WATER AND LAND IN LATIN AMERICA – GLOBAL STRATEGIES AND POLICIES

John Wilkinson

Working Paper nº 11, July 2010

Plataforma Democrática

www.plataformademocratica.org

Water and land in Latin America – global strategies and policies

John Wilkinson

Introduction

This paper focuses on current tendencies towards treating water and land as strategic scarce resources. This is a global tendency and while our focus will be on Latin America we will situate developments in this continent within a global context. Behind water and land are concerns for food, fuel, energy and minerals provoked by the rapid, sustained growth of an increasing number of countries in the developing world. The pursuit of these resources involves strategies which call in question some of the key tendencies associated with globalization.

There is a strong inter-connection between the awakening of large developing countries and the increasingly strategic character of a whole range of natural resources whether these be minerals, food, fuel, energy or water. Since the '70s we have become accustomed to focus on economic strategies for product differentiation and market segmentation. The creation of value-added rather than access to the raw material became the goal of economic strategies. Value added was increasingly seen to be related to immaterial (knowledge) inputs and the notion of "dematerialization" was coined (FAST Report, 1984). Other analysts described this process as a shift from a quantity to a quality-based economy (Allaire & Boyer, 1995). Within this dynamic developing countries were encouraged to promote "non-traditional exports" with potential for "up- grading" raw materials through the integration of value-added activities (UNIDO, http://www.unido.org/index.php?id=6706).

Now, however, we are faced with the global resurgence of an economy focused on the need for basic commodities on an unprecedented scale. Nevertheless, this does not constitute a simple return to earlier patterns of commodity trade and investment. Many of the values which have come to be associated with special quality products, together with the mechanisms for identifying and guaranteeing such values (certification systems), are now being extended to basic commodity production and trade. This is particularly the case for the internalization of social and environmental criteria into the economic calculation. The social movements which have emerged around fair trade, organics and similar niche markets are now directing their energies to the sustainability of these new global commodities (Wilkinson, 2009).

The strategies currently being put in place to access these resources progressively displace the centrality of free trade in favor of bi-lateral or regional agreements, when not reverting to colonial models of yesteryear. States with highly concentrated power are a defining feature of these emerging countries. Within the relevant time-scale democratic institutions are unlikely to be the organizing principle of a significant number of these countries – China, Russia, Iran, and Middle Eastern countries - and democracies such as Brazil increasingly have a strong executive bias. Greater regulation, a larger State presence in what are perceived to be strategic sectors, the conditioning of investments and large-scale contracts on technology transfer, all introduce important modifications to the previous dynamic of globalization.

Twenty five years ago it was thought that a new technology paradigm combining biotechnology, new materials and microelectronics would lead to a decline in the importance of traditional raw materials as these became increasingly inter-changeable or substitutable (Goodman, Sorj &

Wilkinson, 1987). Today this same perspective is now tied to the promises of nano-technology whose maturity, however, is still measured in decades, independently of unpredictable societal reactions as occurred with transgenics. In the gap between the unfulfilled promises of earlier technological predictions and the as yet unrealized potential of new technological pretenders, raw material stocks have now come to share center stage with the immaterial world of internet and knowledge flows. Not even these immaterial flows, however, are immune to the new logic of control as successively China, Iran and Russia have each moved to restrict rather than guarantee access to the strategic resources of the internet.

Within this broader framework we will first discuss the emergence and significance of water and land as strategic scarce resources before focusing on their importance in Latin America and the associated foreign investment trends and related policy initiatives which they are provoking.

Water and Land as Strategic Scarce Resources

It is appropriate to analyze water and land jointly for the simple reason that some 70% of fresh water use is dedicated to agricultural irrigation. At the same time each has specificities which require separate consideration. In the case of water, other central uses include human consumption, industry, the production of energy, and water as a strategic transport system, a source of food and also of leisure. Each form of use has its own range of externalities and as scarcity increases so also does the potential for conflict over different claims to use.

Three sources of water are relevant for this paper – surface water in the form of rivers, precipitation or rainfall and underground water sources or aquifers. It is also important to distinguish between three types of water – blue, green and grey - from an analytical point of view, Blue water is water that is in liquid form (and is typically affected by physical processes e.g. run-off, through flow and stream flow), and eventually runs out of the catchment. Green water is water that is lost from the catchment through evaporation processes, whether transpired by vegetation or evaporated from open water bodies and other surfaces, and escapes from the catchment in gaseous form. If the land-use changes, then the ratio of blue to green water may change also (Falkenmark, 2003). Grey water is freshwater that is polluted with the production of a product over its full supply chain.

Desalinization of the planet's principle source of water, the seas which make up 97.5% of total water availability, is already a relevant option in specific contexts but is not yet globally significant either in terms of business strategy or government policies given high costs and its dependence on fossil fuels.

Land use is similarly the object of multiple and conflicting claims and collective identities have been predominantly defined in terms of claims to territories. Native reserves, parks, agrarian reform, zoning of production are all responses to conflicting claims on land, involving traditional communities, biodiversity, peasant and small-scale farming and modern agriculture. Urbanization and its accompanying transport systems threaten each of the previous conflicting claims accelerating the withdrawal of rural lands just at a time when increasing demands are being placed on agriculture as a consequence of the transition to an animal protein diet in developing countries. Important tracts of land have also to give way to water as dams are built in response to the increasing water consumption needs of city life.

Since antiquity water has been held to be a strategic resource and even to characterize the nature of States as in the designation, "hydraulic societies", based on centralized irrigation systems, or in the centrality of the 10,000 kilometer network of canals for the consolidation of the State in ancient China. Conflicts over water are equally ancient. According to the Water Conflict

Chronology Map (www.worldwater.org/conflict/map) the first border dispute over water diversion, on the Lagash-Ummer border, dates back to 2,500 BC. Laws on water are included in the Hammurabi Code. The damming of the river Tigris began in 1720 BC. When water was not the cause of disputes it was often an instrument of war or a means of punishment through the deliberate flooding of rivers and the destruction of irrigation systems.

