

ps baker

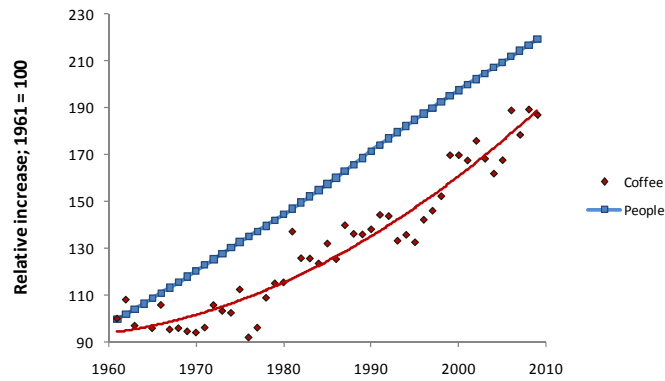
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KNOWLEDGE FOR LIFE

## A Texan oil expert is the inspiration for this talk

- In 1956, a Texan oil geologist called Marion King Hubbert, made a startling prediction
- Oil production would peak in the US between 1966 to 1971
- No one took him seriously
- But his prediction came true in 1970 – the greatest commodities prediction of all time
- He also suggested that world oil would peak in another generation
- I suggest it's time to start asking if this could happen to coffee

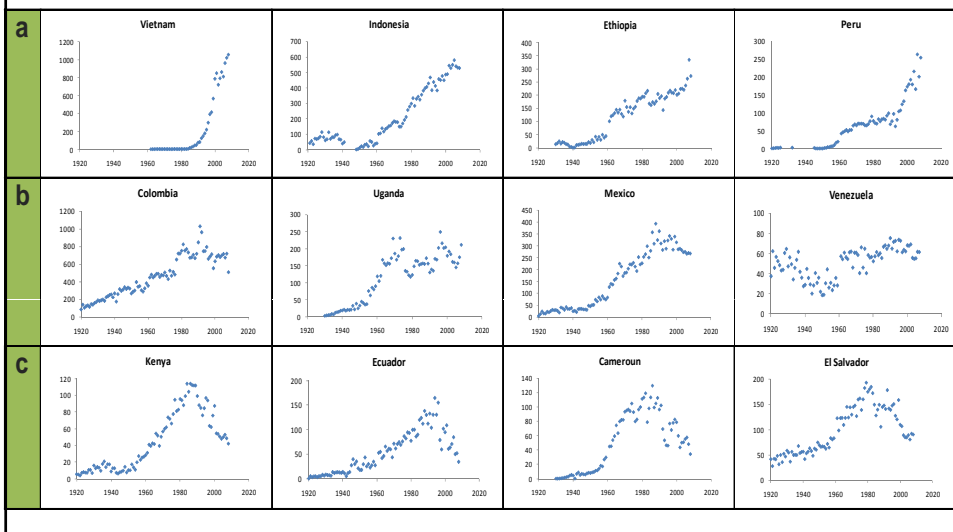


## Onwards and upwards No cause for alarm?



## Disaggregating the world curve

Total production is quite linear – but the components are highly non-linear

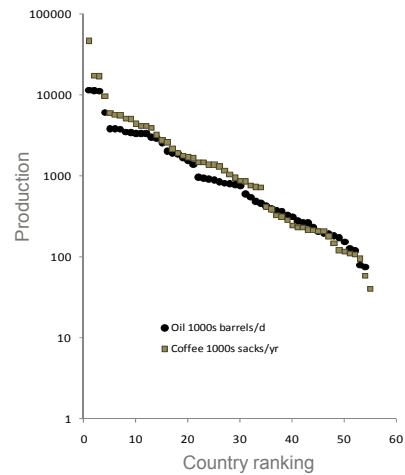


## Oil and coffee countries show similarities in composition



Production status	Oil*	Coffee**
Countries increasing	14	16
Countries flat	10	10
Countries declining	30	28

