

Navdanya

- Earth Democracy
- Systems View v/s reductionist, mechanistic view
- Dominant paradigm based on separation
- Interconnectedness of crisis
- Linear extractive approach v/s circular regenerative approach

Food systems and climate

- Food at the centre of ecological , health and nutrition, crisis, climate and biodiversity
- Both the cause and consequence
- Enough food to feed global population – 2 billion endure with excess food, 800 million from hunger, malnutrition.
- 70% of human water use
- 1.3 billion small holders live below poverty

Contribution of food systems to climate change

- ❖ Food is a key driver for climate change. How it gets produced and how it ends up on our table accounts for nearly 50% of GHGs.
- ❖ Land use changes in fact contribute to nearly a fifth. 70-90% of deforestation is due to expansion of ag frontier. - industrial plantations such as soy, sugarcane, oil-palm, maize and rapeseed. Increase of 38% the area planted under these commodity crops – 15-18% produced by land use changes
- ❖ Post farm emissions contributions - processing, packaging and transportation. 1/4th of over all transports involve food transports in EU. In non industrialized as high as 25%. So if overall transport accounts for 60-80% of over all energy, we can safely assume 6%
- ❖ Processing and packaging accounts for 10-11% from EU data. Refrigeration 3-4% and food retail 2% (Total of 15-20% due to these activities)
- ❖ Wastage – Industrial food system discards upto half of all food in the journey from farm to traders to processors to stores and supermarkets. 3 – 4% of GHGs come from waste.

Industrial Biofuels

It takes 1.5 gallons of gasoline to produce one gallon of ethanol.

For each fossil fuel unit of energy, the return is 0.788 units, 0.68 for switchgrass ethanol, 0.534 of soyabean diesel.

In 2006 US used 20% of its corn crop to produce 5 billion gallons of ethanol which is 1% of oil requirement

For 100% of corn crop it will substitute 7%

Ethanol takes 1.7 gallons of water to produce a gallon

Corn uses more nitrogen fertilizers, insecticides and herbicides.

Planet losing rainforests, Indonesia, Brazil, Argentina

Jatropha in India

Biofuels have taken land away from food and poor and are a recipe for civic breakdown, violence, hunger and climate chaos.

Climate Smart Agriculture

- Developed by FAO and World Bank for triple wins
- No meaningful criteria (Syngenta, Yara, Mcdonalds, Monsanto)
- Promotion of synthetic fertilizers, intensive farming, monocropping, GMOs all on climate smart bandwagon
- Farmers worried that pressure for CSA pressurizes countries in south to prioritise mitigation and carbon sequestration rather than adaption and food sov
- No social safeguards,
- no enviornmental criteria,
- Carbon Trading

Synthetic Fertilisers

- The creation of synthetic nitrogen fertilisers is energy-intensive, burning large amounts of fossil fuels and leading to high CO₂ emissions.
- When applied to soil, they can release Nitrous Oxide (N₂O), a highly potent greenhouse gas that has 298 times the atmospheric warming effect of CO₂.
 - - Synthetic nitrogen fertilisers can cause stable organic matter in the soil to convert to CO₂ emissions⁵

CSA's Wide Tent

None of the promoters of CSA delineate the specific techniques involved. FAO states that CSA “is not a new agricultural system, nor is it a set of practices. Unfortunately, the lack of proscription is precisely the problem – allowing the concept to be co-opted by some of the world’s biggest industrial contributors to climate change: If every agricultural practice and every agribusiness is “smart” enough for GACSA, then even the most carbon-intensive, resource-wasting ones make the grade. The wholesale rejection of CSA by the vast majority of CSOs active in the climate arena²⁵ is the result of CSA’s “inclusivity.” (Etc group)

Geo Engineering

Geoengineering, or climate geoengineering, refers to a set of proposed techniques and technologies to deliberately intervene in and alter Earth systems on a large scale – particularly to climate system manipulations as a “technofix” for climate change. It is increasingly suggested as a way to “buy more time” for real, transformative change in the future, or as an insurance policy for our great grandchildren, thus passing on the difficult burden to the next generation.

