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Reclaiming the Food System: Agroecological Pedagogy and the IALA María Cano²

Industrial agriculture has been one of the key contributors to global warming and consequent climate disasters worldwide. In 2014, 44-57% of global greenhouse gas emissions were produced by industrial food production; principally from deforestation, transportation of products, their processing and refrigeration (GRAIN, 2014). Numerous food system scholars, including Gliessman, have highlighted the multifaceted nature of this problem, which requires nothing short of a systemic overhaul and a conversion towards territorially rooted, agroecological farming. Among many other characteristics, this involves the use of inter-cropping, organic inputs, small-scale farming that looks to boost and support biodiversity and conserve natural resources.

This paper will focus on the case of the Instituto Agroecologico Latinoamericano (IALA) María Cano in Colombia, which aims to use knowledge as resistance in an epistemo-political struggle against industrialised agriculture. The IALA model is a Pan-Latin American project, promoted by the transnational peasant organization La Vía Campesina (LVC), to attain Food Sovereignty through agroecology. The aim of the school and others like it is to unite knowledge production, with practice,

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community engagement and political formation, to preserve subaltern ways of knowing and doing agriculture. The essay will theoretically outline the phenomenon of industrial agriculture, the impact this has on societies and ecologies, as well as the overarching epistemologies that maintain this. It will then move on to review agroecology as a possible corrective to the expansion of this model of production and accumulation, as well as a healer of its consequent knowledge rifts (McMichael & Schneider, 2010)- defined as the removal of context specific knowledge of local ecologies and realities.

Given agroecology has strong historical roots in Latin America, it is fitting to analyse the epistemological backlash against industrial agriculture in the continent. Colombia has been chosen because recent peace accords between the government and the continent's oldest existing guerrilla group- Fuerzas Armadas Revolucionarias de Colombia- Ejercito del Pueblo (FARC-EP)- have led to a public reappraisal of the rural world. In this context of opening dialogue across social sectors, agroecological farming methods and systems are being underlined by campesino unions and social groups as a key tool to readdress deep rural inequality, as well as restore social, cultural, economic and ecological justice to long marginalised communities. Epistemological resistance against this agro-industrial dominance is highlighted through the IALA María Cano. In the aims and demography it represents, the IALA is part of wider peace accord implementation efforts and could prove to be a crucial way to reform rural education (FENSUAGRO, 2016).

Industrial Agriculture and the Corporate Food Regime: A New Green Revolution

The food regime approach is one way of understanding the structure of global food relations, pre-industrial and industrial regimes of accumulation within the food system, and the multiple effects these had through time. Food regime theory emerged during the period of 'declining national regulation and rising globalisation'

(ibid), a global process that continues to grow. McMichael and Friedmann originally established two food regimes that explained the global movement of food: 1870-1914, a period of British dominance; and 1945-1973, US dominance in the post-war period. The first saw food transported from the colonies to feed industrialising European cities; whilst the second saw a reversal, transporting from the Global North to South through food aid programmes. The second regime took place in the context of the Green Revolution. The technological and scientific implications of the Green Revolution include: the intensification of agriculture, primarily through the application of chemical fertilisers and pesticides, crop cultivation through monocrops and aggressive soil tillage. Through these practices global agricultural yields soared but at significant ecological and social costs (Gliessman, 2015). Additionally, many campesinos found themselves pushed off their lands due to soaring expenses, evidencing what Harvey calls accumulation by dispossession (2004; Hall, 2013; Grajales, 2013). Small landholdings became economically nonsensical, as monocropping required extensive landholdings. Finally, after some theoretical discrepancies (Friedmann, 2005; Campbell, 2009; Bernstein, 2015), McMichael established the third food regime- the Corporate Food Regime (CFR), which began in the late 1980s to present day.

