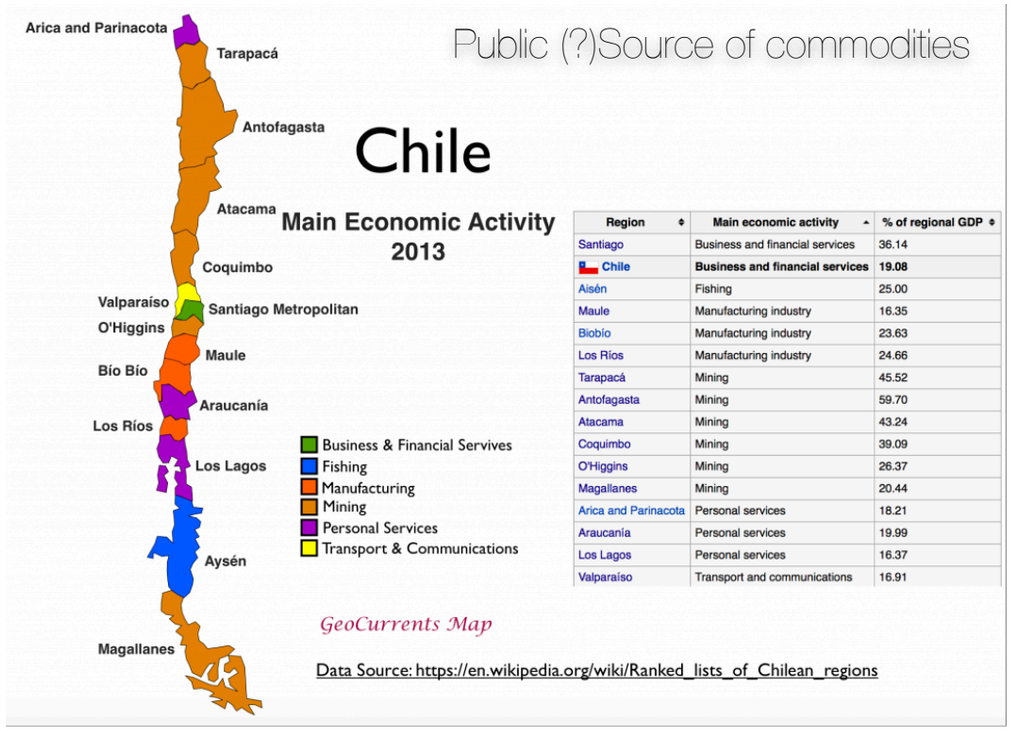
Applied geoethics: CITI199's essays from the Austral University of Chile

EOS4.2: Geoethics: Geosciences serving Society

Sandor Mulsow, Beatriz Barrales-Araneda, Nicolas Espinoza, Magdalena Flandez, Leandro Ledezma, Esteban Munzenmayer, Adriana Rivera-Murton, Pablo Salinas, Fernando Valenzuela, Rodolfo Valenzuela, and Marco Valle

Introduction: Towards Geoethics

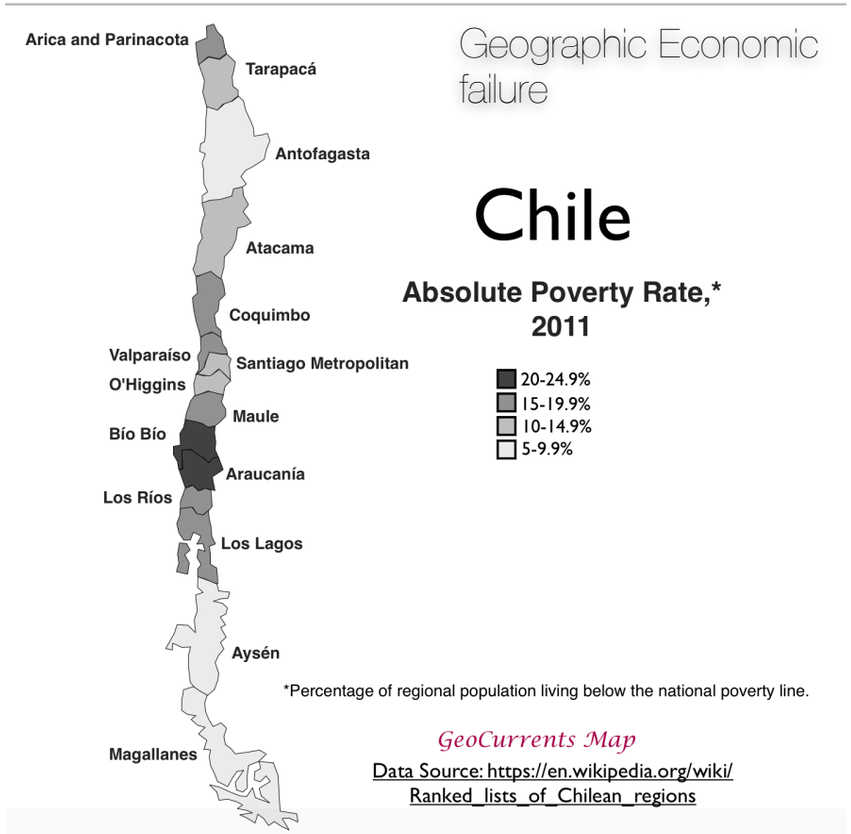
Brief X-ray of Chile economic reality under current Economic Model