The intimate connection between land, water, and food, feed and fuel commodities is captured in the notion of "virtual water", a term increasingly used in agricultural trade to gauge the amount of water required to produce a specific crop (See Box below). As with the carbon footprint for global warming the need for a water footprint count is posited as a necessary response to water scarcity. The centrality of water scarcity in global commodity trade strategies is reflected in the negotiation of long term bi-lateral supply contracts often between States or State enterprises. It is also one of the principal motives behind the drive by many water scarce States towards direct investment in the lands of resource rich countries in Asia, Africa and Latin America.

In the private sector, the traditional global traders are widening their investments in a bid to ensure control over the emerging global markets for biofuels and in the context of which food, feed and fuels become inter-changeable. Their leading position, however, is no longer uncontested and they now face competition from other global players in such diverse fields as the petroleum, automobile and construction industries. The most recent phenomenon, however, which is changing the nature of these strategic investments has been the entry of global investment funds often associated with leading players in the high technology economy and speculative finance. Projects from these sources have suffered a set-back in the light of the 2008-9 crisis, but will certainly be a key feature influencing land and commodity markets in the coming period.

Box 1 Virtual Water: Source Wikopedia

Virtual water (also known as **embedded water, embodied water,** or **hidden water)** refers, in the context of trade, to the water used in the production of a good or service. For instance, it takes 1,300 cubic meters of water on average to produce one metric tonne of wheat. The precise volume can be more or less depending on climatic conditions and agricultural practice. Hoekstra and Chapagain have defined the virtual-water content of a product (a commodity, good or service) as "the volume of freshwater used to produce the product, measured at the place where the product was actually produced".[1] It refers to the sum of the water use in the various steps of the production chain. Professor John Anthony Allan from King's College London and the School of Oriental and African Studies was the creator of the virtual water concept,[2] which measures how water is embedded in the production and trade of food and consumer products. For his contributions he was awarded the 2008 Stockholm Water Prize.[3] In his awarding, the Stockholm International Water Institute (SIWI) stated that "Virtual water has major impacts on global trade policy and research, especially in water-scarce regions, and has redefined discourse in water policy and management. By explaining how and why nations such as the US, Argentina and Brazil 'export' billions of litres of water each year, while others like Japan, Egypt and Italy 'import' billions, the virtual water concept has opened the door to more productive water use."Allan (2005) stated: "The water is said to be virtual because once the wheat is grown, the real water used to grow it is no longer actually contained in the wheat. The concept of virtual water helps us realize how much water is needed to produce different goods and services. In semi-arid and arid areas, knowing the virtual water value of a good or service can be useful towards determining how best to use the scarce water available."

There are, however, significant deficiencies with the concept of virtual water that mean there is

a significant risk in relying on these measures to guide policy conclusions. Accordingly, Australia's National Water Commission considers that the measurement of virtual water has little practical value in decision making regarding the best allocation of scarce water resources. Key shortcomings of virtual water measures are that the concept:

1. Relies on an assumption that all sources of water, whether in the form of rainfall or provided through an irrigation system, are of equal value.

2. Implicitly assumes that water that would be released by reducing a high water use activity would necessarily be available for use in a less water-intensive activity. For example, the implicit assumption is that water used in rangeland beef production would be available to be used to produce an alternative, less water-intensive activity. As a practical matter this may not be the case, nor might the alternatives be economic.

3. Fails as an indicator of environmental harm nor does it provide any indication of whether water resources are being used within sustainable extraction limits. The use of virtual water estimates therefore offer no guidance for policy makers seeking to ensure that environmental objectives are being met.

We have identified an important convergence between land and water as strategic resources, responsible for promoting new approaches to trade and investment, together with a greater involvement of the public sector. At the same time, each of these resources has its specificities and this has been particularly notable in the case of water. The supply of water for final consumption including drinking water and sanitation has become an increasingly central issue in developing countries given the explosion of urbanization. This service has been traditionally identified with the public sector, in line with the conception of access to water as a basic right and therefore a public good. In the wake of the debt crises and restructuring in developing countries, multilateral organizations (World Bank, IDB) presented the privatization of these services as the solution to water services access, which was often imposed in the framework of debt renegotiation.

Previously little known, the world's leading water companies, often dating back to the end of the 19th century, became familiar figures both for consumers, Governments and civil society organizations and movements in Latin America and other developing country contexts. A small number of transnationals, heavily European, control the market for water and sanitation services: Suez (F), Veolia (F), RWE Thames Water (G), Bouygues (F), Bechtel (US, IT, UK), TECVASA-Cana de Isabel II (Sp.), Águas de Portugal and Águas de Bilbao. A brief profile of each and of their involvement in Latin America is provided in an annex at the end of this paper. As we will see, the privatization of water and sanitation services in a considerable number of Latin American countries in the highly politicized context of FMI debt repayment led to important political conflicts and the emergence of social movements on the issue. In line with a growing tendency for firms involved in strategic resources, these water firms have organized into associations and have developed global campaigns to identify the privatization of water services with solutions to the water crisis. As against this a counter agenda has emerged involving social movements and networks of NGOs (Pigeon, Hall & Lobina, 2009). The transformation of previously primarily public water supply services into markets has emerged as a highly contested terrain one of whose results has been a flexibilization of the public-private polarity in favor of hybrid models for which SABESP, the São Paulo Water and Sanitary Body has been presented as a model (BID, 2006).

