Cuba, from collapse towards sustainability: Evolution of Agriculture

Fundación "Antonio Núñez Jiménez"
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Bay Area Tour, US, April 2011.

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CUBAN ARCHIPELAGO

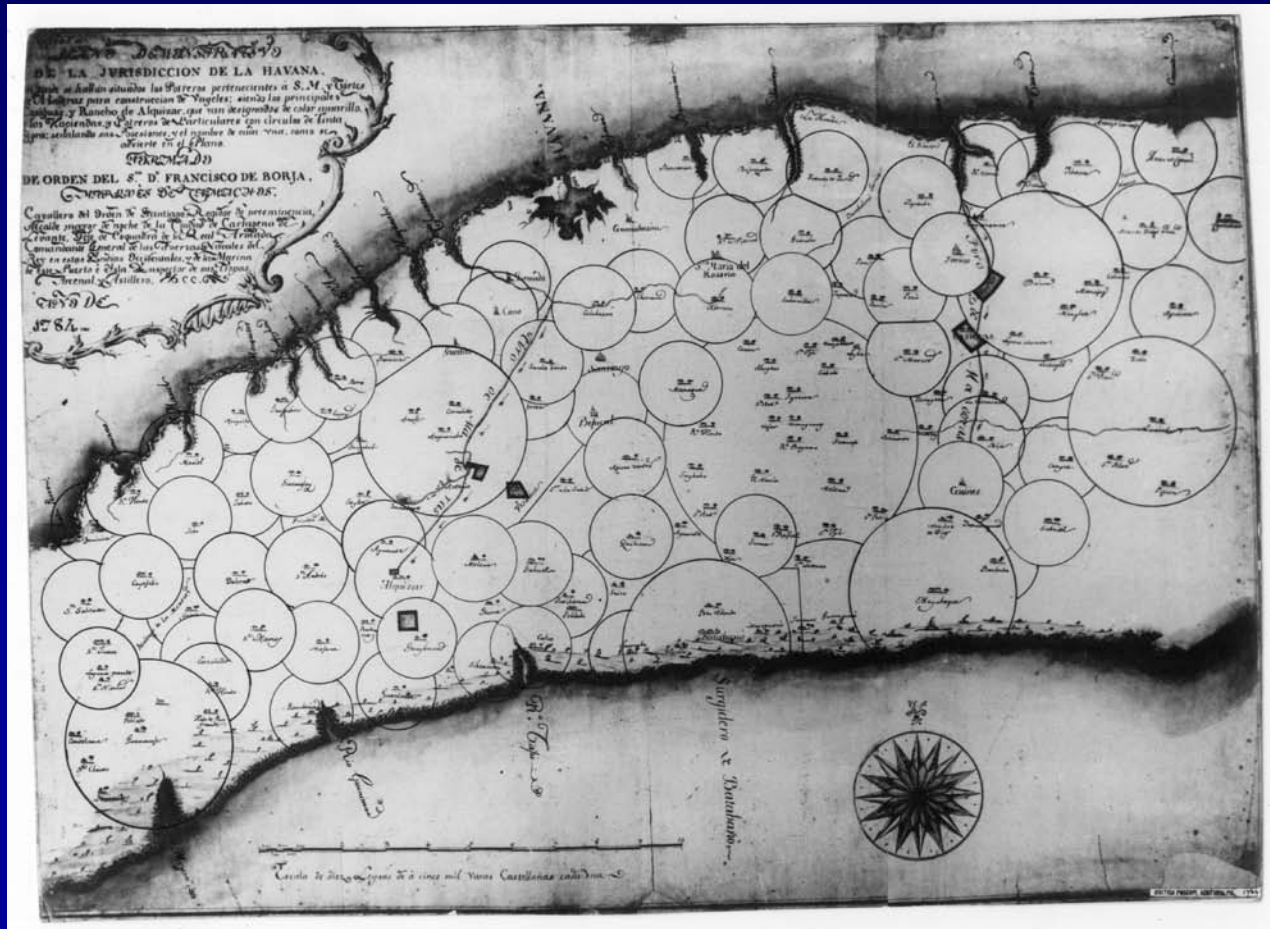
- 109 000 km^2
- 11,1 MM inhabitants (75% urban)
- Capital Havana City (2.1 MM inh)
- More than 4000 islands
- Humid tropical climate with marine Influence

1rst contact with Europeans in 1492. **Until 1505:**

- +90% covered by old growth forests (35 types identified)
- Arowac aboriginal population (250 000 inh estimated)
- Neolithic agriculture (based in cassava) practiced by some
- Sustainable use of natural resources to provide food

Colonial Period 1500-1900

- Plantation agriculture for export (tobacco, coffee, sugarcane).
- Extermination of aboriginal population.
- Slave labour from Africa, later from China as coolies.
- Services for the Spanish Fleet in early times. (wood & cattle)
- Low land use.
- Low population.
- Very few farmers.
- Some deforestation.
-Decisions taken in Spain.
- Some US property.
- 30 years of wars destroyed agriculture And killed 30% of the population.



