

Interview with Graciela Chichilnisky (for Epsilon)

by Chronis Polychroniou

- 1. You were born in Argentine and your father was a minister in the Juan Peron government. What was it like growing up in Argentina at the time of the Peron reign?**

When I was a child, Buenos Aires seemed a magical place at a magical time. Buenos Aires is a lively and beautiful city, people were interesting and intense. In reality Buenos Aires then reminds me of New York now: a graceful old city full of life, intensity and culture. And the Argentine countryside is extraordinary – Patagonia is a huge empty land of glaciers, cattle, sheep, whales, penguins and pink flamingos. The peaceful beauty of the Atlantic Coast, the majesty of the snowy Andes that have some of the tallest mountains in the world, the Iguazu Falls in the North boundary with Brazil, the enormity of the Pampas, it was all magic. My father was the doctor of Eva Peron and a friend of Juan Peron, who admired him. I still have some of the letters that Peron hand wrote to my father. My mother was a beautiful fantastic younger woman who people routinely confused with Elizabeth Taylor when she was in the US. We were part of a whirlwind of social and political activity, and Eva Peron died when I was still very small. It was very sad for the nation, like the death of John Kennedy in the US. My father was always surrounded by his students at the University of Buenos Aires, who are still with us, and admired him no end. His patients adored him and brought him chickens and ducks when they could not pay a bill. This led me to become a vegetarian. He built many, many hospitals around the nation creating the public health system. It was a magical time.

- 2. At the age of 17 you went to the US to study at MIT under some rather unique circumstances. Would you relate the background of the events that brought you to the US?**

I was finishing high school when I started taking University courses without permission – there I met wonderful professors and students who opened my eyes to the world of science and mathematics – it was a great privilege. But towards the end of the 1960's and the beginning of the 1970's the military staged several coup d'etats and in one of

them they closed down the University in Buenos Aires. One MIT professor who was there at the time, the famous Warren Ambrose, a well known Mathematician, decided to take 6 Argentinian students to MIT to continue their studies, since the University had been indefinitely closed down. All of them were graduate students who were taking doctoral courses in Mathematics – except for me who never went to college. MIT accepted me, a single mother without a college degree, as a Special Graduate Student in Mathematics and the Ford Foundation gave me a scholarship. After a year of very hard but enjoyable work I came on top of the Mathematics PhD class at MIT -- and then I became an official PHD student in Mathematics at MIT. This led me to obtain to a PhD in Mathematics, and then another PhD in Economics at UC Berkeley – two PhDs to compensate for the fact that I never got a college degree!

- 3. Was there something specific that attracted you to the study of mathematics and economics, or, being so gifted in these fields, was it just a natural direction to follow?**

I was most interested in sociology and philosophy, but could not make sense of what professors and books were saying. Mathematics on the other hand seemed clear and simple, a natural way to think, a world without boundaries. Mathematics is the language that the brain uses to communicate with itself.

- 4. For many years you held the UNESCO Chair in Math and Finance at Columbia University. What specific areas in mathematics and economics has your work focused on?**

I am proud of the UNESCO Chair that the UN endowed for me in 1996 at Columbia, in recognition for the many years of service to the international community. UNESCO offered first the Chair for me to hold at Stanford University where I was teaching at the time, but I decided to go back to New York and Columbia University instead. I taught Mathematics and economics at Harvard University as well, after completing my PhDs, where I worked with Kenneth Arrow in his research projects. My topics in Mathematics are Algebraic Topology and Non Linear Analysis; in Economics I have done work in international trade, development economics, extensivel work in environmental economics, on the economics of markets and social

choice, economic theory including game theory, growth theory, the economics of networks and more recently the economics of Gender .

- 5. What do you make of the still widespread claim or myth that women are not intellectually endowed as men are to pursue careers in mathematics and the sciences?**