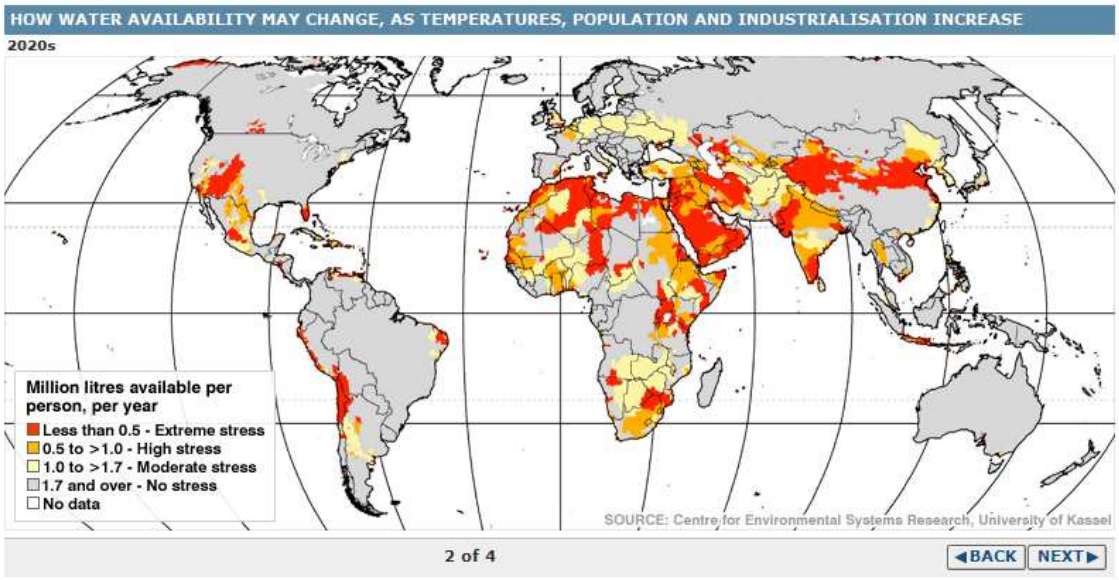
In developing countries, the inefficiency of water supply services opened the way for the

emergence of a market for bottled water. Initially, this was largely directed to poor urban consumers without direct access to public supplies and sold in large containers. Declining confidence in the quality of tap drinking water and varied strategies internal to the soft drink markets (segmentation, healthier alternatives to sugar-based soft drinks) have seen an explosion in both mineral (directly from the source) and mineralized (recycled) water. Initially dominated by local firms, this market has been taken over and developed globally by leading players in food and soft drinks sectors – Nestlé, Danone, Coca and Pepsi Cola. All the resources of the bourgeoning health industry have been mobilized to promote this market and water is now an item to be carried around like a purse or a cell- phone. Given that the issue of water is increasingly central to the agenda of social movements it is not surprising that the critiques directed at the privatization of water services have spilled over also into campaigns against bottled water and for potable tap water. To date, however, this has been strongest in Europe and the US whereas the issue of public/private water and sanitation services has been at the centre of attentions in developing countries.

We will now discuss these questions as they present themselves in the Latin American context, although it should be clear that we are dealing increasingly with global tendencies and movements. In line with the way the issue has posed itself in Latin America we will consider the policies, debates, conflicts and transformations in the supply of water and sanitation services before analyzing the land/water nexus as it redefines priorities in agricultural trade and investments. First, however, it is important to provide a profile of land and water in Latin America in comparison with other continents and also in terms of the internal distribution of these resources between countries and sub-regions in Latin America.

Land and Water in Latin America in a Comparative Perspective

When compared with Africa and Asia, Latin America has become a privileged focus of trade and investment in each of the three segments indicated above. As we will see, in the case of both land and water on aggregate Latin America finds itself in a very favorable position. Its high level of urbanization and middle income status has made it particularly attractive for the marketing of water and sanitation services. And its high per capita consumption of soft drinks makes it a key target for investments in bottled water.



The BID, which along with the World Bank is one of the architects of investments in water services in Latin American, highlights the advantages of the region in its fact sheet on water (BID, 2009). With only 8% of the world's population Latin American has 31% of total freshwater resources, Brazil alone having more than 20%. This has given the region a series of competitive advantages. Water provides 68% of the region's electricity as compared with a global average of 16% and to date only 30% of its potential has been exploited. Latin America is able to take advantage of global demand for its mineral resources because it is able to draw on the huge reserves of water which mining requires. Water availability also explains Latin America's leading position in food exports, which have doubled over the last decade, overwhelmingly on the basis of rain-fed agriculture.

On the other hand, water supplies are likely to be the first victims of climate change as extreme weather events – droughts, hurricanes and floods – become more frequent. The Andean glaciers have shrunk 30% during the last thirty years and may disappear by 2030. Droughts have caused and are causing serious reductions in electricity supply in Brazil, Argentina, Chile, Peru, Venezuela and Ecuador. The expansion of mining in Chile and Peru is threatened by problems of access to water. Agriculture is also being affected by droughts as in the case of Argentina which lost 1.5 million head of cattle and half its wheat crop in 2008. In Latin America, therefore, crises in water supply have an immediate impact on the overall functioning of the economy.

In addition, the availability of water is very much a phenomenon of South America. Mexico has ten times less fresh water per capita than the regional average and the Caribbean islands are deficient in rivers. According to Barlow and Clarke (2004) Mexico city now depends on aquifers for 70% of its water supply which are being mined much faster than they are being replenished. Desertification is advancing in South American also and the above authors calculate that 25% of Latin America is characterized as arid or semi-arid. Rapid and now very high levels of urbanization/metropolitanization are also threatening access to water supplies. Infrastructure leakage is estimated to be on average over 50% in most large cities, one of the arguments for the privatization of water services, and increased levels of contamination are leading to more distant sourcing and higher costs. In a number of cities rationing has been resorted to.

According to Barlow and Clarke (2004) the region's available fresh water resources would allow for 110.500 cubic feet of water per capita/annum but the highly regressive income distribution in the region means that the average resident only has access to 1.010 cubic feet per year, less than half the European average and a quarter of the US average. The BID calculates that 85 million people in the region have no water in their homes and 115 million people lack sanitation. Many of those who receive water only do so for a few hours per day. Tap water in general is not potable leading to generalized dependence on the bottled water market.