Post Colonial Republic 1900-1960

- Plantation agriculture expanded (citrus added).
- Marginal production of food.
- Massive deforestation.
- Concentration of land (85% by less than 10% population)
- Big American Agrocompanies.
- Misery in Cuban countryside.
- Few Agrochemicals used.
- Cheap Labour from migrants.
- Export oriented Model
- Agricultural frontier in every corner of country.

Figure 1

The woods in Cuba from 1812 to 1959 (C.I.F., 1985)

Conventional Cuban Agriculture Model (1965-1991)

- Monocrops further expanded for export.
- Small farmers occupy 15% of the land.
- Cooperatives occupy 10% of the land.
- Green Revolution style Scientific agro development.
- Deforestation of selected areas, specially orchards.
- High dependence of external inputs (fuel, machinery, chemical fertilizers, pesticides, long distance transportation)
- Population became urban (1956 -56 % rural; 1989 -28 %)
- Land degradation in 75% of the soils
- Massive imports Of food (>70%)
- 13 MMT of fuel oil oil imported. (> 35% for agriculture)

Land Degradation numbers

- Agricultural surface of the country 6.65 MMHa
- Permanent crops occupies 2.39 MMHa,
- Erosion 2.5 MMHa, High acidity 3.4 MMHa, salinity (sodicity) 1 MMHa, compaction 2.5 MMHa, bad drainage 2.7 MMHa. 60% total

1991 East Block collapses…

Sudden Reduction of :

- Purchase capacity 60 %
- Q. fertilizers imports 75 %
- Pesticides 60 %
- Animal food 70 %
- Export market 80 %
- Sugar price US$ 0.05
- Only 35 % oil available
  3,4 MMT fuel
- GDP down in 70 %

American Blockade reinforced
(laws Torriceli 1992
Helms Burton 1996)

Government measures

- Foreign investment.
- Double currency.
- Self employment.
- Tourism warped.
- Decentralization.
- Redistribution of land.
- Free farmers market.
- Urban agriculture.

- *Redistribution of land*

State hands from 74% to 47%
UBPC 0% to 27 %

Lans delivered in usufruct:

- **80 748 ha coffee**
- **53 948 ha tobacco**
- **More than 50 000 ha in urban spaces**
- **Forestry farms (13 ha each) for reforestation and orchards**

SA Achievements

- Reforestation: It was possible to stop deforestation and achieved in 2008 26.10% of country surface. 12% more than 1959. size of Salvador.
- +8 MMT organic fertilizers produced per year (compost, worm casting, cachaza, organic matter, bioearth)
- Waste waters of sugar production used for ferti-irrigation.
- 150 000 pairs of oxen working in Cuban fields with implements (animal traction)

SA Achievements Pest control

- National network of CREE
  - 222 MINAGRI, 54 MINAZ
  - Biopreparations applied in 1 MM ha per year
- Interplanting.
- Natural control.
- 25 times less pesticides used (<1 000 t)

SA Achievements Awards

- Incorporation of SA in Uni Curricula and Tech schools since 1995
- Saard Mallinkroff Prize (IFOAM 1996)
- Alternative Nobel Prize, Sweden, 1999
- Goldman Prize, 2010
- 7 international Organic Agriculture Events.
- Agroecological movement in ANAP peasant to peasant.

Urban Agriculture in Cuba

- 300 000 ha (14.6% AS)
- More than 384 000 people involved
- involved
- Recognized by urban planners
- Recent focus in periurban system

GEOGRAPHIC Outreach

All Havana Province

Provincial Capitals 10 Km.

Towns > 1000 hab 2 Km.

villages Condiments vegetables

Municipal capitals 5 Km.

UA FORMS

Grassroots Organoponics

High yield Organoponics

Gov. Plots (self consumption)

UA FORMS (contd.)

