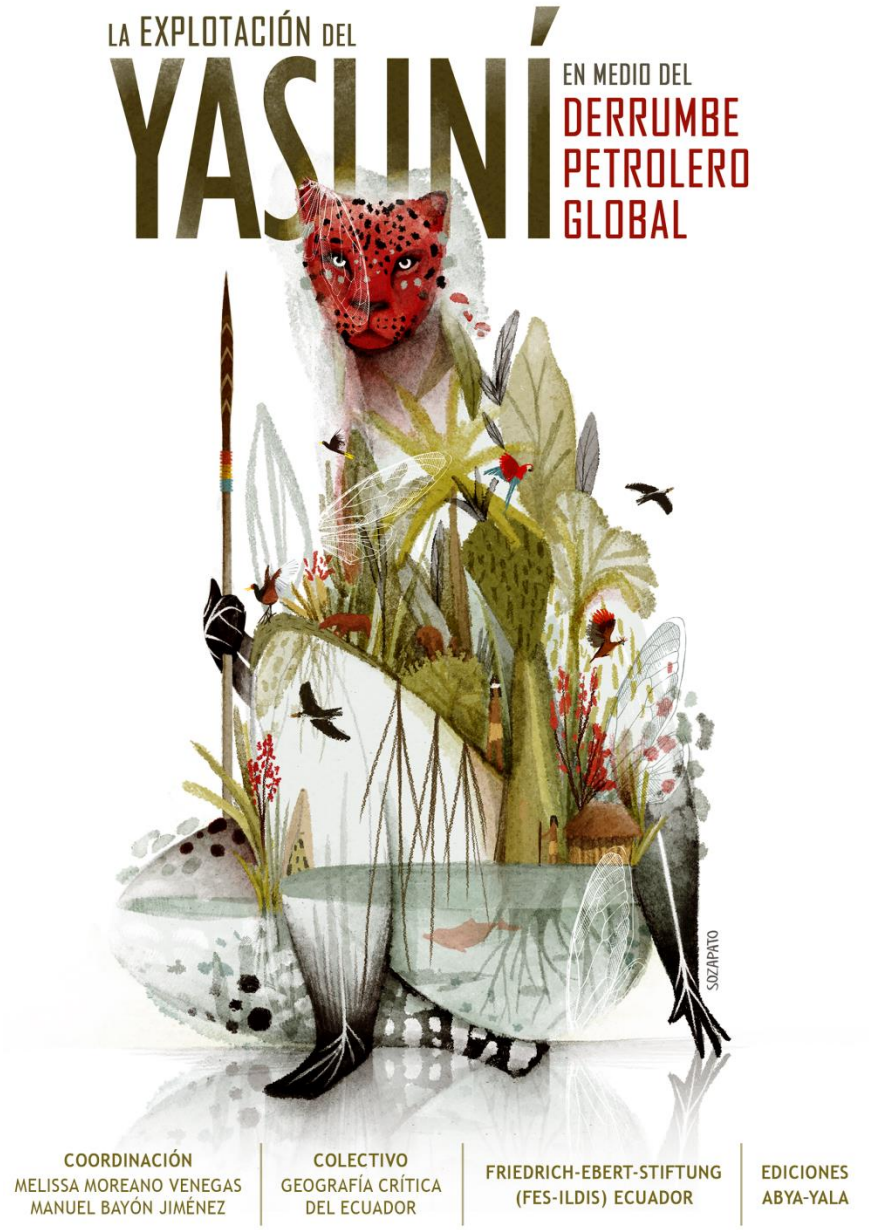
## Where to leave fossil fuels underground? A multi-criteria analysis to identify unburnable carbon areas in the Ecuadorian Amazon region

Daniele Codato[1,*], Salvatore E Pappalardo[1], Francesco Facchinelli[2], Maria R Murmis[3], Carlos Larrea[3] and Massimo De Marchi[1]



# Extra-activismo en territorios extra-ordinarios: mapeos emergentes de la Yasunización

**Massimo De Marchi,**
**Salvatore Eugenio Pappalardo**
**Matt Finer, Daniele Codato,**
**Alberto Diantini, Francesco Ferrarese**

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# Fossil Fuel Non Proliferation Treaty

CLIMATE POLICY
2020, VOL. 20, NO. 8, 1043–1054
https://doi.org/10.1080/14693062.2019.1636759

- Ending expansion (‘non-proliferation’)
- Phasing out fossil fuels (‘disarmament’)
- A global just transition (‘peaceful use’)