In light of the debates on the compatibility of biofuels and food security, the Latin American Office of the FAO and CEPAL produced a report on the availability of land in Latin America (FAO/CEPAL, 2007). This report highlights that the region has a higher than average increase in food production and a higher than average proportion of food exports when compared with other regions. The supply of food energy per capita is positive for almost all countries. Central American countries, dependent on maize, are seen to be most at risk. Brazil, Bolivia, Argentina, Colombia and Uruguay are identified as the countries with the greatest potential for expanding the agricultural frontier to supply a mix of 5% ethanol (E5) from sugar-cane or maize for domestic gasoline production without affecting food production. For a mix of biodiesel (B5), either from soy or palm-oil Brazil, Argentina, Peru, Colombia and Bolivia are the countries with the greatest potential to expand their agricultural frontier without affecting food production. The

report calculates that having achieved production sufficient for E5 Brazil would still have a potential 30 million hectares for expansion in the case of sugar-cane and 13 million in the case of maize. Argentina, for its part, would have 25 million hectares in the case of maize and 7 million in the case of sugar-cane. In the case of biodiesel with palm oil Brazil would still have 45 million hectares of cultivable frontier, but scarcely any if soy were used. Argentina, on the other hand using soy would still have some 22 million hectares available. The study concludes: "The general perception exists that cultivable land is totally occupied or that there exists little margin for expansion on the basis of new crops. The data for Latin America and the Caribbean demonstrate the contrary, that there exists a great potential for increasing the area of cultivable land." (p 8, FAO/CEPAL, 2007).

The data presented by UNICA (2008), the organization which represents Brazil´s Centre- South sugar-cane sector, are particularly striking. Brazil's total arable land is calculated at 340 million hectares of which only 63 million is dedicated to agriculture. Some 200 million hectares are given over to very extensive, low productivity, cattle-raising much of which will become available for agriculture as productivity increases. Even so 77 million hectares, more than all currently dedicated to agriculture, are available for incorporation into production. Other continents (Africa) and regions (Eastern Europe and Central Asia) also have important agricultural frontiers which are becoming the object of investments by capital rich resource poor countries. Yet other frontiers may well become available as a result of global climate change. Nevertheless, the combination of land and water availability in South America and agribusiness competence makes this region a privileged target of new agricultural commodity investments.

Public Good or Private Need? The Contested Construction of a Market for Water Services

Water emerged on the international agenda at the Mar del Plata UN Conference on Water in 1977 where this resource was defined as a common good. By 1992, however, at the Dublin, International Conference on Water and the Environment, preparatory to the Rio, Earth Summit, the fourth of its Guiding Principles emphasized that "water has an economic value in all its competing uses and should be recognized as an economic good" (Dublin Statement, 1992). It is this vision which informed the World Bank's and the BID's promotion of the privatization of water services in Latin America in the '90s, often in the context of debt renegotiations, and in close articulation with the leading transnationals in water services whom we have listed above. Latin America was an attractive target for such a venture precisely because of the extent of its urbanization and the presence of an ample middle class in its major cities.

That Constitutions had to be reformed to allow for privatization points to the radical shift which the creation of a water services market implied. But it was also necessary to attempt to redefine the values associated with water to legitimate its repositioning as an economic good. As with the redefinition of many other markets increasingly open to ethical, social and environmental considerations, the construction of a global market for water services involves, in addition to juridical and constitutional innovations, a complex mobilization of political and civic actors. Business interests have not limited themselves to lobbying governments and multilateral organizations have become active promoters of these markets. In 1996 the Global Water Partnership was founded by the World Bank and the World Water Council by the global water services transnationals (www.worldwatercpouncil.org) . Basing themselves on the Dublin Statement, they have mobilized as a civic (almost a social) movement to dominate the global agenda through the organization of a triennial World Water Forum which first met in 1997 (www.worldwaterforum.org). In its wake a counter agenda and an alternative Forum have emerged reflecting the still contested nature of this emerging market.

Privatizations began in the early '90s, dominated by the leading French transnationals Suez and

Veolia, either directly or through their numerous joint-ventures and subsidiaries, particularly Spanish (Agbar).[1] The results have varied strongly from country to country for which many factors can be identified – the pre-existing state of public water and sanitation services, the constitutional and contractual framework, levels of urban poverty, political and cultural considerations, and the macro-economic context. Chile, to date, seems to have been the most far-reaching and successful. In addition to having a favorable climate for market solutions across the political spectrum, positive factors would seem to include, a careful preparation of the institutional conditions and the establishment of efficient services while still under public control. Argentina, which initiated concessions in 1993 but revoked these in 2006, could be thought to provide a negative confirmation of the Chilean experience to the extent that strong anti-market sentiment persists in relation to traditional public services, the institutional framework was seen to be faulty, the transfer of responsibilities had no planned transitional phase and the economic climate was more unstable.

The mass social movement in 2000 which revoked privatization in Cochabamba, Bolivia, on the other hand, would seem to the result of imposing full cost solutions in a context where the great majority of users were in no condition to become customers. A similar situation has probably influenced reactions in other countries – Honduras, El Salvador, Peru, Puerto Rico and Ecuador. Uruguay provides a particularly fascinating case to the extent that opposition to privatization in this country appears to be a visceral cultural and political phenomenon. Here, mass mobilization enforced a plebiscite on the issue which voted against privatization (Bell, B., J. Conant, M. Oliveira, C. Pinkstaff & P. Terhorst, 2009). In Mexico, where urban water services are in a critical state, successive constitutional and legislative reforms have created favorable conditions for privatization which has advanced with relatively little opposition. Critics suggest that new tactics by the water firms – segmentation of markets and sub-contracting – are responsible for this success (Marrero, 2005). This has been facilitated by the launching of the Program for the Modernization of Water Management Companies (PROMAGUA) in 2001 by the Mexican Government with support from the World Bank and the BID. Within a year "agreements had been signed with 28 of Mexico's 30 States, including 687 municipalities encompassing 70% of the country's urban population". In Brazil, by contrast, privatization has advanced relatively little largely due to the confused regulatory provisions still in force (Barlow & Clarke, 2004). The success of alternative strategies, whether the participatory model developed in Porto Alegre which has become a reference for the "alternative agenda", or the SABESP experience mentioned above, championed by the BID, which, while remaining public, has capitalized itself through raising shares on the São Paulo and New York stock exchanges, may also be inhibiting factors.