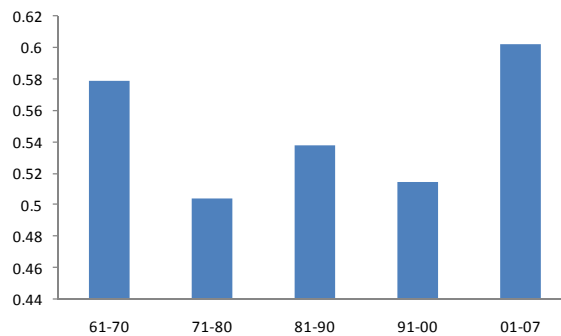
\* BP statistical review  
 \*\* ICO, FAO, USDA



## Coffee production is increasingly concentrated



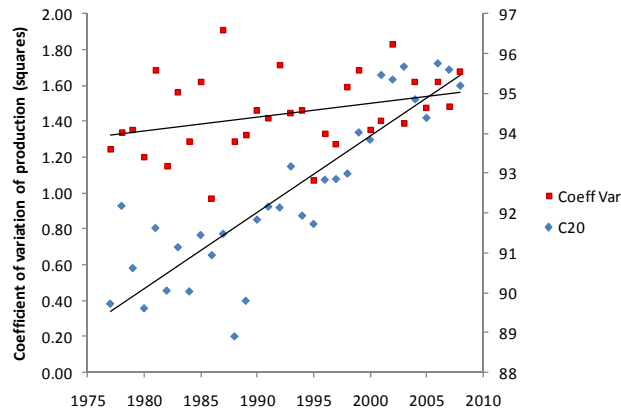
- Proportion of coffee produced by the top 4 countries (C4) is rising – it's now over 60%
- When only one C4 country in one year has a problem (e.g. Colombia 2009) this affects everyone



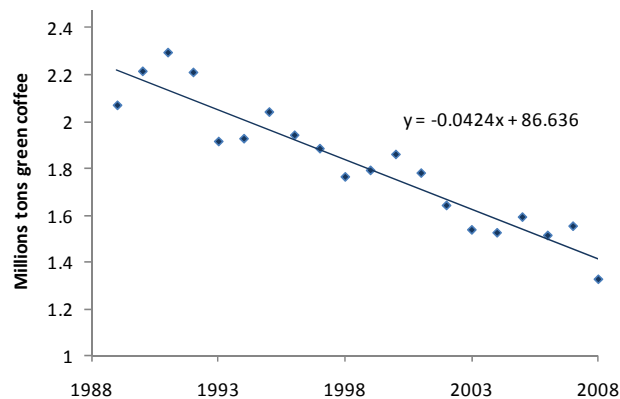
## Coffee output is getting more variable (but only a bit)



- Coefficient of variation of top 20 countries is rising
- Top 20 countries now produce more than 95% of world production



## 10 of the top 25 coffee countries have been declining by 42,000 tons/yr over 20 years



Colombia, Costa Rica, Côte d'Ivoire, DRC, Ecuador, El Salvador, Kenya, Mexico, Philippines, Venezuela

## But demand is increasing by ~ 100k tons/year

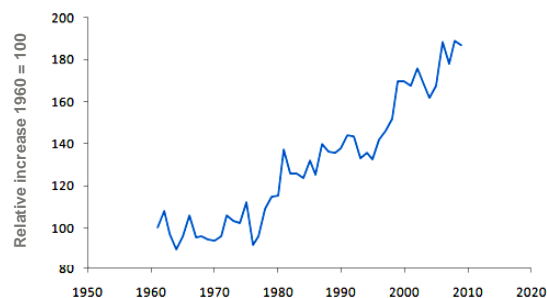


- Some of the demand is met by increasing yields
- But not enough to account for the rise – and maybe the big increases in yields in Colombia and Brazil are now over
- So where is all the new supply going to come from?
- After all, there is only a finite and declining amount of land suitable for coffee

## A problem of perception? How do you think of coffee production?



- For many people, probably just as an ever rising graph



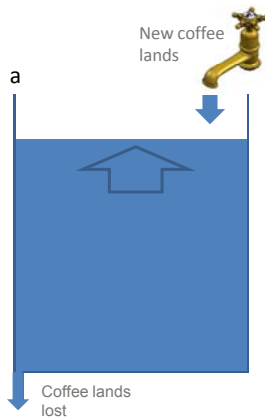
- But this doesn't give us any intuitive idea of what is really happening
- The above line is a running tally of:
  - [Existing stock] + [Recently planted] – [Eradicated] = Total