## Towards a fossil fuel non-proliferation treaty

Peter Newell [a] and Andrew Simms [b]

Contents lists available at ScienceDirect

Earth System Governance

journal homepage: www.sciencedirect.com/journal/earth-system-governance

## Building a fossil fuel non-proliferation treaty: Key elements

Peter Newell [a,*], Harro van Asselt [b,c,d], Freddie Daley [e]

*Multiscalar actions 2:*

# Climatic justice in the Amazon Rainforest: socila movements and extreme citizen science

# Participatory mapping and extreme citizen science

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With the support of the Erasmus+ Programme of the European Union



JFFT – Jean Monnet Centre of Excellence - massimo.demarchi@dicea.unipd.it

sustainability

2019

MDPI

*Article*

# Unburnable and Unleakable Carbon in Western Amazon: Using VIIRS Nightfire Data to Map Gas Flaring and Policy Compliance in the Yasuní Biosphere Reserve

**Francesco Facchinelli [1,*], Salvatore Eugenio Pappalardo [2,*], Daniele Codato [2], Alberto Diantini [2], Giuseppe Della Fera [2], Edoardo Crescini [1] and Massimo De Marchi [2]**

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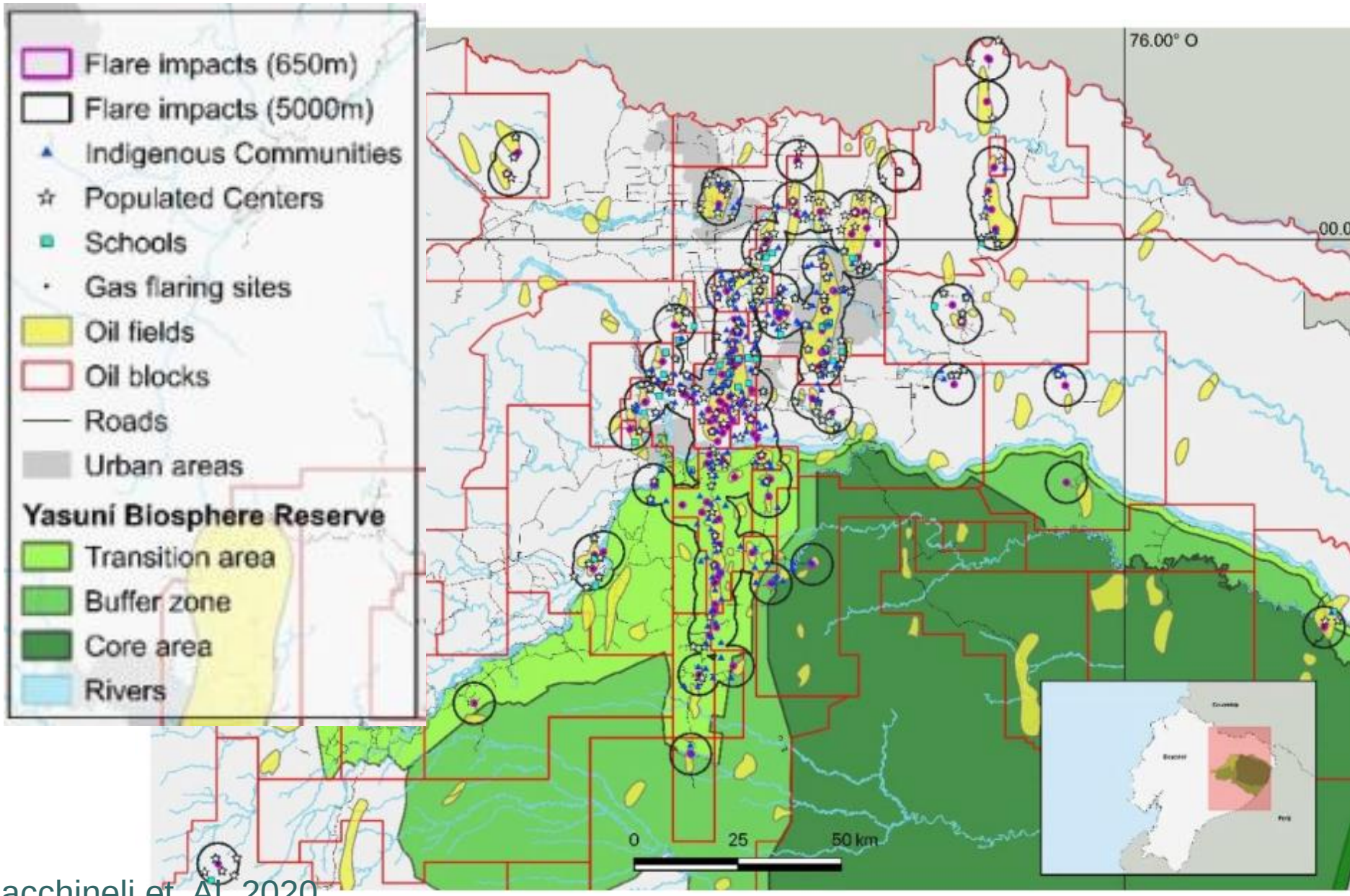
check for updates