It is not widespread, but it is a shameful myth that persists in our society and causes huge damage to us all. It seems incredible in the 21st century to have such totally unfounded and degrading statements made about any group in society – especially about women who are the pillars of human society. People like Larry Summers as President of Harvard University felt entitled to publicly declare that women are ‘genetically inferior in the sciences’ to a public meeting with many female scholars and female students – a shameful performance that lost him his post as President of the University. Why did he take that risk, how did he feel entitled to make such an unfounded, hostile and degrading comment in public? If Larry would have said that about blacks, I feel pretty sure that he would not be the adviser of President Obama as he is now. The discrimination and even hate against women is widespread in our society, particularly in a knowledge based society, where it is used to impede the participation of women in the creation of ideas and the highest pursuits. In our world physical size no longer matters, and therefore men no longer have an edge -- but creativity and brainpower does. This is a way to keep women down, degrading them in what counts. The Presidents of the top 9 Universities in the US have recently publicly declared gender discrimination and hostility to be a most serious issue in their own Universities and promised to fight against it – but the trend persists specially in the fields such as Mathematics, Economics, Physics, which are at the top of the science heap. The American Association of University Professors published each year official University data on salaries by gender -- showing the persistent continuation and seriousness of the gender discrimination in salaries in US Universities. Columbia University has the dishonor of being the 2nd worst among all Ivy League universities in this shameful gender discrimination and hostility trend. I advise many women on this issue, having fought and won twice myself in Court against this illegal trend, and my heart goes out to them. I work with them, we persist. We will eventually win, but the damage, destruction and loss of international competitiveness for the US is a serious cost of this

irrational gender bias. We all have to work together to overcome this bias, men and women.

- 6. I know you have met professional adversity in the pursuit of your academic career, which is part of the reality of the academic world. Do you believe the adversity you have faced was due largely to your gender?**

Yes.

It is not the only factor, however. Innovation is often met with hostility in well organized and successful intellectual and academic networks, as the US has. Partly due to my background my work has always been a bit different- as has my life, and innovation has been my trademark. But one thing is clear. While striking innovation is met with aggressiveness and hostility in academia, for men and women alike, what men do to innovative women exceeds in scope and ferocity what they would do to other men. It is like rape – a way to try to control a group by intimidation. Think of it this way – Larry Summers would not have dared say in public that blacks are genetically inferior in the sciences – would not even talk about this topic no matter what he thinks. With women, everything goes. He felt no fear in making a totally unfounded degrading statement in public about women. Why? Because the ferocity with which women are treated is of a totally different order of magnitude, everything goes.

- 7. You were the architect of the mathematical model for the Kyoto Protocol, the lead author of the Intergovernmental Panel for Climatic Change which was awarded the Nobel Prize in 2007, and have been in general one of the leading scholarly voices in the struggle to protect the environment -- writing on the topic, lecturing widely, testifying to government hearings and so on. How did the idea about the Kyoto Protocol come about and was it hard to get it approved and ratified?**

Yes, I was the author of the idea as well as of the mathematical model for the carbon market of the Kyoto Protocol. This is a topic on which I have published a large number of books and articles since the early 1990s. The topic was very unpopular at the time. My idea of a carbon market was based on the fact that carbon concentration in the atmosphere is a global public good – the carbon concentration is the same at each point in time in every nation of the world and every

person in the planet, a unique characteristic that makes the carbon market a unique type of market that trades a global public good – and one that is privately produced. This is a unique market in history, and it has unique characteristics. This point is usually lost, most people think that the carbon market is simply “cap and trade” and forget that the carbon market must treat nations differently depending on their wealth –protecting developing nations from crippling emissions limits --as the Kyoto Protocol does – to act efficiently. In the carbon market – indeed in most global environmental markets – equity and efficiency are linked in a unique way that is not valid for the standard markets that we know – for markets involving private goods such as equipment, automobiles or food. This fact has profound implications as the carbon market is expected to become the largest commodity market in the world soon, it is already trading about \$50 billion annually, and the World Bank anticipates this will increase to \$2-3trillion.

When I introduced the idea of the carbon market everyone was against it, particularly those who followed Jim Tobin’s idea of a “global tax”. I persisted against all odds, working for the OECD, giving annual key note speeches at the World Bank and at various UN organizations, advising and giving presentations at the US Congress and Senate, and working with the US Department of the Treasury (yes, with Larry Summers who was then Undersecretary of the US Treasury) as well as the US Department of State. I worked directly with the lead negotiator of the Kyoto protocol in Kyoto, and with the French delegation, in preparing the draft for the carbon market that eventually led to the agreement between the US and the EU and the signing of the protocol in Kyoto December 11 1997. I have documented this ‘Odysee’ in two books, the 2000 Columbia University Press book with G. Heal “Environmental Markets: Equity and Efficiency” and now the 2009 New Holland book published in the UK with K. Sheeran, “Saving Kyoto” which is in press and has a detailed personal account of how it all happened and the battles I had to fight to get the carbon market accepted against all odds. All environmentalists were against the market approach that I pioneered – many saw it as possible but ethically repugnant like selling your grandmother. It was a hard uphill battle to get this accepted and incorporated into the Kyoto Protocol. In addition to acting as Lead Author of the IPCC, I wrote the words for the carbon market into the Kyoto Protocol that led directly to the signing in December 11 1997. My rational is not that markets are perfect. Far from it. My rational is that (i) we need a (negative) price for emitting carbon to

change the world economy so that those who emit carbon – mostly the rich nations - compensate those who do not, and thus have incentives to create new technologies that can forestall global warming, and (ii) this type of market – the carbon market – a market for a privately produced public good – is the market of the future that is going to change the world economy for the better – and capitalism once and for all integrating the need for equity as part of the concept of efficiency. A major improvement for the world economy, a hope for avoiding our extinction.