## The world's coffee lands are in constant flux



- Currently the industry depends on more new coffee entering production than leaving

Then & now

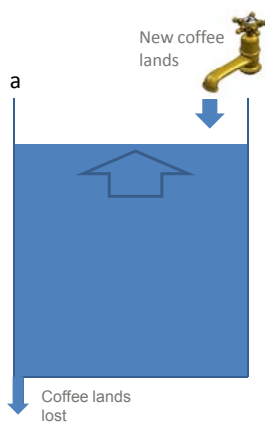


## The world's coffee lands are in constant flux

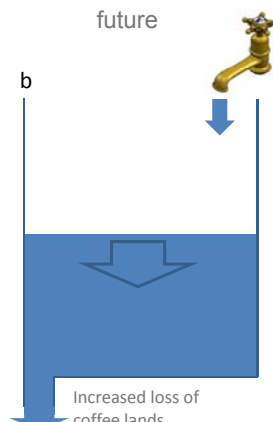


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Then & now



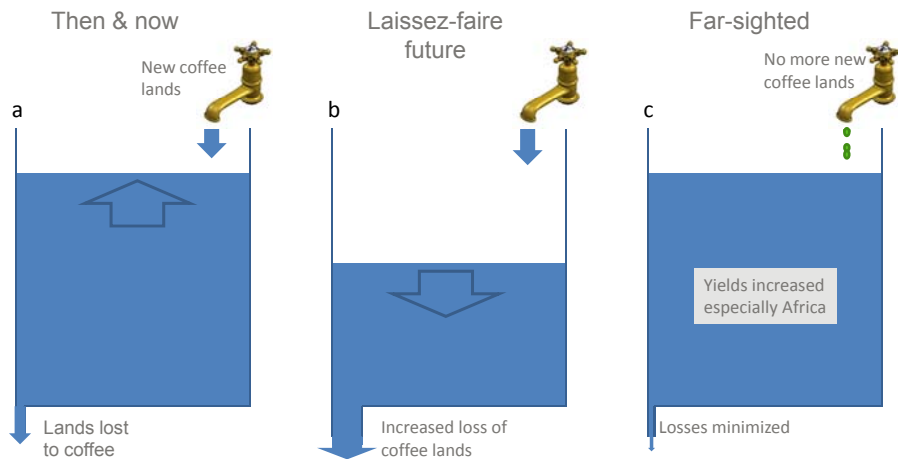
Laissez-faire future



## The world's coffee lands are in constant flux



- Currently the industry depends on more new coffee entering production than leaving



## Coffee fading away...



- Coffee >> beef, a rational economic decision
- The land is now off the coffee 'books'

## Where exactly is new coffee coming from?



- The statistics are not good enough to tell us how much and where new coffee is coming from
- But some of it is due to natural habitat destruction including deforestation (have some data & anecdotal evidence)
- It's likely that at least 50,000 ha of new production is coming on stream each year
- If only a half (25k ha) is from deforestation, this could mean an extra carbon release/loss of 5 million tons carbon/yr
- This could be as much as one third of coffee's total yearly carbon footprint
- If the coffee industry is serious about sustainability, it needs to think seriously about its **global** carbon footprint

## Re-conceptualizing coffee production away from the idea of a limitless frontier



- Coffee production is increasingly concentrated
- And it's not a static stock, it's turning over
- This flux will increase in the years to come as the climate changes and human populations rise
- But new lands will be limited in the future
- We need to get a much better grip on this process