The level of opposition to privatization in the mid '90s led to the collapse of many initiatives and the withdrawal of leading firms from a whole number of Latin American countries. An organized opposition movement now exists to the dominant World Water Council and its World Water Forum against which it organizes the Alternative Water Forum (www.alternatifsuforumu.org/en) and is in the process of consolidating a global movement around the theme "Another Water Management is Possible". One of the components of this movement is RED VIDA composed of 43 grassroots organizations from 16 Latin American countries (www.laredviva.org). As against the polarization between water as a public versus an economic good the Water Dialogues Movement emerged in 2002 to promote multi-stakeholder

[1] Perhaps the most complete account of these privatizations is to be found in *Water Privatisation and Restructuring in Latin America, 2007,* E. Lobina & D. Hall, PSIRU, 2007

initiatives at national level with the aim of defining a new common ground for the management of water services. Suez, Vivendi and other large water corporation, for their part, have made it clear that there continued presence in developing country water services depends on guaranteed "full costing" of operations and the provision of subsidized programs for the poor urban consumer.

The post GATT terms of trade have also introduced an important complicating factor into the privatization equation. The GATT defines "waters, including natural (ordinary natural water of all kinds other than sea water) or artificial waters and aerated waters" as goods. It further includes water services as part of the service sector and extends the investor rights defined in Chapter 11 to both water goods and services. The NAFTA agreement incorporates these principles which were consolidated into the WTO (Barlow, 2001). It further includes the provision for "national treatment" which would open up to all firms in the NAFTA countries any services contracted out to competitive bids. Such a provision potentially undermines the viability of water management strategies based on participatory schemes involving local firms since it precludes preferential treatment of local actors. Refusal of national treatment would make a local government vulnerable to the threat of being sued by firms in any other NAFTA country. The provisions of NAFTA, however, only come into force once water has become subject to forms of privatization. The FTAA goes further than NAFTA and although this agreement has not been endorsed its principles are the basis of the many bilateral agreements which have been signed between the US and individual Latin American countries, as also with the regional agreement, CAFTA. Particularly important here are the Bilateral Investment Treaties (BITs) which are modeled on the Multilateral Agreement on Investment (MAI) proposed by the OECD but defeated in 1998 as the result of global opposition led by NGOs. Bechtel initiated a lawsuit against the Bolivian Government within this provision in its bid for compensation for investments in the failed privatization of Cochabamba's water services.

The Bottled and Bulk Water Market

The bottled water market, as mentioned above, has been a focus of more attention in Europe and the U.S. from the point of view of conflicts and social movements reflecting the greater presence there of the politicized consumer. In Latin America, however, it has also become a target of opposition since the importance of the mineral water segment means that the global players, Nestlé, Cocoa Cola and Pepsico, are buying up and, it is argued, drying up key mineral springs which in addition to supplying local communities are often also the basis of the leisure spa industry.

Virtual water has been the principal focus in discussions of commodity trade but increasingly bulk water is becoming the object of trade via the construction of aqueducts, pipelines, tankers or huge sealed bags, the biggest of which can hold two million liters, towed across the oceans or along waterways. In many regions of the world, Asia, the Middle East and Mediterranean countries, such trade is already a reality, or being planned, as in the case of the European Water Network which would distribute water drawn from the Alps to Southern Europe.

In the Americas huge plans have been mooted to transfer water from Canada to the U.S, such as the GRAND Canal scheme linking James Bay to the Great Lakes and from there to the U.S. belt, and the North American Water and Power Alliance (NAWAPA) which involves the construction of massive waterworks to benefit 35 U.S. States. Public protests have to date prevented these proposals from going forward. The bulk tanker water export market is also seen to offer enormous opportunities for water rich Canada and the U.S. State of Alaska with shipments already underway to Asia and the Middle East. British Colombia has banned this trade and other provinces have similarly withheld concessions but the industrial lobby is

extremely strong. Alaska, on the other hand, has become the first authority to sanction commercial exports of bulk water (Barlow, 2001).

The bulk water trade in South America has not yet received similar attention. In 2001 Bolivia passed the Water Export Law to provide water from the Potosi to Chilean mining companies. In the Southern Cone, the leading transnationals are extending their control over ground water supplies, but domestic firms are currently leading exports of bottled water. ABINAM, (The Brazilian Mineral Water Industry Association) projects that Brazil, currently the world's fourth largest producer of bottled water, will be exporting 2 billion liters by 2014 (www.newscomex.com.br/mostra_noticia.php?codigo=2833). Over the long term, however, attention will be increasingly turned to the Guarani aquifer, the world's largest reservoir of transborder underground freshwater, shared between Brazil, Argentina, Paraguay and Uruguay. A project for the Environmental Protection and Sustainable Development of the Guarani Aquifer is currently underway financed by the World Bank and the OAS (OAS, 2005). It is hoped that this will provide the basis for joint management institutions either in the form of a Treaty, as in the case of the Transborder Treaties respectively for the River Plate Basin and for Amazonian Cooperation, or a joint management agreement.