As Gliessman notes, in the CFR 'profit making is an imperative, overshadowing everything else, including maintaining the long-term health of the soils, providing wholesome food, and treating farm labourers fairly' (2015, p.309). It is further defined as an 'era governed increasingly by financializing and neoliberal advocacy of market rule' (McMichael, 2013, p.41). Given the broad nature of the food system, which encompasses technology, knowledge production, politics, markets, societies, culture and importantly ecology, the definition of the CFR is equally expansive. In synthesis, the CFR embodies the corporate takeover of all elements and levels of the food chain, from seed to final packaged product. The main effects of this system include: 1) the accelerated dispossession of smallholders by fostering dependence on agricultural inputs, e.g. seeds and chemicals, as well as through the use of other economic and political tools for territorial dispossession 2) a loss of knowledge or 'knowledge rift' (McMichael & Schneider, 2010), since people are 'alienated from

the different stages of food production and preparation' (Timmerman & Felix, 2015, p.525) 3) ecological costs: increased deforestation, depleted soil fertility, reduced biodiversity and higher levels of CO2 emissions 4) nutritionally poorer diets, consisting of emptier calories and 5) increased importing of primary foods, due to greater exporting of natural resources, foods for animal feed or biofuels. As Gliessman posits, the 'processing, shipping and marketing side of [the] food system means farmers are left with very little money and the need to 'get big or get out' (2015, p.318).

The CFR or industrial food system is supported by a prevailing set of epistemologies. McMichael notes that this current food regime is composed of elements of the previous regimes (2013), a key aspect of which is the Green Revolution. The modern face of this- the 'doubly green revolution' (Conway, 1997) or 'new green revolution' (Holt-Gímenez & Altieri, 2012)- in its foundations is the Green Revolution but also encompasses the use of genetically modified (GM) technology. This is the fastest growing technology in the history of agriculture (Gliessman, 2015). Hybrid or GM altered seeds require high chemical inputs, deepening the green revolution and links to agribusinesses, which hold property rights to seeds and in turn produce the chemical inputs needed to make them grow. To add to the long list of ecological costs of this form of agriculture, GM production is leading to a shortening gene pool in both crops and animal protein, reducing biodiversity and hence natural resilience (ibid).

Agroecology & Food Sovereignty: Food from Somewhere

Inherent to each food regime are a series of conflicting interests and movements looking to change the existing regime of accumulation and or overthrow it. Counterpoised to the CFR and industrial agriculture is the equally diverse and global Food Sovereignty (FS) movement. FS is the right of small producers to cultivate socially and culturally appropriate food, using agroecologically sound methods. Agroecology encourages multi-crop farming, the use of endogenous or

local farming practices, low input but moreover no chemical input farming, it considers ecosystem processes, working in harmony with this to boost biodiversity and soil fertility (Holt-Giménez & Altieri, 2012; Gliessman, 2015; Rosset et al, 2016; Wittman, 2009; Woodgate, 2015). Agroecological farms are rooted in local realities and territorialities, with campesino agency at the heart of planning and execution. This idea is supported by LVC, hence, has strong roots in the global peasant movement. LVC itself identifies the key conflict within the CFR as that 'between centralised, corporate-driven, export-oriented, industrial agriculture versus decentralized, peasant- and family farm- based sustainable production, primarily oriented towards domestic markets' (in McMichael, 2013, p.58). In short, food from nowhere vs. food from somewhere.

As mentioned, agroecology provides the toolkit and methodology to realise FS. This is 'transdisciplinary, participatory, and change-oriented research and action, agroecology links together science, practice, and movements focused on social change' (Gliessman, 2015). An explicit methodological tool that supports this is LVC's *Dialogo de Saberes*, a Freirean exchange of knowledge from campesino to campesino (Martínez-Torres & Rosset, 2014). This 'is based on a horizontal dialogue between peers who have different knowledges and cosmovisions' (ibid., p.4). In this sense, the link between agroecology as a science and as a form of political and social mobilisation within the food system is intrinsic. Horizontality is central to the way agroecology is practised, taught and introduced. If the practice is imposed and didactic, instead of endogenous and participative, it contradicts the democratising potential that this social-economic and ecological approach has, instead, converting into another form epistemological imperialism.