Geo Engineering

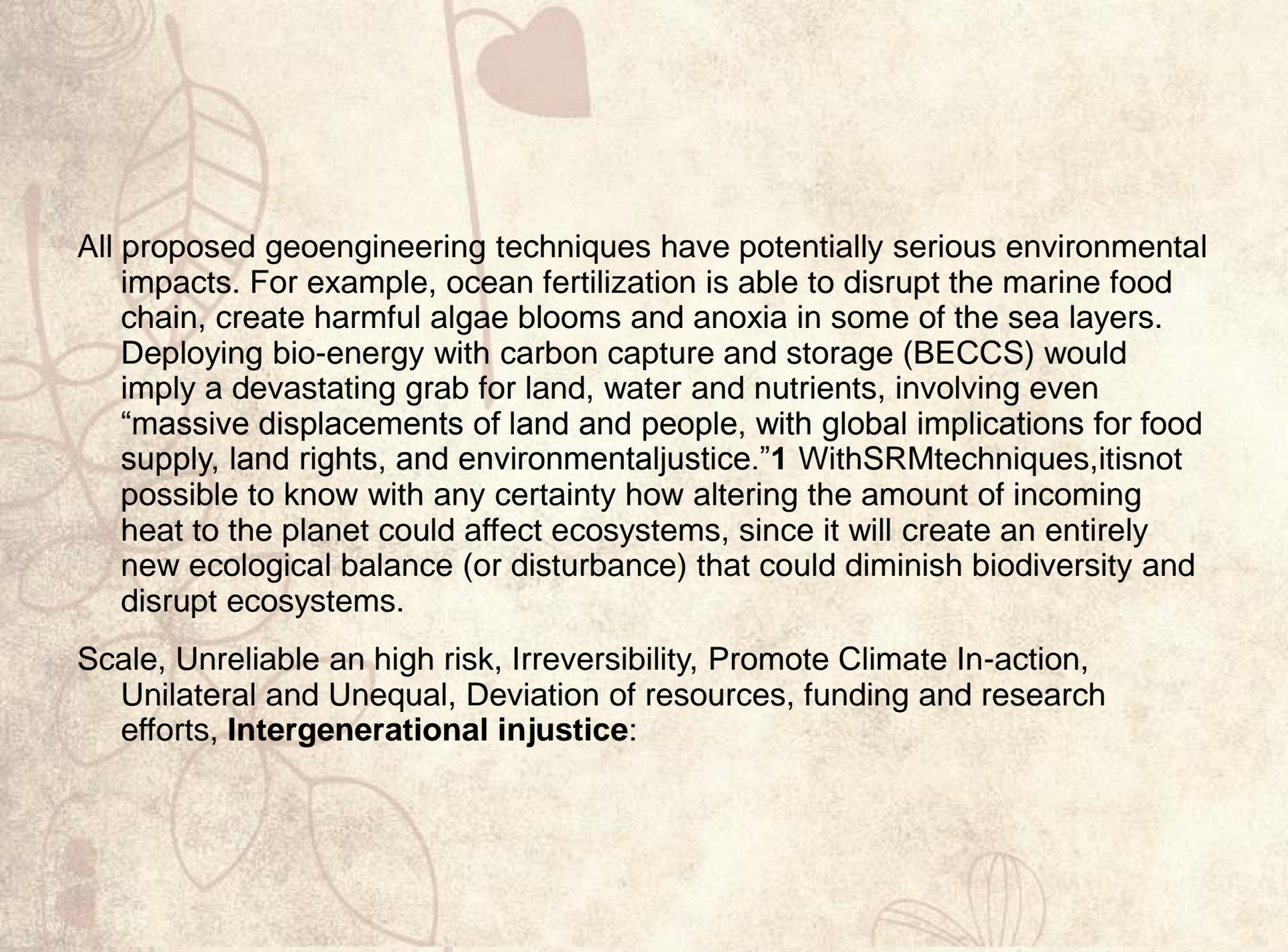
- Because of its high risk and inherent negative effects, it was considered as Plan B
- After Paris Agreement, geoengineering is being increasingly considered through a mix of risky technologies to take carbon out of the atmosphere.
- Fossil Fuel desperate to protect its 55 trillion USD of infrastructure
- Becoming main tool to undermine political will to lower emissions.
- Last resort for desperate climate scientists unable to produce pathways that can align a growth riven economic model with climate safe future.