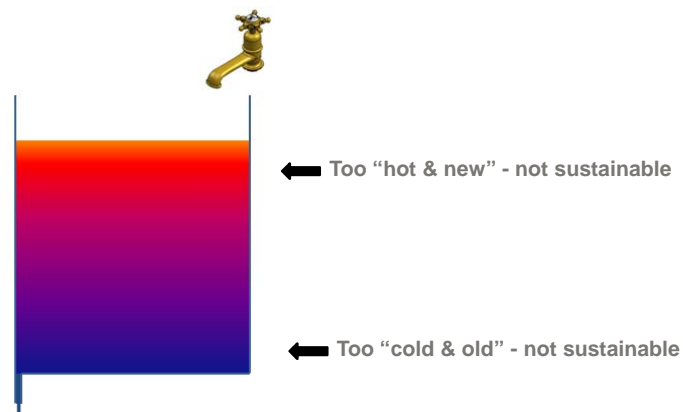


## We need better data :



1. To keep a careful eye on the **supply/demand** problem
2. **Carbon**: the industry wants to reduce carbon footprint – just selling small amounts of carbon neutral coffee is not enough if deforestation is getting worse
3. Hence any general **claims to sustainability** depend on having a transparent and accurate picture of world coffee
4. Coffee has shown **leadership in sustainability** but this could be jeopardized by unsustainable increases in production flux

## Taking the temperature of global sustainable coffee



- Is it time to re-think what “sustainable” means?

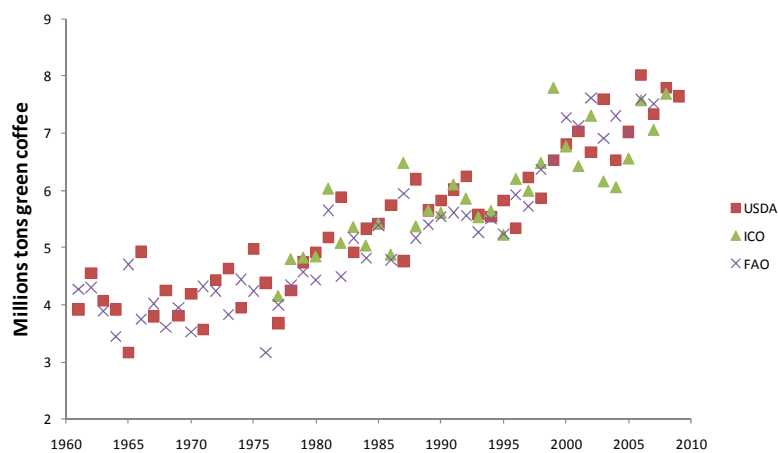
## Recommendations 1



We need better statistics:

- We simply don't know enough about the coffee lands that are the foundations of a \$90bn/yr industry
- It's crazy that we know far more about a consumer of coffee in say, Milwaukee, than rate of coffee land change in producer countries

## Quite major variance between production estimates



- We need to improve accuracy of estimates



## Very poor data on global coffee area

- We need to gather more types of data – not just volume



## Recommendations 2

- We need to **start looking at sustainability of the coffee industry on a much larger scale** than hitherto. Only by calculating global balances can we start to see the true costs of coffee to the global environment
- By so doing, better understand the factors likely to affect future global production
- E.g., if we started to look at coffee in this way, we might concentrate more on improving carbon balance by focussing on coffee yields and thereby reduce the need to deforest more land.

## Recommendations 3



- The single most important thing that could be done to improve global sustainability of coffee is to **transform African coffee production** into a modern and progressive industry, because of the three continents, Africa has by far the lowest yields.
- A coffee industry that calls itself sustainable and that has become a global leader in this endeavour through use of a tree that evolved in Africa, should surely not allow this stagnation to continue.
- The answer is primarily through investment in research, extension and technology, and Brazil/Colombia have shown the way.
- Once Africa loses its coffee industry, it will be very hard to get it back again.