In fact, there is an increasing tendency towards co-opting agroecology as a term and idea. As Loris points out, the diversity in its aims and definitions have opened it up to being divorced from its 'transformative' roots (2017). When the political and social aspects are removed, agroecology is reduced to a science and practice alone, becoming synonymous with organic farming. However, it should be distinguished from this, since agroecology 'emphasises a whole-system approach with minimal

external inputs' (ibid., p.4). Furthermore, organic farming still necessitates external inputs, such as organic fertilisers, it does not insist on multi-cropping, 'and may not necessarily prioritise other holistic principles like water conservation or use of renewable energy' (ibid). As Gliessman asserts, agroecology must 'challenge the ideological system that protects the corporate food regime and it must take issue with the concentration of power and the unequal distribution of wealth that lie at the heart of the way the food system operates' (2015, p.310). As a methodology and practice, it cannot do this unless it firmly links the political, social, cultural, economic and ecological.

Resistive Epistemologies: The Iala María Cano

As has been argued, many campesino communities view agroecology as the active recuperation, documentation, exchange, sharing, dissemination, teaching and use of knowledge (LVC, 2015). In this sense, knowledge itself becomes an act of resistance against prevailing epistemological systems. The IALAs across the continent are infused with this approach and notion. These universities represent an attempt to push against co-optation of the agroecological approach, reinforcing its political, economic, cultural and social foundations. The IALA initiative was preceded by more informal education organised by many umbrella organisations within LVC: through workshops, meetings, courses and seminars (ibid). In total, there have been more than 40 agroecology schools set up around the world, from 'informal farming training centres to more formal universities' (McCune et al, 2014, p.32). The formal schools that have already been established include: The Latin American School of Agroecology (ELAA) located in Paraná, Brazil; the IALA – Paulo Freire in Barinas, Venezuela; the IALA - Guaraní in Paraguay; the IALA - Amazónico in Pará, Brazil; the IALA-Mesoamerica in Managua, Nicaragua; the IALA- María Cano in Viotá, Colombia; the Universidad Campesina "SURI" (UNICAMP SURI) in Argentina; the National School of Agroecology of Ecuador (ENA); as well as new proposals for an IALA in Haiti.

The IALA Mario Cano is the newest of these schools, established on 25th April 2016. It is named after a leading female political figure, who campaigned for the rights of workers in 1920s Colombia. The school was founded by the country's largest agricultural workers' trade union- Federación Nacional Sindical Unitaria Agropecuaria (FENSUAGRO), alongside LVC's Latin American conglomerate-Coordinadora Latinoamericana de Organizaciones del Campo (CLOC-LVC). It was set up in the context of Colombia's historic civil war, which has its roots in the campesino struggle for land and rights to produce. The big difference between many of the IALAs around the continent and María Cano is precisely the history of conflict and the diverse national impacts this has had on the nation's agricultural processes.

The IALA is located on the Raul Valbuena farm, which belongs to FENSUAGRO and consists of 16 hectares (ha). The farm houses up to 80 people, has a communal eating area, kitchen, bathrooms, two classrooms and a computer room (ibid., p.2). The productive area consists of 4 ha of coffee plantation, 11 ha of pasture (with 19 cows) and 1 ha for vegetable cultivation (ibid). All costs for teachers, students' living expenses and matriculation are covered by FENSUAGRO, with the help of international organisations. These organisations include: Solidarity con Latino America, Why Hunger, Agroecology Fund and International Development Exchange (IDEX) from the USA, as well as Isvara from the Basque Country, Spain; further funding is also being sought from the European Union. Additionally, local organisations, from which the students arrive, are expected to cover the costs of journeys to and from the IALA. This has proved problematic, however, as some organisations have been unable to cover these costs. Evidently, the complex financing of the school is only possible through the cooperation and contribution of international and national groups.

Students are selected from around the country to reflect the different geographic experiences of the various communities around Colombia: from the Caribbean, the country's central region, pacific coast and the Amazon. The departments that are represented include: the Guajira, Magdalena, Cordoba, Santander, Boyacá, Tolima,

Risaralda, Cundinamarca, Huila, Valle del Cauca, Nariño, Meta, Putumayo and Caquetá. Within these departments pupils are selected from high conflict areas. In fact, due to the country's civil war and consequent social underdevelopment, many arrive without having finished secondary education, in which case special courses are needed to bring up basic educational levels. This makes the job of educators in this IALA particularly challenging.