Proposed Geoengineering

- **CO₂ removal (excludes other gases such as methane)**
- Ocean Fertilization
- Carbon Capture and Storage
- Direct Air Capture
- Bioenergy with Carbon Capture & Storage (BECCS)
- Enhanced Weathering (EW)

Solar Radiation Management

- Stratospheric Aerosol Injection
- Marine Cloud Brightening (MCB) or Cloud Reflectivity Enhancement
- Microbubbles and Sea Foams
- High-Albedo Crops and Snow Forest Clearance



All proposed geoengineering techniques have potentially serious environmental impacts. For example, ocean fertilization is able to disrupt the marine food chain, create harmful algae blooms and anoxia in some of the sea layers. Deploying bio-energy with carbon capture and storage (BECCS) would imply a devastating grab for land, water and nutrients, involving even “massive displacements of land and people, with global implications for food supply, land rights, and environmental justice.”¹ With SRM techniques, it is not possible to know with any certainty how altering the amount of incoming heat to the planet could affect ecosystems, since it will create an entirely new ecological balance (or disturbance) that could diminish biodiversity and disrupt ecosystems.

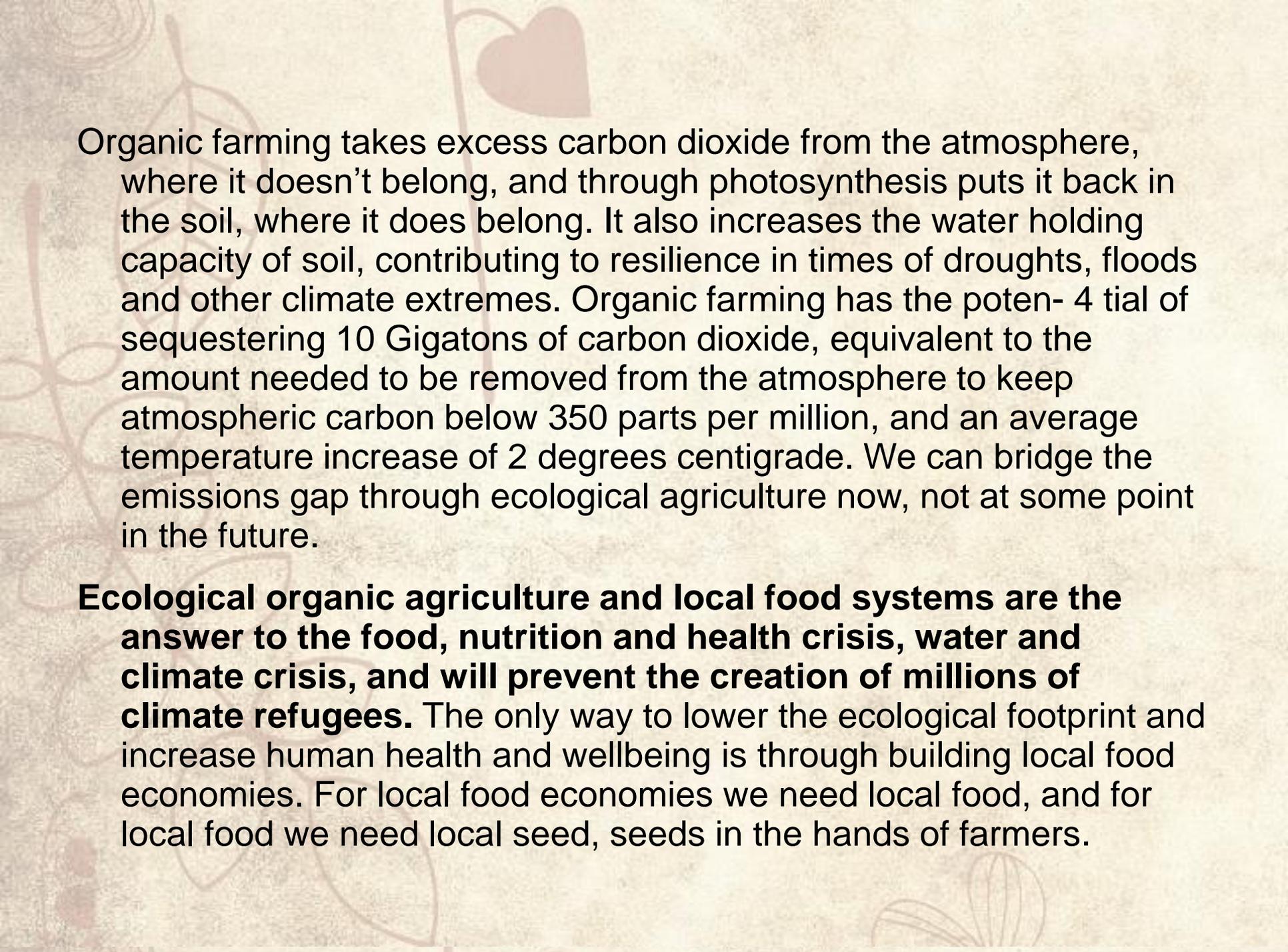
Scale, Unreliable and high risk, Irreversibility, Promote Climate In-action, Unilateral and Unequal, Deviation of resources, funding and research efforts, **Intergenerational injustice:**