*Report in Spanish - Support for the campaign: "Turn off the lighters - Apague los mecheros" and winning the lawsuit*

# *Unburnable and Unleakable Carbon in Western Amazon…*

- Processing National Oceanic and Atmospheric Administration (NOAA) Nightfire annual dataset (VIIRS) and GIS-based method to identify new flaring sites from daily detections
- 23.5% of gas flaring sites and 18.4% of volumes of all oil industries operating in Ecuador are located within the Yasuní Biosphere Reserve (YBR)
- We detected 34 additional flaring sites not included in the NOAA dataset: 12 in the YBR and one in Tiputini field, a key area for biological and cultural diversity conservation
- At least 10 indigenous communities, 18 populated centers and 10 schools are located in the potentially affected area
- Gas flaring can be used as a policy indicator to monitor the implementation of sustainable development practices in complex territories




Facchineli et. Al, 2020

FUNCIÓN JUDICIAL

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pablofajardom@gmail.com

Fecha: 29 de julio de 2021

A: BRAVO CASIGÑA DANNYA STHEFANY, HERRERA CARRION KERLY VALENTINA, JURADO SILVA LIBERTH JHAMILET, MONCAYO ORDOÑEZ LEONELA YASUNI, MORA CASTRO EVELIN MISHELL, NARANJO VITE SKARLETT LILIANA, NUÑEZ SAMANIEGO DENISSE MISHELLE, TEJENA CUICHAN JEYNER EBERILDE, VALLADOLID REQUELME ROSA DANIELA, ALEX CRISTOBAL HURTADO BORBUA, CONSEJERO PARA ASUNTOS AMAZONICOS, DUBOIS MARGAUX LOU, EARTH LAW CENTER, LAZZARI CELMO, MURILLO MARTIN DIANA CAROLINA, NATALIA PAOLA SALVATICO, PRESIDENTE DE LA FUNDACION AMIGOS DE LA TIERRA, ZAMBRANO FARFAN DIOCLES ANTONIO

Dr/Ab.: PABLO ESTENIO FAJARDO MENDOZA

**SALA MULTICOMPETENTE DE LA CORTE PROVINCIAL DE JUSTICIA DE SUCUMBÍOS**

*Report in Spanish - Support for the campaign: "Turn off the lighters - Apague los mecheros" and winning the lawsuit*

en calidad de Reparación integral este tribunal DISPONE: 1.- El Ministerio de Energía y Recursos Naturales no Renovables, a través de la Secretaría de Hidrocarburos, conjuntamente con las empresas petroleras, procederá a la actualización del plan para la eliminación gradual y progresiva de los mecheros tradicionales que se utilizan para la quema de gas, siendo los que se encuentran en sitios aledaños a los centros poblados los primeros en retirarse, para lo cual se concede el plazo de 18 meses; respecto de los demás mecheros, se deberá proceder a su progresiva eliminación hasta diciembre del año 2030; por lo que, se reducirá de forma planificada en atención a los compromisos que el Estado Ecuatoriano ha asumido en material ambiental y concretamente en relación a la quema de gas. 2.- El

*Resuts: empowerment of local communities*

**Documento de relación sobre el mapeo de los mecheros**

**en la Región Amazónica de Ecuador**

Autores: Francesco Facchinelli[1], Eugenio Pappalardo[2], Edoardo Crescini[1], Giuseppe Della Fera[2], Alberto Diantini[3], Daniele Codato[2], Massimo De Marchi[2]

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[3] Dipartimento di Scienze Storiche, Geografiche e dell'Antichita', Università di Padova, Via del Santo n. 26, Padova, Italia; alberto.diantini@unipd.it