Although the rural conflict in Colombia has mutated over the years, not least due to the intervention of paramilitary groups and the narcotics trade, campesinos continue to face huge dispossession of their land. Colombia is one of the most unequal countries in terms of land ownership, with 1.5% of land owners owning some 52.2% of all land in the country, whilst 78.31% of landowners own but 10.59% (Mejía Alfonso & Castañeda in (Ed.) Jairo Alvarez et al., 2013, p.199). The IALA María Cano has been established at this juncture, responding to a historic need for greater land distribution and justice for campesinos. It is also replying to debates around rural reform in the peace accords- specifically clause 1.3.2.2. on rural education (Peace Accords, 2016). This asserts the need for a rural education system that strengthens and promotes 'la investigación, la innovación y el desarrollo científico y tecnológico para el sector agropecuario, en áreas como agroecología, biotecnología y suelos' (ibid., p.27).

Additionally, those in charge of the IALA intend for it to strengthen campesino knowledge, agency and political formation with a 'nueva ética' (FENSUAGRO, 2016, p.1). The new ethic is a political concept, which seeks to insert horizontal, democratic and politically formative characteristics within the school. This is evident in the staff, who are not only knowledgeable in areas related to agriculture but also politically active members of various organisations. For instance, teachers are from the IALA Paulo Freire in Venezuela, the executive branches of FENSUAGRO and from LVC. The IALA's staff is also cross-continental, consisting of Colombians, Venezuelans, Mexicans and Chileans, allowing shared Latin American agricultural experiences. This links with the aims and practices of CLOC-LVC. The fluidity between education and political formation is further

reinforced through student and teacher interaction. Each week representatives from the student body meet with teachers, presently 4 students and 2 staff, evaluating difficulties faced by students, opinions about teaching styles and staff-student engagement. Hence, organisation amongst students is encouraged, as well as collective bargaining and representation. In this way, pedagogy and political practice are intertwined, underlining the way students should engage with agroecology- not only as a science but also as a tool for socio-political empowerment.

This alternative pedagogical approach also informs the intellectual and educational orientation of the school. Students have classes ranging from an introduction to agroecology, mathematics, chemistry, biochemistry, energy and alternative irrigation systems, soil properties, introduction to rural sociology, social-economy, nutrition, research methods; to more politically oriented classes studying campesino organisation, historic rural struggles in Latin America and Colombia, as well as classes on campesino and youth identity (FENSUAGRO, 2017). This curriculum evidences a more socially, economically and politically oriented understanding of agroecology. In this sense, it is clear to see how a solely scientific approach to agriculture is being epistemologically resisted in the IALA.

There has also been an effort to professionalise the agroecology programme taught at the IALA, as well as linking this with other institutions practising this approach. Currently, the course is linked to an undergraduate degree in Agroecological Engineering, conducted at the Universidad de la Amazonia, which also provides some academic resources. In fact, upon finishing the two-and-a-half-year programme at the IALA, students can convert their certificate as an Agroecological Technician to an Agroecological Engineer by studying a further two-and-a-half-years at the Universidad de la Amazonia, thus, completing the undergraduate programme. Links with the few other Colombian universities that also have agroecology programmes are limited for various reasons, including, philosophical and academic differences e.g. University of Antioquia is more research oriented. Interaction with other social movements involved in different aspects of

agroecology are also beginning. For instance, the Red de Semillas visited the IALA in April 2017 and conducted a workshop with students about the importance of native seeds. Other groups that have also collaborated are Sociedad Científica Latinoamericana de Agroecología (SOCLA) and Movimiento Agroecológico de América Latina y el Caribe (MAELA). In this sense, the IALA María Cano links diverse responses to agroecology, education and socio-political resistance movements, aiming to use a different pedagogical style to create structural changes in the Colombian food system.