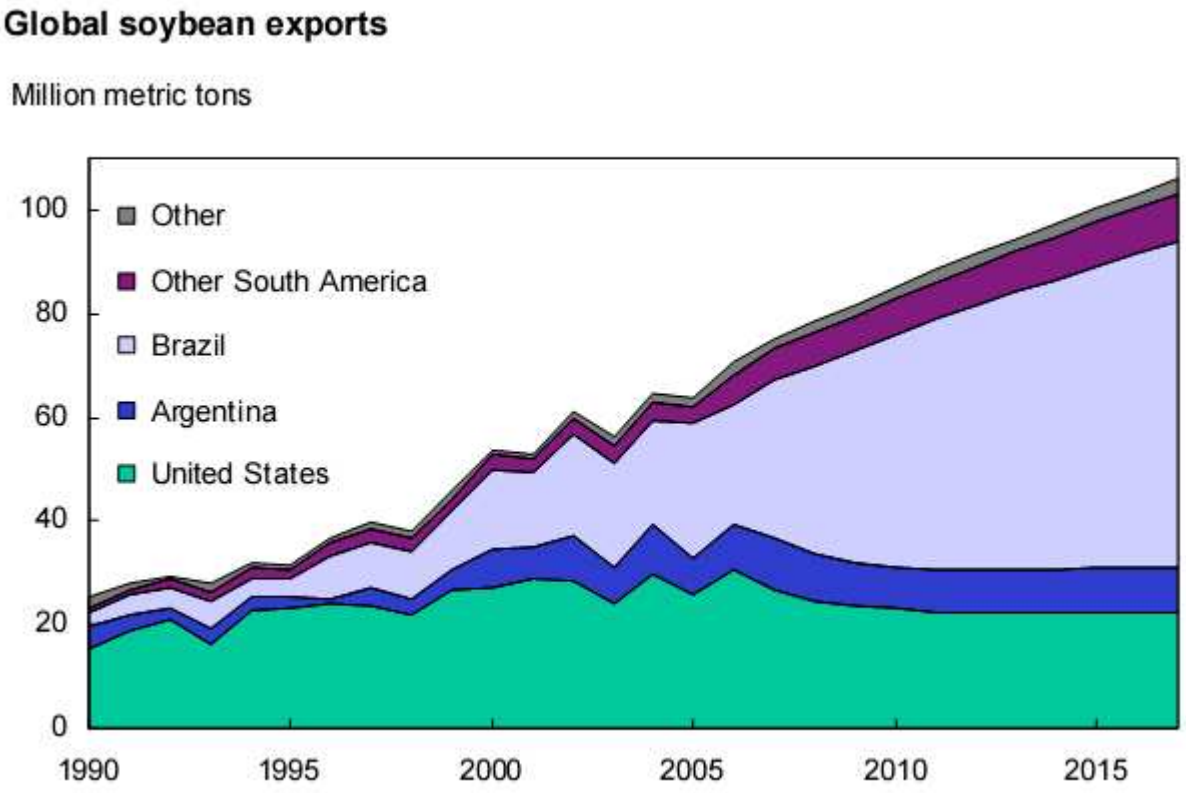
The Rush for Land in Latin America

Concerned groups have drawn attention to the purchase of vast tracts of land by investors with ostensibly no immediate productive intentions and often explained in terms of environmental protection. The previous sections provide grounds to support allegations that water interests may be behind some of these investments. The bulk of recent investments, however, has been explicitly productive and aimed at the fuel, food, feed and forestry sectors. This move represents a shift from the traditional strategies of agribusiness which have been to concentrate their investments up and down stream of agriculture, thereby controlling farming activities from a distance. A second difference, is that such investments are no longer limited to traditional agribusiness interests but include, global corporations from a wide range of other sectors – petroleum, autos, construction. Perhaps the most novel features of these investments, however, have been the presence of global investment funds, on the one hand, and investments by capital-rich, resource-poor States, either directly or through their leading firms.

The land grab phenomenon, brought to the attention of the world by NGOs and the media, became a central concern of multilateral institutions and associated think tanks in the wake of the 2007-8 food price hikes. NGOs such as GRAIN (2008), have focused on the way such investments expel small farmers and take over the best lands and scarce water for the export of basic foodstuffs or fuels from countries with acute food insecurity. Many of these countries, it is argued, have little or no State capacity to regulate such investments. The FAO, the IFC and the OECD, on the other hand, while recognizing these dangers, have focused on the potential benefits of these inputs of capital and technology and the need for establishing codes of practices governing such investments. The International Food Policy Research Institute (IFPRI) has developed an interactive map to follow these investments which show that on a global scale they are heavily concentrated in Asia and Africa. In its 2009 report, IFPRI calculates that from 15-20 million hectares have now been acquired (von Braun & Meinzen-Dick). Similar tendencies are at work in the case of Latin America but these should be situated within a broader picture of this continent's increasing centrality in global food, feed, fuel and forestry raw materials and products.

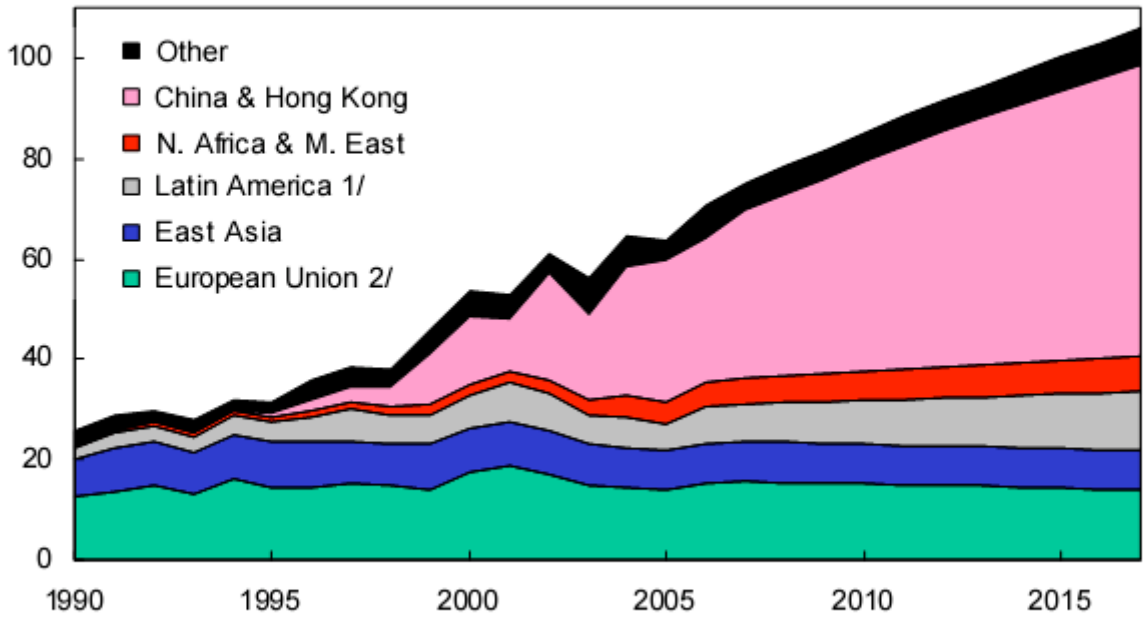
In its projections for the development of global agricultural commodities markets through to 2016, USDA (2007) highlights the persistent relative decline of the US and the shift of the global agricultural commodities frontier to the Southern Cone driven fundamentally by demand

from the emerging economies, led by China. As an example, the Figures below shows the changing relative share in soy exports between Brazil, Argentina and the U.S. and the strategic role of China for global imports, from 1990 through to 2016. The same tendencies can be noted also for other grains, meat, fuel and pulp.



