

Peak Oil, Peak Food, Peak Water . . . just up ahead

National Meeting Experimental Station Section

Estes Park, Colorado

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- Conventional supplies of oil, food and water – will be surpassed by demand – first 50 years of 21st century
- Peak oil is a commonplace discussion point – food and water – not yet



Great confidence in productive capability of agriculture

- Met the challenge of Club of Rome
- Met threats of droughts, floods, erratic weather
- Why not global warming?
- Why not climate change?



- Concern peak oil, peak food, peak water
- Not 40 or 50 years away
- Peak water may be 25 to 30 years away
- Peak oil and peak food are within next 20 years



Three Global Drivers of Peak Oil, Peak Food, Peak Water

1. Global population projected to be 9.0 billion – 2040. Reached 7.0 billion in August – my numbers say 9.0 billion – 2030/32. At least 1.0 billion not accounted for
2. 1.0 maybe 1.5 billion new Asian middle class consumers by 2020 – less than 10 years. Creating 3 new U.S. in demand
3. Climate change reduces global crop production capability by at least 20%

What does it mean . . .

1. We have only 15 years to do a meaningful turnaround
2. Agriculture and food must become the priority industry of every country on earth
3. Agriculture is the only industry which can impact each element of a gather perfect storm
4. Agriculture is the only industry that can push peak oil, peak food, peak water farther out into the future

The Gathering Perfect Storm

1. Climate change driven by global warming
2. The Health Care Crisis
3. Search for energy security
4. The Trump Element – access to ample secure, safe supplies of fresh water



Climate Change

- Climate change is happening
- People argue over the causes
- It doesn't matter
- Agriculture must adapt to extreme changes in weather variability

WE MUST ADAPT AND QUICKLY

Climate Change *continued . . .*

- Extreme weather events, heat, drought, floods on increasingly frequent basis
- Scientists at Princeton and North Carolina project 30-40% yield loss corn/soy bean when daily temps average 85° F
- Around world glaciers are melting. S.E. Asia is particularly vulnerable. 2.0 billion people at risk
- National Climate Data Center – 7200 sites worldwide, 2000-2009 – warmest decade on record
- Averaged 1° C over the average of 20th century

The Health Care Crisis

The background of the slide features three golden globes, each with visible cracks and a glowing effect, arranged vertically on the right side. The overall background has a warm, golden-yellow hue with faint grid lines and a globe-like pattern.

- Crisis of life styles, nutrition, numbers, and cost
- Health care 11% GDP in Canada and 16% in U.S.
- 2 billion people overweight, overfed, under active – 1 billion obese
- 2 billion people underweight, undernourished, overactive – 1 billion at point of starvation

The Health Care Crisis *continued . . .*

- Because of overweightness and chronic disease, today's 2-19 year old generation likely to be first generation to die ahead of parents
- Without drastic life style change, 41% U.S. adults forecast to be obese by 2016
- July 1st, 1990
 - No state over 20% obesity among adults over 20
- July 1st, 2009
 - Only state not over 20% obesity – Colorado
 - Six states over 30% obesity
- July 12th, 2011
 - Only state not over 20% obesity – Colorado
 - 12 states over 30% obesity
- Double states in just 2 years

Search for Energy Security



Volatility in energy costs over past decade

\$147.00/barrel of oil – July 2008

\$37.00/barrel of oil – January 2009

- Peak oil is very close
- Conventional easy to reach capacity

100 – 105 million barrels/day

- 2007 – reach 86.4 billion barrels/day
- Oilfield capacity dropping 4 – 6 % a year

Search for Energy Security *continued . . .*

Peak Industrial Activity – July 2007

- *300 million consumers (U.S.) consumed 22 million B/D*
- *3.5 billion consumers (Asia) consumed 22 million B/D*
- **2007** – J.D. Power and Associates forecast – Chinese consumer would not buy more cars than American consumer until 2025
- **2009** – Chinese consumer passed American consumer
- **2010** – Chinese consumers purchased 1.0 more cars
- At current rate of purchase – by 2015 – forward motion (because of gridlock) in Beijing – will be 14km/hr.
- Same speed as bicycle

Search for Energy Security *continued . . .*

- Historic conventional capacity 105 million B/D
- New technology and new discovery – increases capacity to 111 million B/D
- Current aging wells dropping 4-6%/year
- International Energy Agency – 2010
 - Must find 3 new Saudi Arabia's by 2030
- New exotic energy sources are years away
- Peak oil is less than 5 years – maybe 2 years

Trump Element – Access to Ample Secure Supplies of Fresh Water

- Water is the foundation of life
- Canada and U.S. are lucky – good farmland and good water supplies in much of the region
- Other parts of the world, such as South East Asia, have real problems
- We must not take water for granted
- Must focus on prudent, sustainable management of water supplies
- Agriculture can take a strong leadership position

The Future



- 1. The future belongs to those who can access and manage renewable natural resources**
 - Effectively and sustainability
 - Good farmland and water are the two most critical resources
 - We must not let short-sightedness rule the day
- 2. New technologies and wide application of existing technologies would seem to be the only way to fill the gap between food supply and demand**
 - This emphasizes the strength of the land grant system in becoming the “discovery” engine
- 3. We in this room today has the best combination of science knowledge and will. We must tell the story to everyone – we must lead the implementation**
- 4. We can kick up our low beam society to the high beam new**

Thank You

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