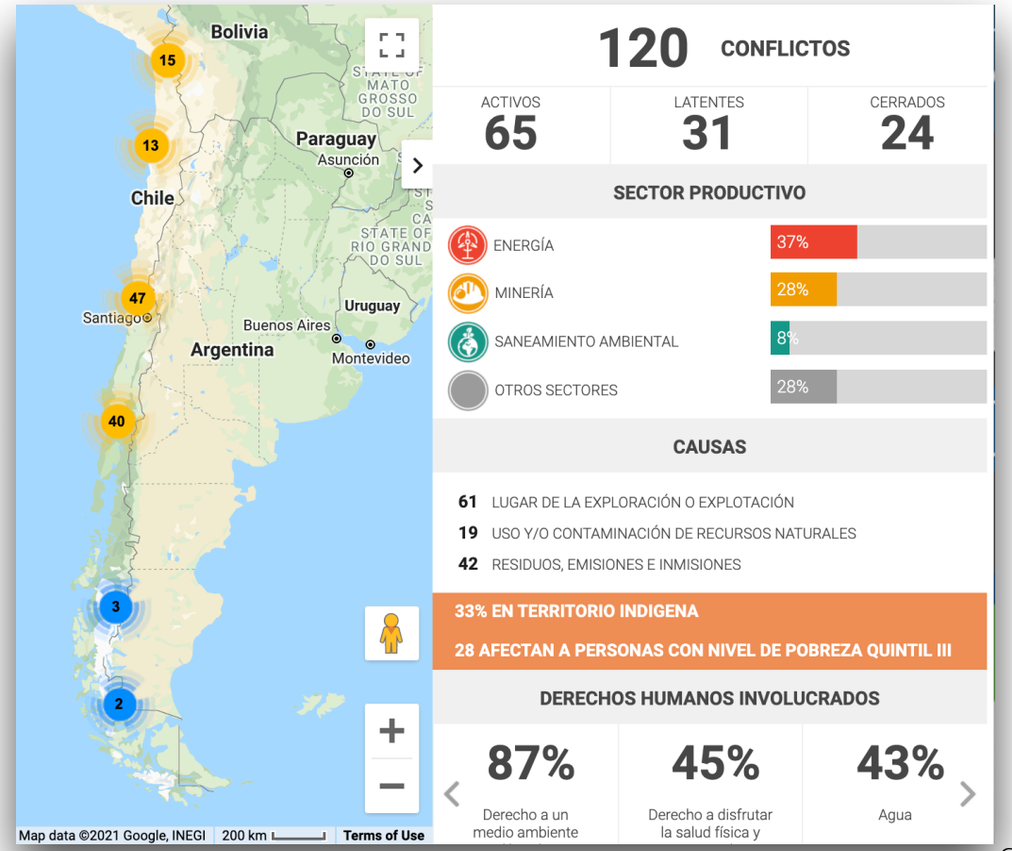
Region	Main economic activity	% of regional GDP
Santiago	Business and financial services	36.14
Chile	**Business and financial services**	**19.08**
Aisén	Fishing	25.00
Maule	Manufacturing industry	16.35
Biobío	Manufacturing industry	23.63
Los Ríos	Manufacturing industry	24.66
Tarapacá	Mining	45.52
Antofagasta	Mining	59.70
Atacama	Mining	43.24
Coquimbo	Mining	39.09
O'Higgins	Mining	26.37
Magallanes	Mining	20.44
Arica and Parinacota	Personal services	18.21
Araucanía	Personal services	19.99
Los Lagos	Personal services	16.37
Valparaíso	Transport and communications	16.91