## Will coffee peak?



- **Yes, but probably not soon**
- Part of “Peak Everything”: by the end of this century it seems increasingly likely that the world will be 4°C warmer than today. But this is a global average, many tropical countries will be up to 6° C hotter.
- This will make coffee production contract to fewer places, e.g. S Brazil, Argentina, but it’s difficult to say with precision
- **Could coffee be especially susceptible to peak early?**
- Yes, because of current **concentration of production**, more **unpredictable climate**, need for **food security** in the tropics as well as the **desirability of coffee lands for other crops**

## More reasons for production to go down than up

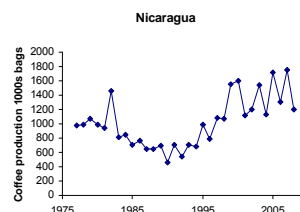
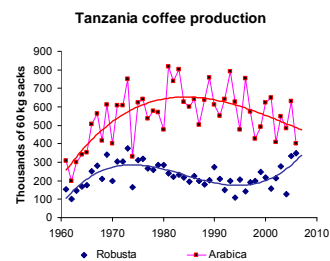


Going up	Going down
<ul style="list-style-type: none"> <li>• <b>Increasing demand</b> causes rising prices</li> <li>• Leads to <b>new lands coming on stream</b></li> <li>• <b>Large scale rehabilitation projects</b> from the public/private sector</li> </ul>	<ul style="list-style-type: none"> <li>• Rising food prices and biofuel crops give <b>farmers more lucrative options</b></li> <li>• Governments may subsidize <b>food security campaigns</b></li> <li>• Poorest countries experience <b>increasing political strife</b> that leads to more disruptions in supply – western governments and UN won't help enough</li> <li>• Lower altitudes increasingly <b>too hot/dry/wet</b> to grow coffee</li> <li>• <b>Population rise</b> &amp; city spread eats up coffee lands</li> <li>• More <b>chaotic climate</b> in major coffee countries leads to periodic shortages, price rises which reduces demand</li> <li>• Effective <b>REDD schemes</b> start reducing supply of coffee lands from deforestation</li> </ul>

## Lead indicator of peaking?



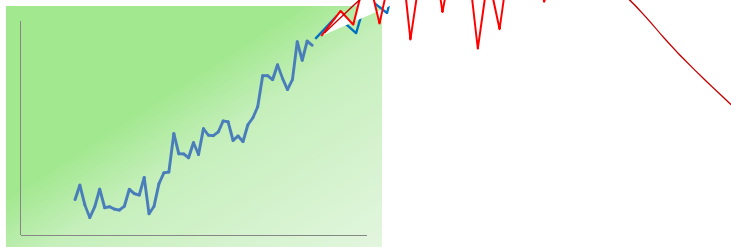
- During the peaking process, amplitude of production will start to increase as weather patterns become more unstable.
- We may already be seeing this in some countries, such as Nicaragua, Tanzania
- Hence an early warning sign of peaking is increased variation



## Waiting for the Black Swan?



- What will really happen?
- No one knows, but we are not really trying hard enough at the moment to figure it out
- Or even to try to shape our thinking and formulate the right questions to ask



## Peak sustainable coffee ...already reached?

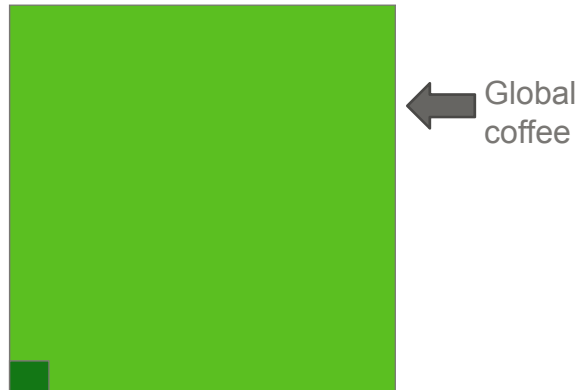


- Sustainable coffee certifications have grown over 10 years, from 1% to now about 8% of total production
- But coffee production has also grown, by about 10% in 10 years
- So the area of uncertified coffee remains about the same – and because of deforestation and diversification, coffee's carbon footprint must be getting bigger
- Can you claim that sustainability of coffee is improving if the carbon footprint is getting worse?
- Unless sustainable coffee certifications accelerate, they will start to decline as a proportion of world coffee as coffee production flux increases