8. Any interesting stories to relate about the politics behind the scenes in the ratification of the Kyoto Protocol?

Yes, many. The whole process was full of intrigues, and unexpected reversals. Paradoxes one may say. For example it may be of interest that the Lead Negotiator of the Kyoto Protocol – Ambassador Raul Estrada Oyuela of Argentina and a good friend with whom I worked and published for many years – was completely against the carbon market. He used it to get the Kyoto Protocol signed, as the carbon market was a true “double sided coin” that looked exactly the opposite to the US than to the developing nations. The US saw in it a market flexibility for limiting their nations’ emissions, buying their way out of the problem, while the developing nations saw that only the carbon market would actually set a global limit on carbon emissions – which is physically needed before the market can start trading. One should remember that carbon taxes do not do that – they do not ensure global emissions limits, not at all. Carbon markets ensure limits to start with.

9. What’s the current status of the Kyoto Protocol and how effective is it still in minimizing the risks of global warming?

The Kyoto Protocol expires in 2012 by its own terms and in December 2009 the COP15 in Copenhagen is supposed to take steps towards securing its fate after 2012. The Kyoto Protocol is the first market - based agreement in human history – it is based on the creation of a global market for trading the rights to use the global commons. It has succeeded in demonstrating that the system can work, but it is s beginning and not an end. The Clean Development Mechanism of the Kyoto Protocol has transferred, since Kyoto became international law in 2005, about \$23 billion in investment in clean technology in developing nations. These projects represent a

20% reduction of EU emissions. Such transfers for productive clean technologies are unique in the battle to overcome the increasing global divide. While others speak about the need for North – South transfers, as a matter of good intentions, the Kyoto Protocol has achieved them in a massive scale for productive purposes (not for charity)– and Kyoto is only starting to work. Such clean investments are much needed since the developing nations will be the largest emitters in the future, as they house 80% of humankind, and they must change the path of industrialization away from what we did in the rich nations until now. But we need to make some modest changes to the Kyoto Protocol after 2012. I proposed to modest modifications that could greatly improve the Kyoto protocol and overcome the “impasse” between China and the US in the global climate negotiations, where the US refuses to limit its emissions unless China does, while China is protected by international law Article 4 of the Climate Convention of 1992, from limiting its emissions without compensation.

My first proposal is to introduce a new financial mechanism that is based on the carbon market – which can duplicate the terms of Article 4 of the UNFCCC in financial terms and offer the “two sided coin” that would satisfy the US and China simultaneously. I presented this proposal at the COP 13 in Bali 2007, invited by the Chair of the Accreditation Committee of the Kyoto Protocol, at the IMF, the World Bank, the UNCTAD and it has the official support of Chinese representatives, and the unofficial support of the UNFCCC Secretariat and US lawmakers. A second proposal is not financial but it is real: a technology development (of which there are several) that allow to produce electricity while reducing carbon concentration from the atmosphere, on which Nature has written two articles since December 2008. This technology is particularly well suited for developing nations that do not emit much and therefore have not benefitted from the Protocol’s CDM until now – namely it is particularly important to transfer clean investment to Latin America and Africa.

I am looking for a nation that would sponsor these proposals – as recommended by the UNFCCC – and perhaps also forum to run a Capacity Building meeting incorporating the negotiators of developing nations to explain the details of these proposals and ensure that they will succeed in Copenhagen COP15 December 2009.

Any of your readers who wants to help should contact me on this.

10. I want to raise a rather provocative question and ask you whether we are absolutely certain that global warming is a man-caused phenomenon!

No, I am not sure, the science is uncertain but the risk is real. For example, we do not know for sure that we will be hit by a car if we cross the street with our eyes blindfolded. But the risk is real, so better not do it. Similarly we do not know if our house will go up on fire. Yet we pay fire insurance to protect against this event – and we are not sure it will happen. Why? Then risk is huge, and it is a real risk. My new 2009 New Holland book “Saving Kyoto” has an entire chapter dedicated to explaining this point with financial data.