Para obtener una estima independente y actualizada de los mecheros en el área de estudio se empezó un trabajo de mapeo de largo plazo entre los años 2018 y 2019. Este trabajo fue realizado con la colaboración de la Unión de los Afectados para Texaco (UDAPT), el Colectivo de Geografía Critica, la Fundación Alejandro Labaka y el proyecto AMAZONYA bajo la supervisión del equipo de investigación "Cambio climático, territorios y diversidades" de la Universidad de los Estudios de Padova, que también se encargó de verificar la integridad y de la elaboración de los datos. Para cada sitio donde había quema de gas se tomaron punto GPS, fotos y se documentó el número de mecheros presentes y su estado de actividad con el fin de clasificar y monitorear las actividades. Los mecheros se presentan com llamas o sin llamas. En algunos sitios se encontraron mecheros sin llama que emitían directamente gases en el aire. Este tipo de practica es llamado en el marco internacional "gas venting" y tiene consecuencias para la salud y el medio ambiente probablemente peores de la quema de gas. Es importante también notar que los presentes datos no pretenden representar una evaluación exhaustiva de todos los mecheros de la Amazonia Ecuadoriana, cuanto establecer una base para

26 de enero de 2021 17:47

# Corte de Ecuador acepta demanda de niñas para eliminar mecheros en la Amazonía


*results: empowerment of local communities*

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ENVIRONMENTAL RESEARCH
LETTERS

2022

LETTER

# Extreme citizens science for climate justice: linking pixel to people for mapping gas flaring in Amazon rainforest

Francesco Facchinelli[1], Salvatore Eugenio Pappalardo[2,*], Giuseppe Della Fera[3], Edoardo Crescini[4], Daniele Codato[5], Alberto Diantini[2], Donald Rafael Moncayo Jimenez[6], Pablo Estenio Fajardo Mendoza[6], Elisa Bignante[7] and Massimo De Marchi[8,9]

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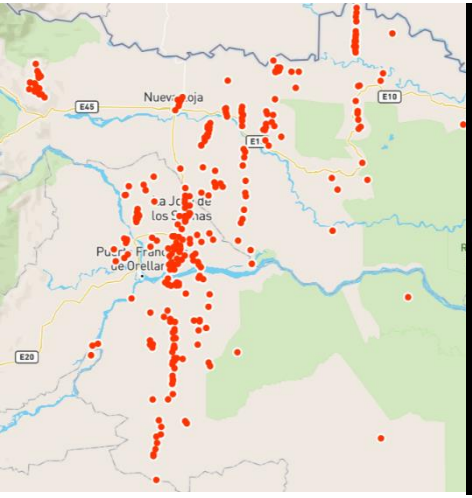
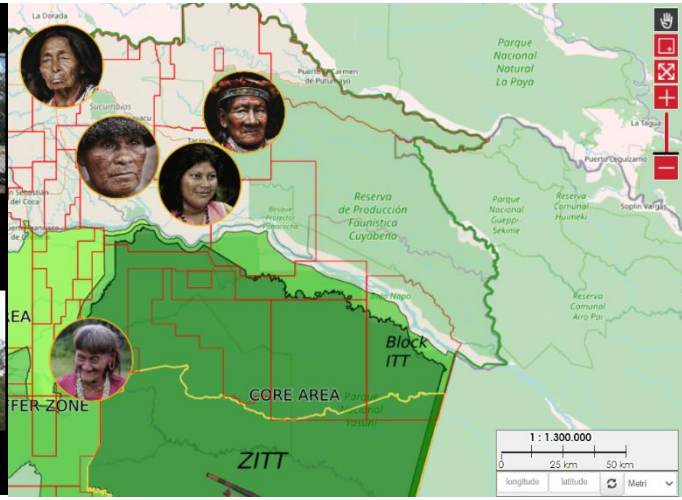