Intensive gardens

(> 1000 m²)

UA FORMS (contd.)
Parcels, allotments, community gardens

800 m²-1000 m²

UA FORMS (contd.) Patios (backyards, rooftops, balconies, plots) <800 m² (+300 000)

UA FORMS (contd.)

- Shade houses,
- Seedlings houses,
- Periurban farms
- Agriculture shop & advisory
- Special food gardens

UA
for subsistence
1989 - 1994

UA
Market & consumption
1995 - present

PERMACULTURE

creating sustainable human settlements

Permaculture Start in Cuba

- 1993 Agreement Signed with Australian PC Group.
- Continued projects until 2001. ACF.
- PC activists from UK, Spain and USA joined the effort .
- 1995 First PDC in Cuba.
- Work with UA started.

Some results

- More than 800 people trained.
- +100 model places in 6 provinces.
- +170 trained trainers, 45% < 35 years, 50% women.
- 4 books, 3 serial publications, 3 videos.
- + 350 PC designers in the country.
- PC nationally recognized by Univ. and experts.

Permaculture in Cuba (contd)

- Second stage with support from cooperation agencies.
- 2000 Cubans go to the I Latinamerican PC Congress.
- Power of Community filmed in 2006.
- IPC 8 Brazil, 1st Cuban delegation.
- PC training by Cuban teachers in Colombia, Ecuador, Argentina, DR and Canada.
- PC as a tool for environmental education in Cuba.

Recent Permaculture highlights

- 2006 David Holmgren visited Cuba. Advanced PC course.
- Cuba hosted I National Convergence.
- CAPE, NZ and OZ,
- Robyn Francis in Cuba
- Geoff Lawton in Cuba
- UK-Cuba PC tour.
- Cuba hosted LA Convergence, 2008.
- Scott Pittman in Cuba.
- Cuba hosting IPC10??

Compost Toilettes

Cuban Ecovillage(broad acre case)

Cumanayagüa, Cienfuegos Province

"El Jobero", Cultural Community (26 Ha.)

Farm abandoned in 1992 for extreme soil degradation

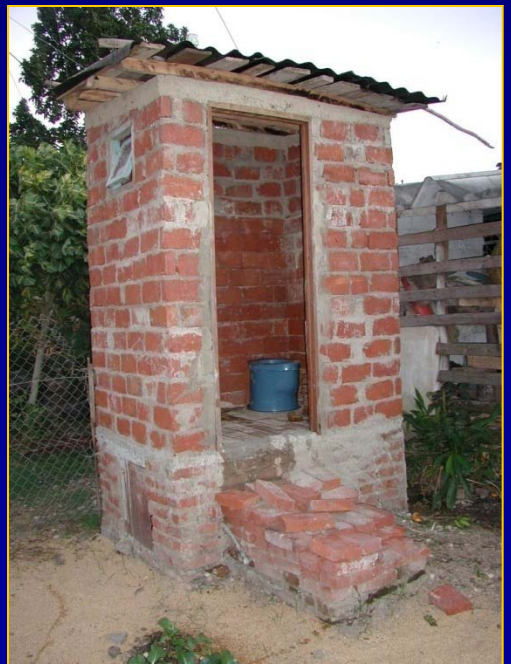
1995 – “Teatro de Los Elementos” company settled in the place,

cultural work starts

Permaculture training

Reforestation

Appropiate Technology



Some Lessons learned

- Access to land vs. ownership.
- Small scale intensive pattern.
- Fair market for producers.
- Need for local economy processes.
- Link Science with production.
- Political will and support.
- Environmental concerns.
- Close gap between cities and rural.
- Diversity of food systems.

Challenges for Cuban Agriculture

- Need research & evaluation for more than yield.
- Conventional agricultural mindset in decisionmakers.
- No National organic certification system.
- Lack of autonomy on crop selection.
- Limitations in funding, seeds, inputs and tools.
- Insufficient market incentives, need to export more.
- Sugarcane and marginal land need to produce (SA).
- Pressure to produce food at short term.
- World unstability for food prices, generally on rise.
- More Farmers needed.
- Need to design Resilient and robust food systems
- Climate Change and extreme events.

Conclussions

Cuban last 20 years Agriculture proves that is possible to have a multistakeholders Agricultural System that can produce sustainably food for millions, satisfying basic human needs, not profit based and environmentally friendly.

Permaculture can feed millions of people without exhaust natural resources and poison the Planet, is a powerful tool to educate people in a post fossil fuels and energy descent era.

Another world,
a better one,
is possible.

Cubans are less far from Sustainable Development, WWF report.