success





reality



Drinking Water

Governance of the accessibility of fresh water of Chile's territory

1810 — Political Independence

1973-1990 — **PINOCHET's Dictatorship enshrined private ownership of water**

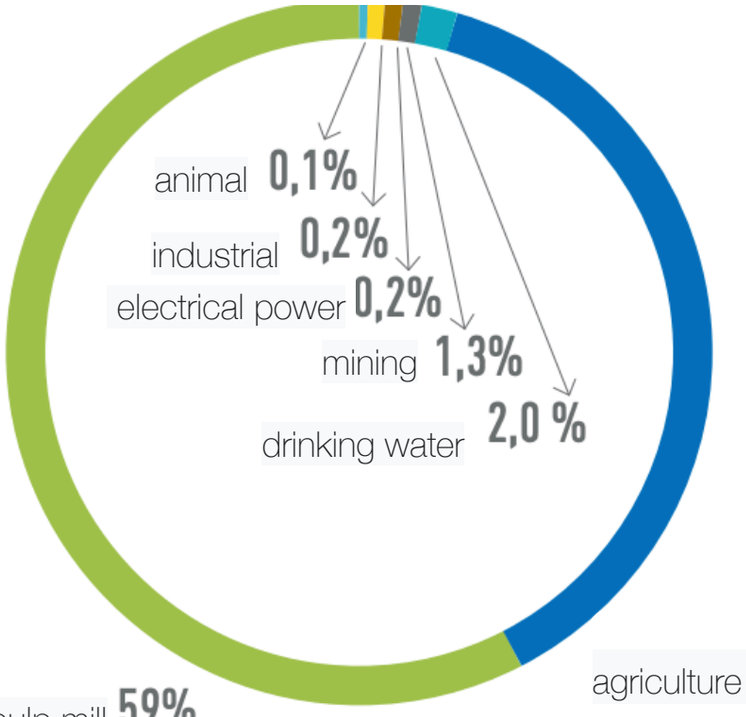
1998 — Frey's Democratic President: begins privatization of drinking water of the country

2021 — **Today: Suez Lyones des eau.,Aguas Barcelona, Marubeni and OTPF-Canada controls 90% drinking water supply of Chile.**

GDP success

43% Socio-economic conflicts linked to drinking water supply

total water consumption distribution in Chile - 2020





There is a life taken every eight seconds by some water-borne disease in other parts of the world.

no free access to drinking untamed water = death

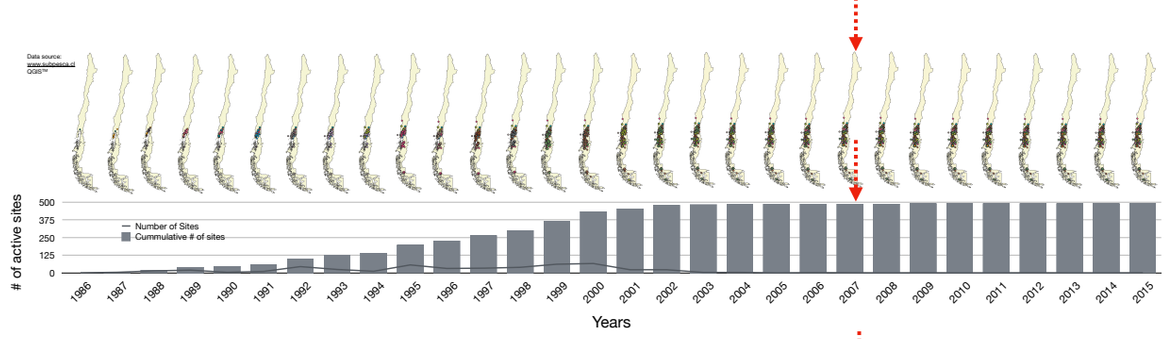


Massive salmon production

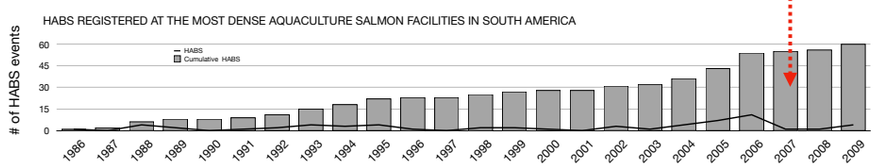
SALMON FARMING SITTING IN SOUTHERN CHILE (1986-2015)