## At the global level, sustainable schemes to date have had little effect



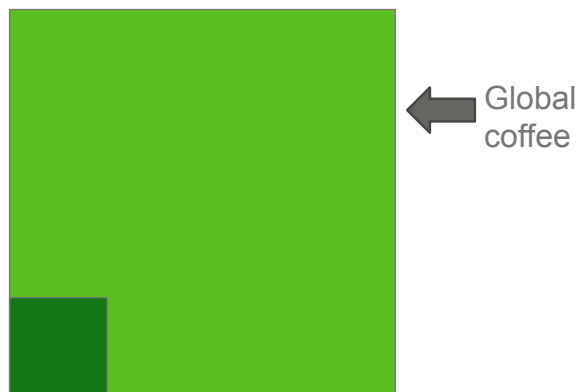
- Ten years ago, sustainable coffee was ~1% of world coffee



## At the global level, sustainable schemes to date have had little effect



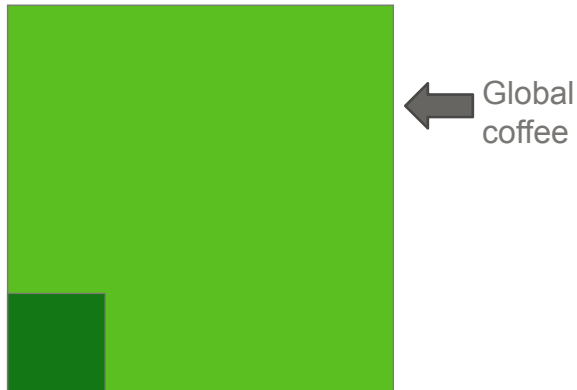
- Now, sustainable coffee is about 8% of world coffee



## At the global level, sustainable schemes to date have had little effect



- But, during that time, world coffee supply has grown by ~ 10%



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## So, if we are not careful...



- Rate of certification of coffee will become less than the rate of change of coffee lands

$$\frac{\partial C_{\text{ert}}}{\partial t} < \frac{\partial L_{\text{u}}}{\partial t}$$

- And in the end, for true sustainability, it's the land what matters, not the crop

## Finally: it's an ideological battle



- It's clear from recent financial problems, that we have been living in a fool's paradise for some time
- For Peak Coffee, you need to decide which fundamentals you believe in
- This battle can be personified by two men:

## What sort of a coffee future?



- **As personified by Alan Greenspan**, neoliberal 'regulation lite' champion
- But, by Oct 2008 - in a state of "*shocked disbelief*," because "*the whole intellectual edifice*" had "*collapsed*."
- Greenspan (interrogated by Waxman), 'fessed up: "*I found a flaw in the model that I perceived is the critical functioning structure that defines how the world works, so to speak.*"

## What sort of a coffee future?



- **Or as personified by Hubbert:** a scientist
- He was not just an oil jock who made a lucky guess
- But someone with deeply analytical powers who was scathing about the world economic system
- "*The world's present industrial civilization is handicapped by the coexistence of two universal, overlapping, and incompatible intellectual systems: the accumulated knowledge of the last four centuries of the properties and interrelationships of **matter and energy**; and the associated monetary culture which has evolved from folkways of prehistoric origin.*"



## Matter and Energy

the stuff of life



- So how does the coffee world work- at the most fundamental biophysical level?
- Are we happy with our current state of data and understanding, where we let the market find new coffee?
- Or will we too one day, like Alan Greenspan, find a fatal flaw?
- As things stand, at the field level, we are still in a Greenspan mindset, with:
  - Lack of investment in many countries (esp. Africa)
  - Weak and atomized coffee support institutions
  - No real planning for our very uncertain future
- We simply must do better

## Take home questions

What is it to be?



- Are you 'Greenspan' or 'Hubbert' on coffee?
- Laissez-faire?
- Or plan carefully for the future?
- The latter means substantial investment and increased institutional support
- What responsibilities should international, national, NGO and private institutions take?
- But whatever you decide, please don't think that somehow these fundamental questions are all going to be taken care of
- Because the institutions that could do this, have been deliberately weakened and hollowed out



**Thank You  
Anacafé  
&  
ICO!**  
for being such gracious hosts

*"Intellectual traditions have been born from the study of coffee; some have been overturned by it. The industry has shaped fields of learning."*

*[Robert Bates ICO World Conference 2001]*