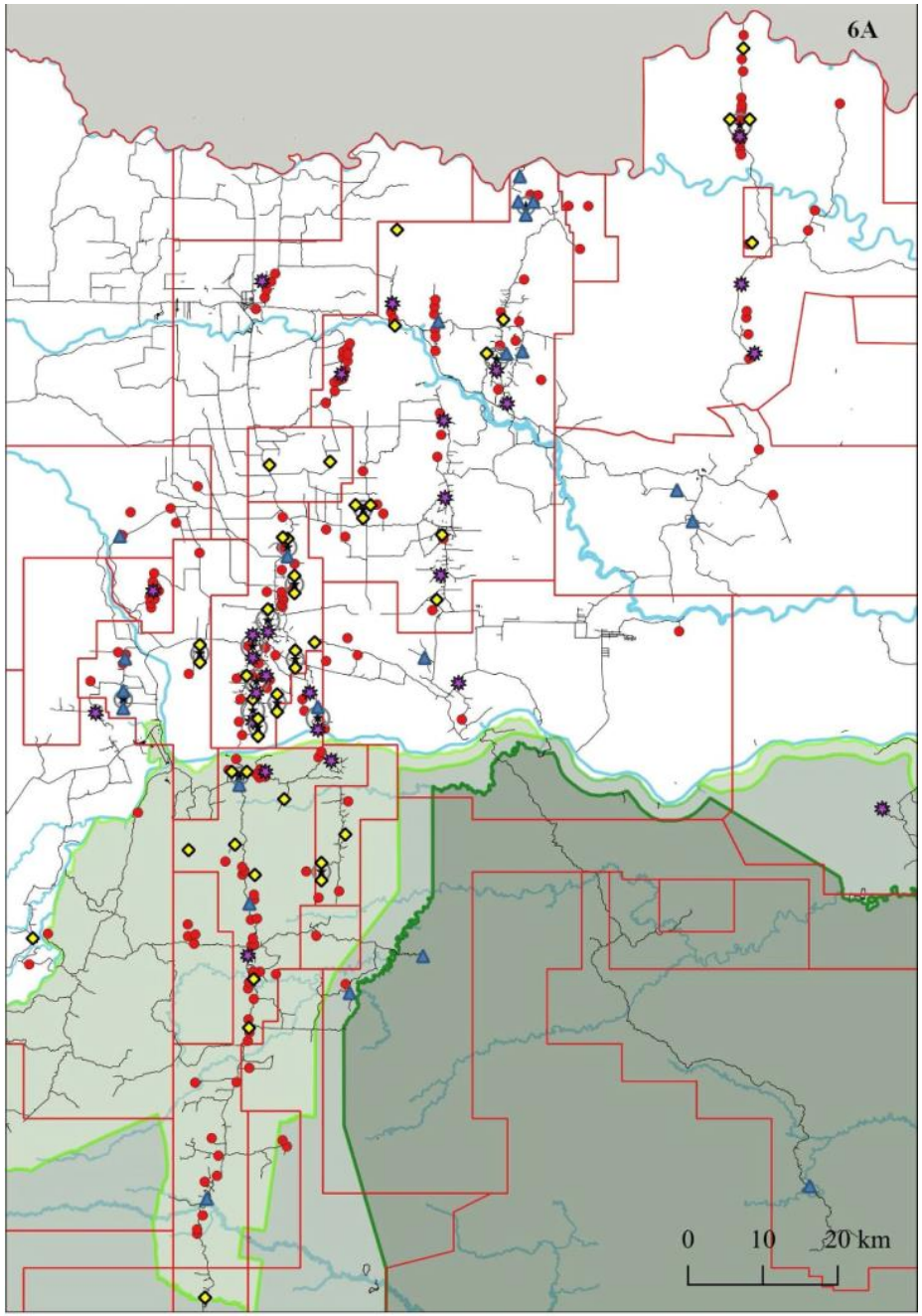




**https://ona.io/amazonya19/111556/492463**
**www.climate-justice.earth/amazonya/index.html**

# *Extreme citizen science …*

- This work presents the first participatory mapping initiative of gas flaring at a regional scale, carried out completely through open source data and software
- We identified 295 never mapped gas flaring sites through participatory mapping
- The extent of gas flaring activities is well beyond the official data provided by the Ecuadorian Ministry of Environment and National Oceanic and Atmospheric Administration Nightfire annual datasets
- Existing datasets map only 24% and 33% of the sites, respectively
- Seventy five of the detected sites were in the Yasuní Biosphere Reserve
- 39 of the identified sites were venting instead of flaring, a phenomenon never before documented in the Ecuadorian Amazon


Facchineli et. Al, 2022




Overlay NOAA annual and EME

Overlay EME

Overlay NOAA annual

Additional ground-mapped sites

Oil blocks

**Yasuní Biosphere Reserve**

Transition Area

Buffer Zone

Core Area

Main roads

Main rivers

Facchineli et. Al, 2022

# Challenges of climate justice: multi-situate multitudes

David Orr “The knowledge, skills, attitudes and values needed to industrialize the earth are not necessarily the same as those that will be needed to heal the earth or build lasting economies and good communities based on principles of equity and sustainability”

David Orr, 2004. *Earth in Mind: On Education, Environment, and the Human Prospect*. Publisher: Island Press

A free multitude is guided more by hope than by fear, while a submissive crowd is guided more by fear than by hope. The former seeks to cultivate life, while the latter simply avoids death.

BARUCH SPINOZA, 1670, Theological-political treaty, p. 120