Collapse of Salmon Farming
Infectious Salmon Anemia

a)



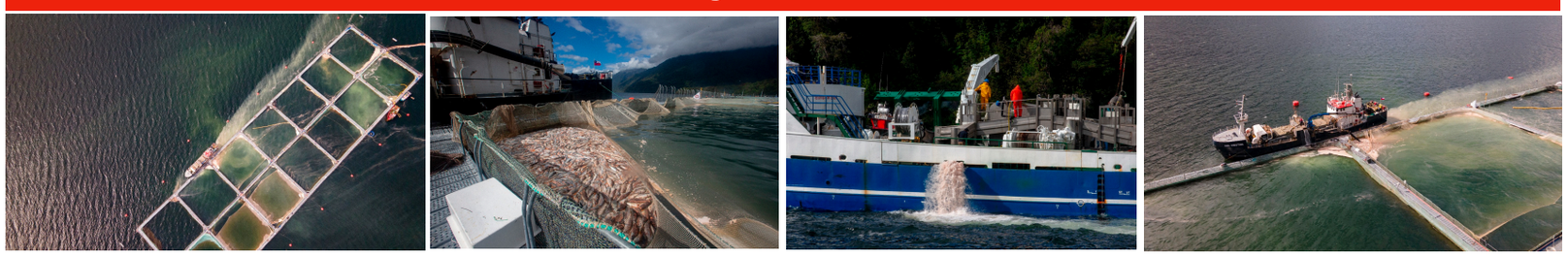
b)



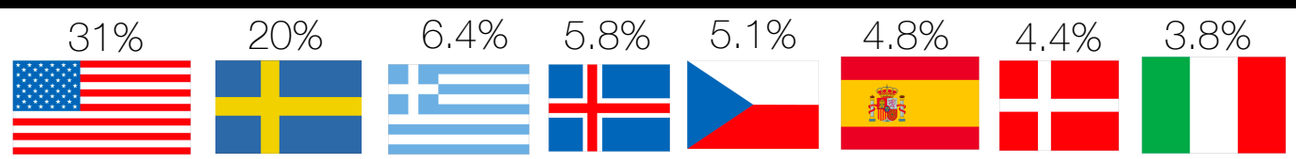
c)

