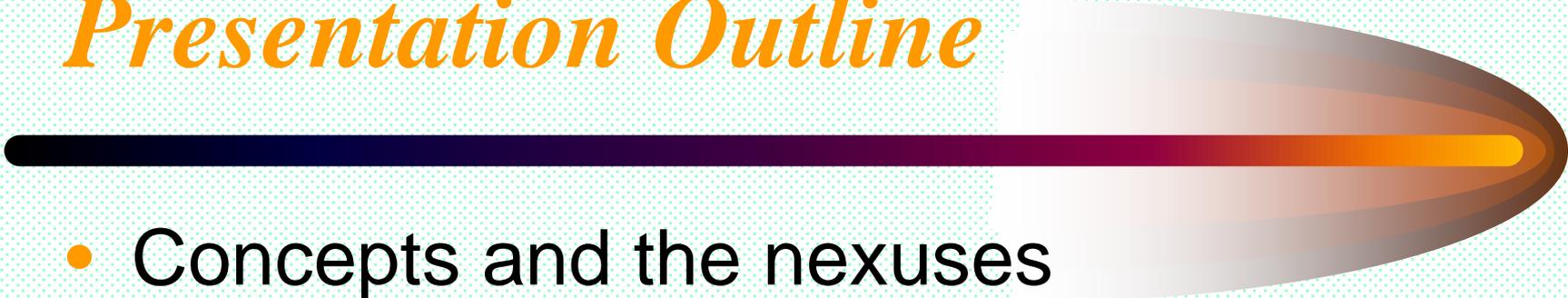


# *WATER – ENERGY – FOOD NEXUS*

## *\*\*THE LAND QUESTION IN SOUTHERN AFRICA\*\**

A Senzanje  
Bioresources Engineering  
University of KwaZulu-Natal  
Pietermaritzburg, RSA  
[SenzanjeA@ukzn.ac.za](mailto:SenzanjeA@ukzn.ac.za)

# *Presentation Outline*



- Concepts and the nexuses
  - Water-Energy-Food nexus
  - Water-Land-Food nexus
- Land and food production
  - Global perspectives
  - Regional perspectives

# Concepts Explained...1

- **Nexus**

- A means of **CONNECTING** or **LINKING** or **TYING** things or members of a group in series



- **Nexus Approach**

- **Multidisciplinary** approach to analysing the **relationship** between *Water-Energy-Food*
- Or is it *Water-Land-Food nexus*??

# *Water-Land-Food Nexus*

- **Water-Land-Food Nexus**

- The **inextricable link** between food, land & water → a change in one leads to change in the others
- **Food**: availability and access to ...
- **Land**: secured access to ...
- **Water**: access to safe drinking water and sanitation ...

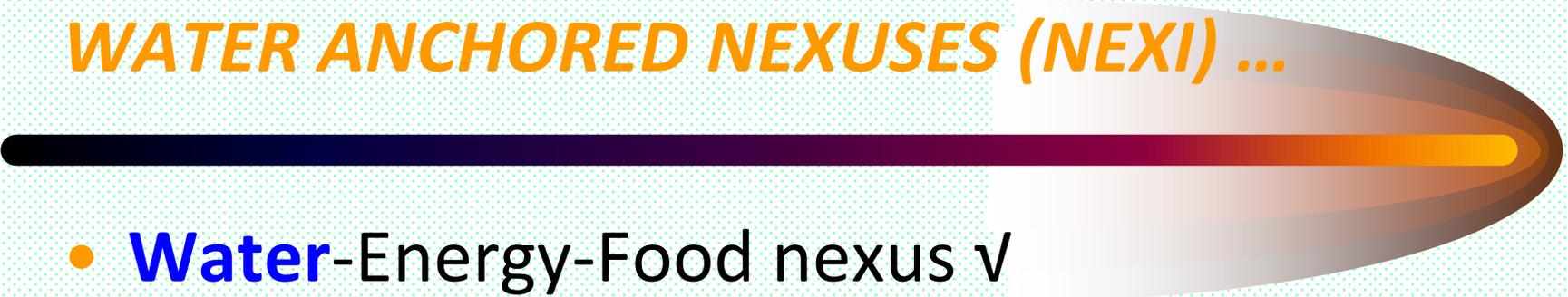


- **Water**

- Key to this nexus



## *WATER ANCHORED NEXUSES (NEXI) ...*



- **Water**-Energy-Food nexus ✓
- **Water**-Energy-Food-Climate nexus
- **Water**-Health-... nexus
- **Water**-Economic Growth-... nexus
- **Water**-Development-... nexus
- ...
- **Water-Land-Food** nexus ✓