11. You have been leading a campaign for the creation of something called a New Green Bretton Woods system. What’s all this about?

Yes, this is a crucial issue. Globalization has totally changed the world economy since the mid 1950s. World trade increased 3 ½ times MORE that the growth of the world’s GDP. Yet, the institutions that govern the global economy – the so called Bretton Woods Institutions such as the IMF, the World Bank the WTO were created in the 1950’s and have not changed since then. This is a recipe for disaster – it is like driving in a fast highway with a horse cart. Not fair for the horse, not effective for us, unlikely to succeed -- and plain dangerous for all!

Since 1996 I have proposed new institutions to govern the world economy. In “The Greening of the Bretton Woods” for example, a lead article I wrote for in the Financial Times with the same title in 1996. I will send you ta copy of the article – which is short – so you can used it for this purpose, OK?

12. Over the years the US has been a staunch opponent of the Kyoto Protocol and the policies of the Bush administration in particular have had a severe environmental impact. Is the Obama administration likely to change course over the environment?

The Obama administration says so, but so far it is mostly words – good intentions, good words – let’s see what the facts show. None of the members of Obama’s economic team have any expertise or even knowledge of environmental issues. Not one. This is something that worries me. Obama is now trying to introduce a ”cap and trade” system – yet his administration has no expertise. Why? This is an issue where economic expertise is critical.

13. You have written lots about the current economic crisis. Is this largely a financial crisis or an overall economic crisis in capitalism?

Some of both.

It is a specific financial crisis that started from financial innovation and deregulation in the housing market including the irresponsible relaxation of reserve requirements for banks (This was done by Alan Greenspan, Robert Rubin, Larry Summers in the year 2000).

It is however representative of a systemic problem with capitalism that must be corrected to avoid further financial disasters, and the damage and pain that they cause to innocent people globally.

In November of 2008 I was officially requested to submit to the Obama administration my proposal for resolving the crisis – that starts from a radical renegotiation of all mortgages in the nation and regulatory moves to bring matters to balance. I did, and simultaneously posted this as a publication in Huffington Post to establish the authorship and the date.

President Obama introduce my proposal at the end of February 2009 beginning of March 2009. Realistically he could not do it much sooner as he became president on January 20 2009. But a lot of collateral damage was already done since the crisis started – which may be worse than the first order effects.

Since Obama followed my economic recommendation, the US crisis has eased and the head of the Fed, Ben Bernanke, recently stated that the crisis is expected to bottom in the summer or fall, and the economy to start growing soon thereafter. I am proud of the service I have done for my adopted nation.

But in all honesty without further regulation and controls financial innovation will keep producing systemic risks for which we are not prepared, and which will cause a lot of unnecessary harm. Unregulated greed is the curse of capitalism.

13. Has the economy hit bottom yet?

Nearly, see above.

14. Efforts so far to overcome the crisis have not produced any policies to redesign the system and ensure therefore that it won't be business-as-usual once the crisis is over. Are you optimistic about reforms taking place in the way the neoliberal economy has functioned up to now?

No.

I am not optimistic because the Obama administration has an economic team that consists exclusively of people who are responsible for the crisis in the first place, Robert Rubin disciples, for example Larry Summers (see above) but certainly not him alone. As Albert Einstein once said "The mindset that created the problem is not the mindset that can resolve it"

Look, these are not evil people. It is not their fault that they know nothing about environmental economics in the middle of the most acute global environmental crisis of our times.

It is not their fault that they do not know that financial innovation can cause systemic risk and that deregulation in the face of financial innovation is like a red flag in front of a bull. They just do not know – the world is changing fast and economics as a discipline is being left behind out of an abundance of professional academic success, and misplaced priorities.

I will send you an article I published in 2006 explaining how financial innovation causes systemic risk of widespread default – and what to do about it. It is the opposite of what Pres. Obama's current team did

in 2000. Which was: remove all reserves requirements for investment bank operations, and deregulate!

15. You have a young daughter studying at Columbia. Is she following on your footsteps?

She is much better, smarter, more centered, more creative, she is great! Right now she is graduating from Columbia University with a top degree in Theoretical Physics and Political Sciences, and her recent accomplishments in spending a year working as an investment banker in Mongolia – for the energy sector – were recorded in a Financial Times interview that I can send you – she is a great writer too.

16. What are the three most important things you treasure in life?

Being useful, being useful and being useful.

It is the only, solid, basis for happiness.

18. Thank you, Graciela.