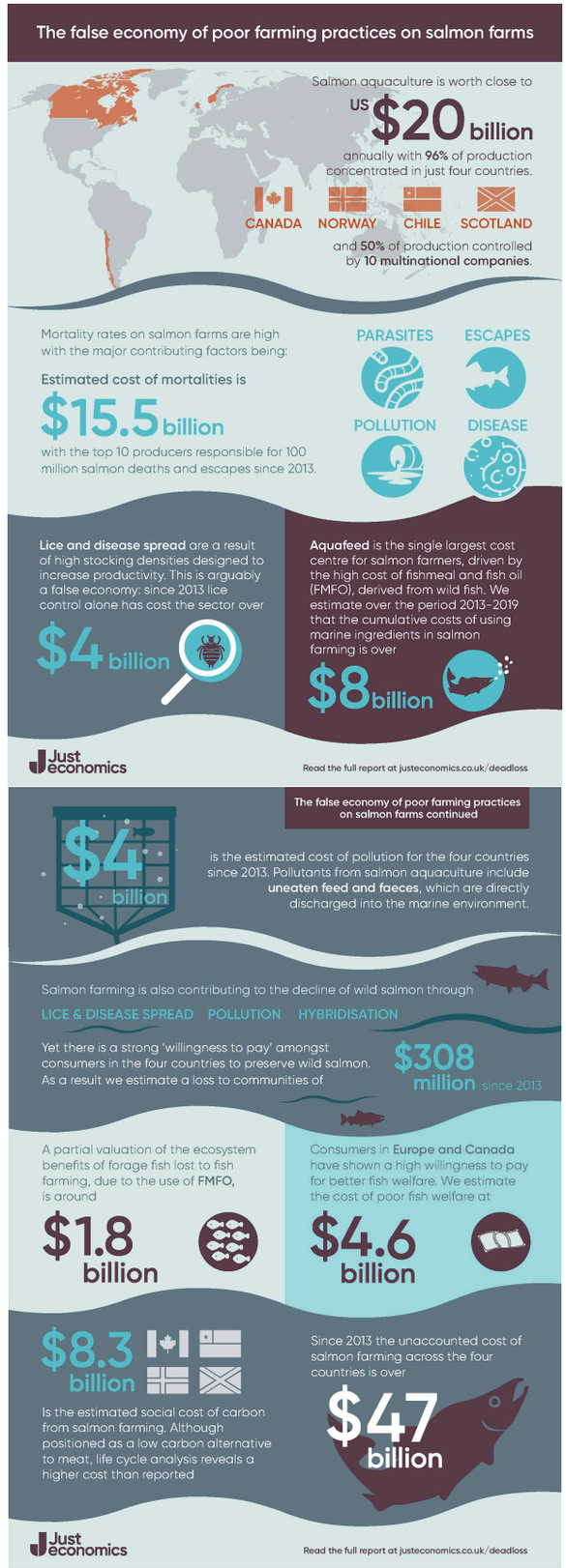
GDP success

Territorial Reality of Chilean's citizens



Profiting countries >5% Global Market (2020)



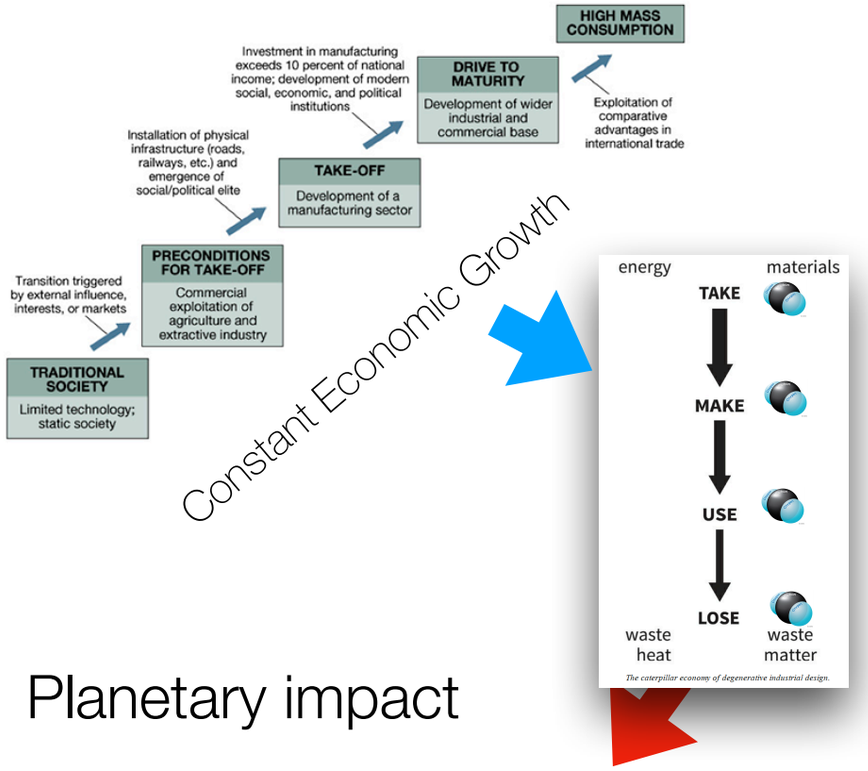


FAO: HIGH PROTEIN VALUE FOR FAMINE IN AFRICA????