Global soybean imports

Million metric tons



1/ Includes Mexico. 2/ EU-27 excludes intra-trade after 2002, EU-15 intra-trade before 2003, Slovenia before 1992.

While the novel features of the global land grab phenomenon, therefore, have been identified as the result of a concern for securing food staples by import dependent countries less confident in the functioning of global markets after the food prices hikes of 2007-8, investments in Latin America, and in particularly South America, are predominantly motivated by the attraction of this region's increasing role in global agricultural, fish products and forestry commodity markets, to which should be added also the emerging carbon credits market.

A dramatic example of the specificity of land investments in Latin America is provided by the migration of farmers from the U.S. Mid-West and also from Europe to the new savannah regions of Brazil, particularly the State of Bahia. Brazil Iowa Farms with 247 investors in 2005 bought 11.000 acres in this region ready for planting. Land in Bahia was six times cheaper than Iowa according to spokesperson David Kruse and capital raised in the U.S. much cheaper than in Brazil (Markets, Markets, 2005). Hundreds of U.S. farmers have now set up in Brazil often brokered by firms such as AgBrazil a U.S. company dedicated to promoting U.S. investment in the Brazilian savannah frontiers (www.agbrazil.com). Similar firms, such as BrasilAgro, are emerging in Brazil which buy up farms and equip them with infrastructure, providing "turnkey" farms to would be investors.

According to INCRA four million hectares of land are registered in the name of foreigners. Many landowners, however, do not register their nationality and the INCRA President, Rolf Hackbart considers that the real figure is at least three times the area registered as such. A study by the Central Bank revealed that a third of all foreign direct investment (FDI) from 2002-2008 went into activities linked to agriculture. Concern over the levels of foreign investment in land has led to pressures for new legislation. Brazil's existing legislation on this issue dates back to 1971 and is focused primarily on the individual investor and does not take into account the current leading role of investment firms and funds (Saldanha, 2009). When it became clear that

legislation would involve long negotiations, the implementation of provisional measures was proposed but by early 2010 this has not been put into effect.

The surge in such investments prior to the 2008-9 crisis was, however, very much related to expectations with regard to the emergence of global agrofuels markets, sugar-cane for ethanol and soy or palm-oil for biodiesel dominated by Brazil, but with Argentina an important exporter of soy for biodiesel to Europe. Because of the nature of the raw material, which begins to lose its sugar content within twenty-four hours of harvesting, investments in sugar and ethanol involve both industry and agriculture. The Brazilian sugar-cane sector, until then largely controlled by traditional domestic capital, was exposed to waves of investments from four distinct sources.

In the first place, global traders who had until then been active only in grains and oils now saw the need to extend their interests to the sugar, ethanol sector (Bunge, ADM, Dreyfus). Broader energy and agchemical, corporations also became key investors – Esso, British, Petroleum, Odebrecht, DuPont, Dow, Monsanto. A novel feature of this wave of investments, however, was the presence of investments banks and funds – the Carlyle Group, Soros, Goldman Sachs, Brenco, Clean Energy Brazil, Infinity Bioenergy, Bioenergy Development Funds. And finally, Governments, either directly or through State firms were also involved in negotiations – Japan, China and India. The financial crisis of 2008-9 put a number of these investments on hold and led to a serious crisis in the Brazilian sugar-sector itself involving many bankruptcies and resulting in an acceleration of concentration, favoring also a number of domestic firms such as Cosan. The success with which the emergent economies have negotiated the crisis, however, is leading to a renewal of these investments.

Brazil's concern to develop a global ethanol market has led to investments in other countries of Latin America, particularly those with bilateral or regional agreements with the U.S. which allow Brazil to avoid the protectionist tariff on its exports to the U.S. In this, Brazil encountered an ally in the Florida network, headed by Governor Jed Bush, which led to the creation of the International Biofuels Commission for the construction of a global biofuels market based on sugar-cane ethanol and particularly for the promotion of investments in the countries signatories to the CAFTA, Caribbean Free Trade Agreement (Hollander, 2009)). Colombia, Peru, El Salvador, Guatemala, the Dominican Republic all became targets for biofuels investments.

Recent political concern over the foreign acquisition of land has been awakened by the impact of the emerging global biofuels market, the crisis in prices and world trade involving basic foodstuffs, and the perspectives for a global carbon credit market. A complete picture of foreign direct investment (FDI) in land in Latin America would also have to take into account the shift in agribusiness investments from the U.S. to Mexico in the wake of the NAFTA agreement and the various waves of investment provoked by the promotion of non-traditional exports, whether these be sea-foods in Central America, Brazil and Chile, wine in Chile and Argentina or fresh fruit in a range of countries. It would also have to take into account new forms of indirect land control through the coordination of global values chains (GVC) by new sets of traders and global retail. And finally, foreign investment in forestry has accelerated especially in the Southern Cone with growth rates twice those in the Northern Hemisphere.

Conclusions

Land and water are increasingly intertwined as scarce strategic resources, so much so that Nestlé's Chairman, Brabeck-Letmathe, has argued that the so-called land grab should be named

the water grab.[2] The design of policies, therefore, should reflect this convergence. Notions of virtual water and the distinction between types of water, described in the Boxes in the text, provide analytical aids in this direction. At the same time, each resource maintains its specific characteristics to which policy making should be attentive. Whatever, one's conclusions on the merits or risks of foreign land purchases, it is clear that legislations on access to land must reflect the shift from individual to corporate purchases. In a similar fashion, the experiences of the privatization of water services has shown the limits to full cost strategies and the need to design hybrid policies which take into account not only the need for water but the right to access for all. Similarly, policies will have to be elaborated with regard to the emerging global trade in bulk water of particular relevance for the Southern cone countries which share the Guarani aquifer.