Another key pedagogical objective of the IALA is to mix agroecological theory and practice (ibid). Students are schooled in the classroom for 3 months, which entails practical work on the IALA's farm and weekly visits to neighbouring farms. In so doing, they learn from the experiences of other IALA's on the continent, which did not engage actively enough with farms and communities in their immediate locale (McCune et al., 2014). Differently, the students of the IALA María Cano interact more directly with their neighbours in Viotá to foment agroecological practices in the immediate area too. These weekly visits are structured by the farm owners. Participants are usually linked to FENSUAGRO, it's sister organisations but also others who have no political affiliation, yet are interested in the programme. There are loose criteria for those who participate. The farm should be successfully producing or have effectively combined conventional and agroecological productive methods. Thus, students learn productive techniques from campesinos, as well as share new knowledge of how to transition towards a more agroecologically friendly farming system. This visit has multiple functions. Firstly, it demystifies FENSUAGRO's work, as well as engendering campesino to campesino dialogue in the community. Although teachers and students do not come from the community itself, a new form of imperialism is avoided through dialogue and interaction with locals. Key organisers of the school confirm that the community is receptive to their work and to agroecology itself, with many opting to reduce their chemical input use. For the following 3 months, students are then sent back to their communities to implement and adapt what they have learnt. In this way, links between the students and their communities of origin are not broken and the knowledge gained

is spread through campesino a campesino pedagogy around the country.

The school has confronted several obstacles though. The original objective of the school was to enrol 60 students (FENSUAGRO, 2016, p.1), however, this has been revised. The first intake remained at 25: eight women and 17 men; and the second another 24 students: 14 men and ten women- all between the ages of 18-30. This is due to funding shortages, since resources do not permit the school to accept all students at one single point. The school exists within a global and national context that has financially fed agroindustrial farming. The result of this has been the underfunding of alternative epistemological approaches, such as agroecology. Even though the peace accords clearly state a need to promote this scientific and technological approach, the IALA has so far been excluded from the money designated for post-conflict projects, as this money is largely destined for demobilisation and reintegration projects for ex-guerrilla fighters. It remains to be seen whether it will benefit from more financial support in time. However, doubts remain, since the IALA endorses a very politicised notion of agroecology and campesino led social organising, which does not chime with the understanding of agroecology displayed in the peace accords themselves.

Other key challenges that have been identified are gender (Park et al., 2015) and ethnic divides that deeply effect the rural context. Although gender parity improved in the second intake of students, the majority are nevertheless men. This is despite efforts on behalf of FENSUAGRO to push for gender parity among the student body. For the first intake particularly, regional campesino organisations stated cultural reasons and reluctance from families in allowing their daughters to be educated or sent far from home. It is unclear how far local organisations themselves are affected by these cultural gender divides and whether they could also do more to promote shifts in attitudes and gender politics. Additionally, of the current student body there are 3 students of Afro-Colombian descent and 5 are campesinos of indigenous origin. This mirrors the problematic ethnic divides that weaken possible unity among rural communities in Colombia. In this sense, the IALA could contribute to bridging understanding between these diverse cosmovisions.

FENSUAGRO as the main interlocutor with rural organisations and areas must urgently find new and more creative ways to intertwine gender discourse and a multi-ethnic world views with education. Overturning these divides in the rural world is a key aspect of epistemological resistance to the CFR, since gender and ethnic relations shape access to land, productive and reproductive roles (ibid., p.589).

Conclusion

The CFR and the New Green Revolution have a strong global influence: in the spread of agricultural methods, the wealth that agribusinesses have accumulated, the epistemological dominance that has been garnered through investment in research and development programmes and links with key governmental agencies. In fact, despite the socio-economic and ecological effects that the CFR has upon communities, many small-scale farmers continue to practise industrialised agricultural methods, using agrochemicals, monocrop cultivation or sowing export crops, since fundamentally this allows them to feed their families. As well as epistemological dominance, market forces, the lack of support for agroecological alternatives and poor technical support are but some reasons that explain the limited manoeuvrability that many small-scale farmers fear and face. It is in this context that agroecology, a territorially developed and political other must struggle. The odds are difficult but ecological conditions in the world make an agricultural shift imperative and pressing. Initiatives such as the IALAs in Latin America, provide key methodological and strategic guidance in how the knowledge rifts generated by the CFR can be healed and how effective pedagogy of campesino youth can lead to stronger social organisations, which are better equipped to reclaim the food system, and consequently their political, social, cultural, economic and ecological rights.

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