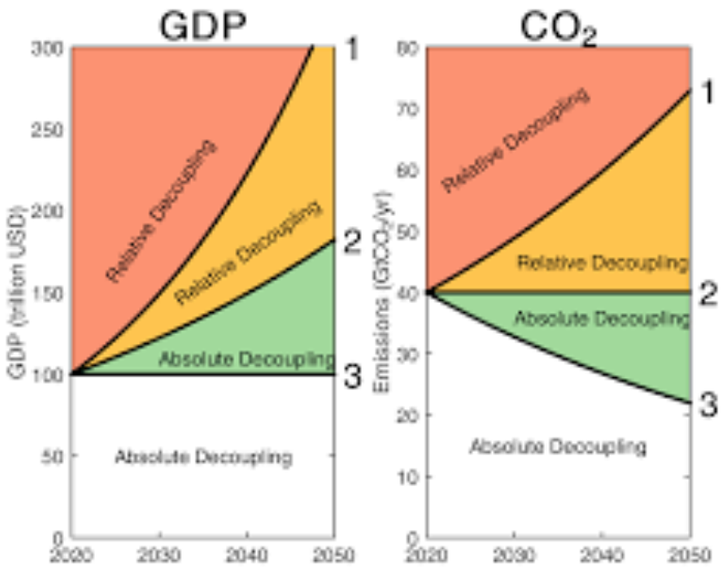
GEOETHICS CHAPTER SOUTHERN CHILE

Deep sea mining in ABNJ

Driving force

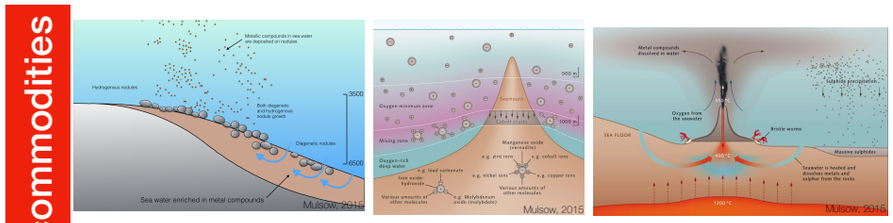


Planetary impact

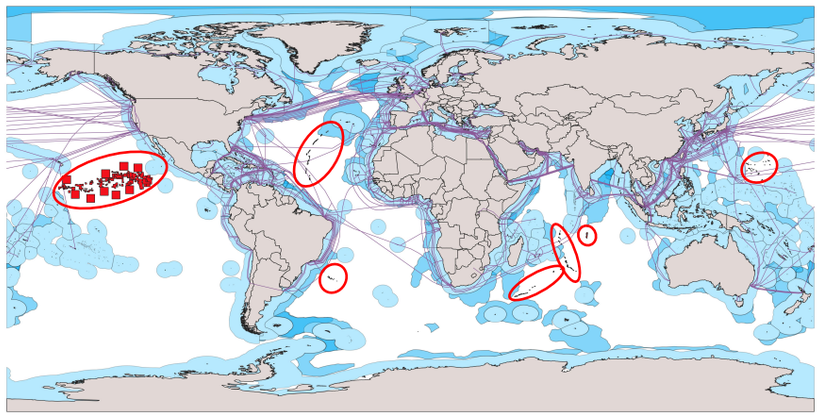


Common Heritage of Humankind

commodities



ABNJ



30 contracts: 1.4 mill km²

Poor Governance: ISA

David Cameron says seabed mining could be worth £40bn to Britain

Prime minister says UK can be at head of industry but chooses American defence firm to exploit new Pacific licence



David Cameron gives the seal of approval to the seabed mining industry in London on Thursday. Photograph: Reuters

David Cameron has pledged to put Britain at the forefront of a new international seabed mining industry, which he claimed could be worth £40bn to the UK economy over the next 30 years.

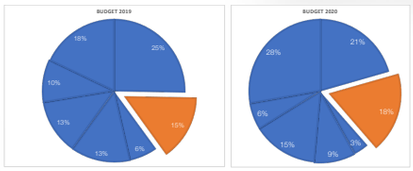


INTERNATIONAL SEABED AUTHORITY

CONTRADICTORY FUNCTIONS UNCLOS

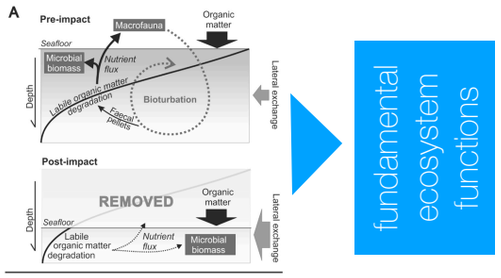
Biassed Function

- Development of marine resources
- Protection of the Marine Environment



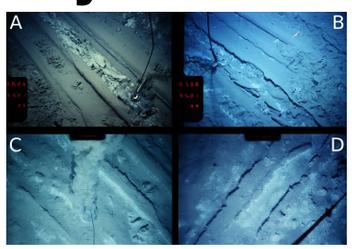
Precautionary Principle must be called now: MORATORIA on DEEP SEA M INING