Biopiracy of Climate Resilience

1500 patents on Climate Resilient crops have been taken by corporations like Monsanto. Navdanya/Research Foundation for Science, Technology and Ecology, have published the list in the report "[Biopiracy of Climate Resilient Crops: Gene Giants Steal Farmers Innovation](#)". With these very broad patents, corporations like Monsanto can prevent access to climate resilient seeds in the aftermath of climate disasters through patents – which grant an exclusive right to produce, distribute, sell the patented product. Climate resilient traits are not created through genetic engineering, they are pirated from seeds farmers have evolved over generations. For thousands of years farmers, especially women, have evolved and bred seed – freely in partnership with each other and with nature, to further increase the diversity of that which nature has given us and adapt it to the needs of different cultures.

Pact for the Planet

We cannot address Climate Change, and its very real consequences, without recognizing the central role of the industrial and globalised food system, which contributes more than 40% to green house gas emissions through deforestation, animals in concentrated animal feeding operations (CAFOs), plastics and aluminum packaging, long distance transport and food waste. We cannot solve climate change without small scale, ecological agriculture, based on biodiversity, living seeds and living soils and local food systems, with minimal food miles and devoid of plastic packaging. Small scale ecological agriculture has an essential role in helping to mitigate, adapt and build resilience to climatic changes.



Organic farming takes excess carbon dioxide from the atmosphere, where it doesn't belong, and through photosynthesis puts it back in the soil, where it does belong. It also increases the water holding capacity of soil, contributing to resilience in times of droughts, floods and other climate extremes. Organic farming has the potential of sequestering 10 Gigatons of carbon dioxide, equivalent to the amount needed to be removed from the atmosphere to keep atmospheric carbon below 350 parts per million, and an average temperature increase of 2 degrees centigrade. We can bridge the emissions gap through ecological agriculture now, not at some point in the future.

Ecological organic agriculture and local food systems are the answer to the food, nutrition and health crisis, water and climate crisis, and will prevent the creation of millions of climate refugees. The only way to lower the ecological footprint and increase human health and wellbeing is through building local food economies. For local food economies we need local food, and for local food we need local seed, seeds in the hands of farmers.

Navdanya International

- Co-ordinated Actions
- Soil Not Oil
- Terra Viva – Pact for the Planet
- No Patents on Seeds
- Poison Cartel
- Solutions