As we have seen, Latin America is favorably placed with regard to both land and water although these are unevenly distributed throughout the region, particularly the latter which is concentrated in the South. At the same time, it is perhaps the continent which is most vulnerable to negative tendencies affecting these resources since all aspects of its economy are organized in terms of the comparative advantage which these resources offer in energy, agriculture, forestry and mining. While we have focused on the positive synergies between water and land, the characterization of three types of water – blue, green and grey - should alert us to the dangers of a mutual degradation of these resources. As more land is brought into intensive production in agricultural systems still heavily dependent on chemical inputs run off in addition to threatening surface water can have an irreversible impact on ground water which is increasingly becoming a decisive source of drinking water.

The predominant focus of conflicts over water and land have to date been intra-States. The expansion of the agricultural frontier has activated conflicts between agribusiness and indigenous, peasant or small farmer communities leading to demands for demarcation of territories, agrarian reform and policies favoring the family farm model. Environmental concerns, in their turn, have led to legislation on reserves and zoning. The spilling over of the agricultural frontier into neighboring countries has been the source of sporadic rather systematic conflict. In the case of water, conflicts have focused on the privatization of water services, often at a local level, rarely assuming national dimensions as in the case of the plebiscite in Uruguay. Proposals for the mobilization of water resources for transport as a direct result of the advance of the agricultural frontier have also become important focuses of conflict on a broad regional basis in the case of the Cerrados and Amazon frontiers in Brazil.

Inter-State conflicts have been limited. We have mentioned the tensions over water between Bolivia and Chile provoked by the latter's water demands created by the expansion of mining. There were also historic tensions between Brazil and Argentina over the construction of the Itaipu dam and difficulties in the negotiation of tariffs for the energy from this dam between Brazil and Paraguay. On the other hand, an inter-State agreement on the management of the Plata River basin has been established between Brazil, Argentina, Paraguay and Uruguay, and a similar agreement in place for the management of the Amazon basin. A key challenge for the future will be the achievement of a similar agreement for the management not of surface but of ground water, particularly the Guarani aquifer. This aquifer becomes increasingly important as ground water becomes more decisive for urban water consumption and as global pressure

[2] According to Brabeck-Lemathe: "The purchases weren't about land, but water. For with the land comes the right to withdraw the water linked to it, in most countries essentially a freebie that increasingly could be the most valuable part of the deal." http://www.oxfamblogs.org/fp2p/?cat=42

mounts for the development of a global market in bulk water.

A range of other issues are likely to exacerbate tensions in the coming period – the melting of the Andean glaciers, the water transport investments in the Amazon region, and Brazil's expansionist investments in biofuels in Central America and the Caribbean. All these will put a premium on the capacity for regional negotiations in which water and land need to be increasingly considered as a hybrid resource requiring integrated policies, although each resource will continue to generate its own specific problems and conflicts for which separate policies will need to be designed and negotiated.

References

ABINAM, www.abinam.org

Allaire, G. & R. Boyer, *La Grande Transformation,* Econômica, Paris, 1995

Barlow, M. *Blue Gold: The global water crisis and the commodification of the world's water supply,* 2001, Third World Traveller

Barlow, M. & T. Clarke, *The Struggle for Latin America's Water,* North Americamn Congress on Latin America, 2004

Bell, B., J. Conant, M. Oliveira, C. Pinkstaff & P. Terhorst, *Chainging the Flow: Water Movements in Latin America,* Food & Water Watch/Other Worlds/Reclaiming Public Water/Red VIVA/Transnational Institute. 2009

BID, *Investment in Latin American Water Companies*, 2006, Speech, New York Stock Exchange, October 26, 2006

BID, *Latin America: water crises require bold investments and strategic alliancesa, IDB President says,* Washington, Nov 25, 2009

BID, Fact Sheet – Water: a threatened resource in Latin America and the Caribbean, Washington, Nov 17, 2009

CEPAL FAO, *Oportunidades e Riscos do uso da Bioenergia para a Segurança Alimentar para a A,merica Latina e o Caribe,* Santiago, Chile, 2007

Dublin Statement, *International Conference on Water and the Environment,* Dublin, 1992

Falkenmark, M., "Water Cycle and People: water for feeding humanity", *Land Use and Water Resource, 3. 3.1-3.4,* 2003

FAST Report, DGXII, European Commission, Brussels, 1984

Goodman, D., B. Sorj & J. Wilkinson, *From Farming to Biotechnology,* Blackwell, 1987, London

GRAIN, *Food Crisis and the Global land Grab,* http://farmlandgrab.org

Lobina, E. & D. Hall, *Water Privatisation and Restructuring in Latin America,* Public Services International Research Unit, Business School, University of Greenwich, 2007

Marrero, C. R. *Water Privatization in Latin America,* IRC Americas, www.americaspolicy.org

Pigeon, M., D. Hall & E. Lobina, *Controlling the Agenda at WWF - the multinationals' network.* www.corporateeurope.org

Polanyi, K. *The Great Transformation,* 1944

Hollander *Power is Sweet. The Political Ecology of Sugar in the Global Ethanol Assem* Markets, Markets, 2005

OAS, *Guarani Aquifer System: Environmental Protection and Sustainable Development of the*

Guarani Aquifer System, Water project Series, no 7, 2005, Washington

Saldanha, N. "Investimento estrangeiro em terras brasileiras cresce de forma veloz", Agronegócios, 25th August, 2009

UNICA, *Brazil's Sugar-Cane Industry*, São Paulo, 2008,

UNIDO, *UNIDO Upgrading Program*, http://www.unido.org/index.php?id=6706

USDA, *USDA Agricultural Baseline Projections to 2016*, Washington, 2008

von Braun & Meinzen-Dick, *"Land Grabbing" by Foreign Investors in Developing Cpountries. Risks and Opportunities*, IFPRI, Washington, 2009

Wilkinson, J. *The Quality Turn (around) – from niche to mainstream: The New Qualification of Global Commodity Markets – the Case of Soy*, Paper presented to The (New) Borders of Consumption" Workshop, Warwick University, 29th-30th May, 2009 Wilkinson, J. & S. Herrera, *Agrofuels in Brazil*, Oxfam, Brasilia, 2008

Water Conflict Chronology Map, www.worldwater.org/conflict/map Zelizer, V. 1979). *Morals and markets. The development of life insurance in the United States.* New Brunswick: Transaction Books