END RESULT



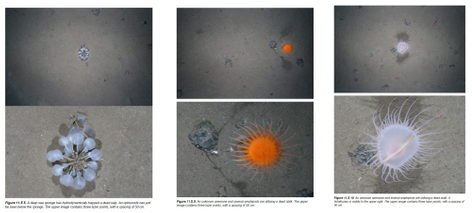
fundamental ecosystem functions

37 years later



Every geochemical structure is the habitat for living species of the deep ocean. IT WILL BE DESTROYED

Deep Sea unknown Species



will be destroyed by deepsea mining

Winners:
Opportunistic Private Sector
Commonwealth = 491,000 km²

DeepGreen: NORI-MARAWA-TOML

UK: I, II | Singapore | Cook Island

GSR-Belgium

Betting on E- mobility on rechargeable batteries

GEOETHICS CHAPTER SOUTHERN CHILE

Holocene soil degradation: soil use change

"All the wood used in the manufacture of paper in Latin America is 100% from planted forests specifically for this purpose. Even so, it is common to come across information that seeks to wrongly link paper production to the destruction of forests and deforestation", IDB-WTO-IMB

1962 — Agricultural Reform

1973 — 4,400 agricultural soil expropriated by Government: CORA-CORFO (Agriculture Reform Corporation)

Dictatorship Establishment

Dictatorship Appointed Pinochet's son in law to CORFO-CORA

1978 — Law 701: Subsidy to Forestry use of Soils

1980 — Major change in soil use in Chile: plantations of exotic trees only



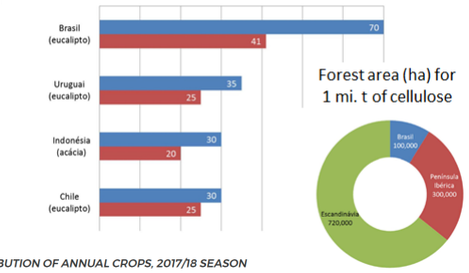
Chile: Industrial tree plantations

	total 1981 - 2011	mean 2009 - 2011
Afforestation	1 700 000 ha	22 000 ha
Reforestation	1 200 000 ha	66 000 ha
	mean 2000 – 2008	mean 2009 - 2011
Small owners	23 800 ha	6 700 ha
Other owners	88 700 ha	85 000 ha

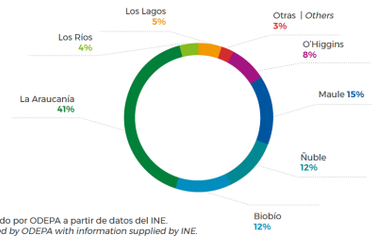
Pine annual plantation: 1998 -2008: 59% 2009 – 2011: 57%
Pine total area 68%
Eucalypt total area 23%

Total area of regions VII – XI	16 620 000 ha
Total plantation area	2 100 000 ha
Total forest and ITP area (incl Patagonian regions)	15 500 000 ha

Actual and potential productivity of ITP
m3/ha/year, Source Poyry/BRACELPA 2012



REGIONAL DISTRIBUTION OF ANNUAL CROPS, 2017/18 SEASON

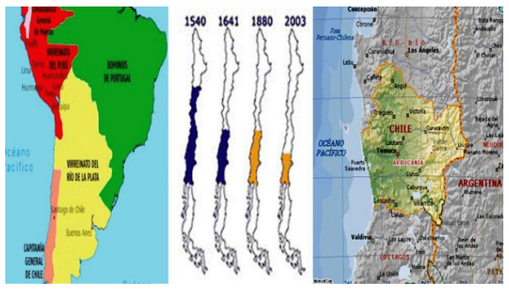


Fuente: elaborado por ODEPA a partir de datos del INE.
Source: prepared by ODEPA with information supplied by INE.

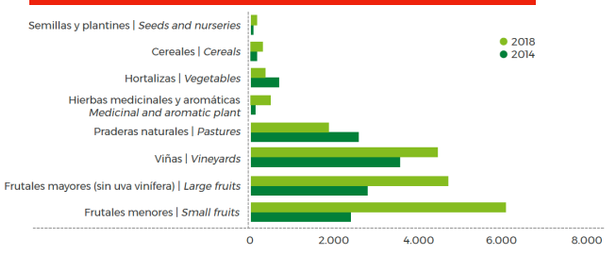
Result

elimination of Indegenous People

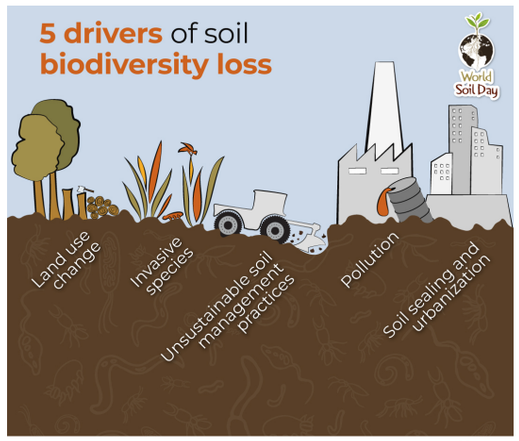




No interest to produce to locals

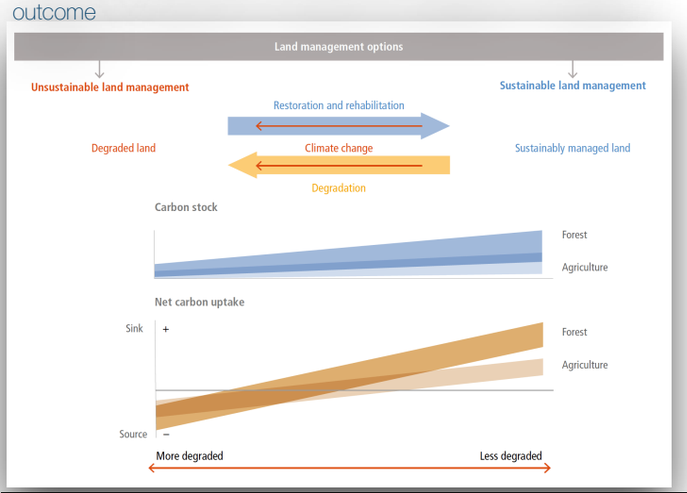


NET soil degradation in Chile



Olsson, L., H. Barbosa, S. Bhadwal, A. Cowie, K. Delusca, D. Flores-Renteria, K. Hermans, E. Jobbagy, W. Kurz, D. Li, D.J. Sonwa, L. Stringer, 2019: Land Degradation. In: Climate Change and Land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems [P.R. Shukla, J. Skea, E. Calvo Buendia, V. Masson-Delmotte, H.-O. Pörtner, D. C. Roberts, P. Zhai, R. Slade, S. Connors, R. van Diemen, M. Ferrat, E. Haughey, S. Luz, S. Neogi, M. Pathak, J. Petzold, J. Portugal Pereira, P. Vyas, E. Huntley, K. Kissick, M. Belkacemi, J. Malley, (eds.)]. In press.

Conceptual figure illustrating that climate change impacts interact with land management to determine sustainable or degraded outcome



Winners: planned Private Sector following Imposed Economic Model from 1950-60

Food and Agriculture Organization of the United Nations

GEOETHICS CHAPTER SOUTHERN CHILE

Concluding Remark and Actions

All the analyzed issues driven by economic model imposed in the 50's: ROSTOW, The stages of economic growth: a non- communist manifesto

All the analyzed issues follows the privatization of the national commons and international as well.

All the analyzed issues end results are the enrichment of few private industries and countries.

All the analyzed issues end results have a negative environmental impact at the local/ regional level extending to global cumulative impact.

All the analyzed issues lacked a geoethical perspective before, during and after decommission when applies.

Geoethical perspectives must be rooted in every single intervention of the habitat and planet. Geoethics it is not a matter of best industrial practices only -that is an illusion orchestrated by the same economic model.

Right now we need an International Moratoria on deep sea mining to spare our oceans and the future of our planet. Request a Moratoria to your Country Representative to International Seabed Authority and make your voice count