# *Water-Energy-Food nexus*



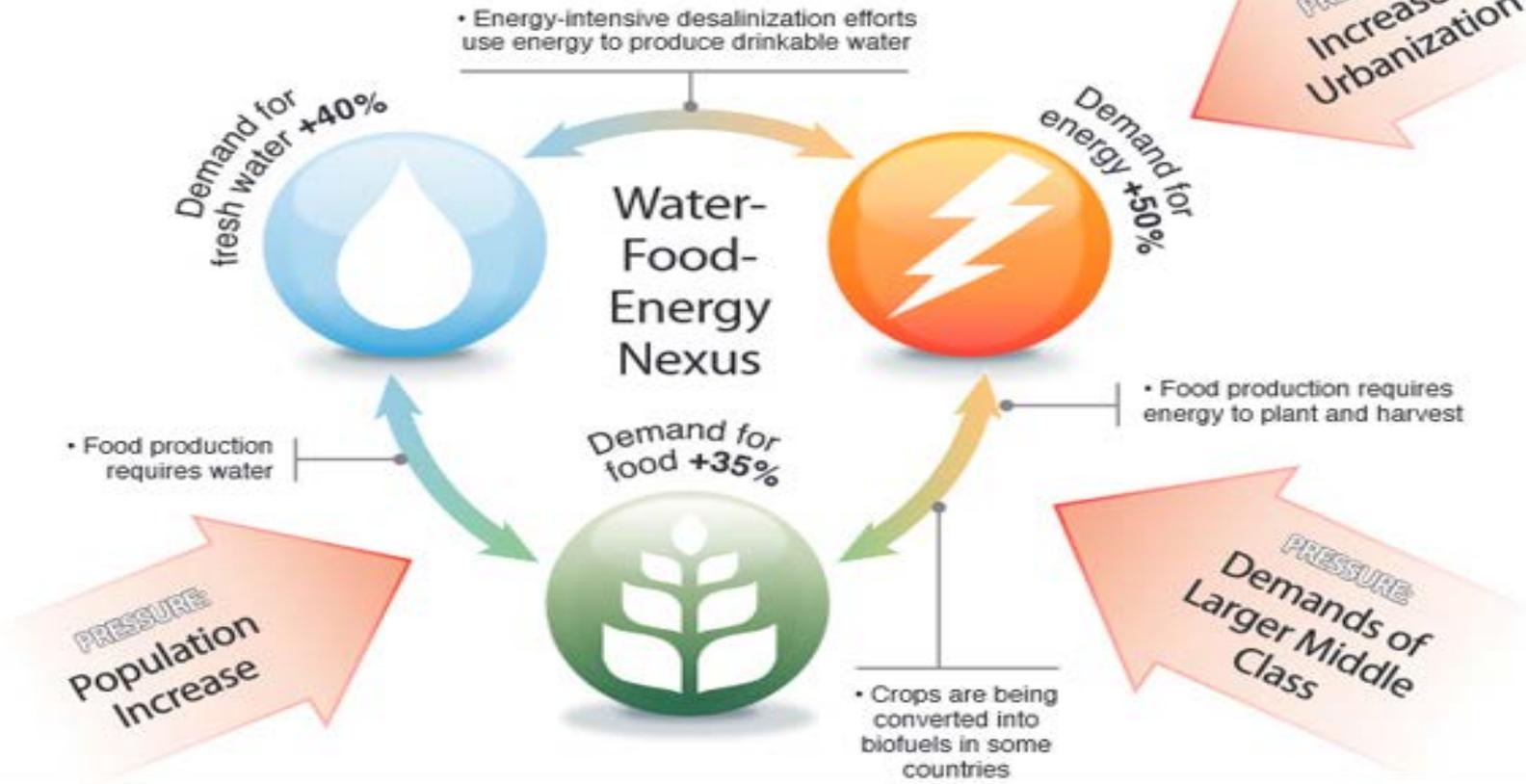
- **Water-Energy-Food nexus**
  - **Link** between water & energy & food
  - In reality **competition** between food and energy for water –water is input to food and energy production
  - **Pressure** on the water resources
- **Drivers**
  - Increasing **population**
  - Increasing **urbanisation** (and industrialisation?)
  - Growing **middle class**

# WATER-ENERGY-FOOD NEXUS

As population grows, pressures mount

And the relationships between food, water, and energy supplies become critical

Because of growth in global population and the consumption patterns of an expanding middle class, in less than two decades three key demands will sharply increase ...



# *Water-Land-Food Nexus*



- **Water-Land-Food nexus**
  - **Link** among Water & Land & Food
- **The nexus**
  - Change in **Water** affects Land & Food
  - Change in **Land** affects Water & Food
  - Changes in **Food** affect Water and Land

# *The Land Dimension in the Nexus*



- **Land**
  - A **basic resource**
  - The ground we live on
  - A means of **production**
  - An **asset**
  - A constitutional (or birth) **right**
- **Land**
  - **Farmland**, wetlands, forests, pastures

# *Land and Politics of Food Security*



- **Land**

- Hot **political** topic
- Very **contentious** and **divisive** at all levels!
- “**Wars of liberation**” fought over the issue of land
- High **competition for access** to land...
- [see later]

- **Land**

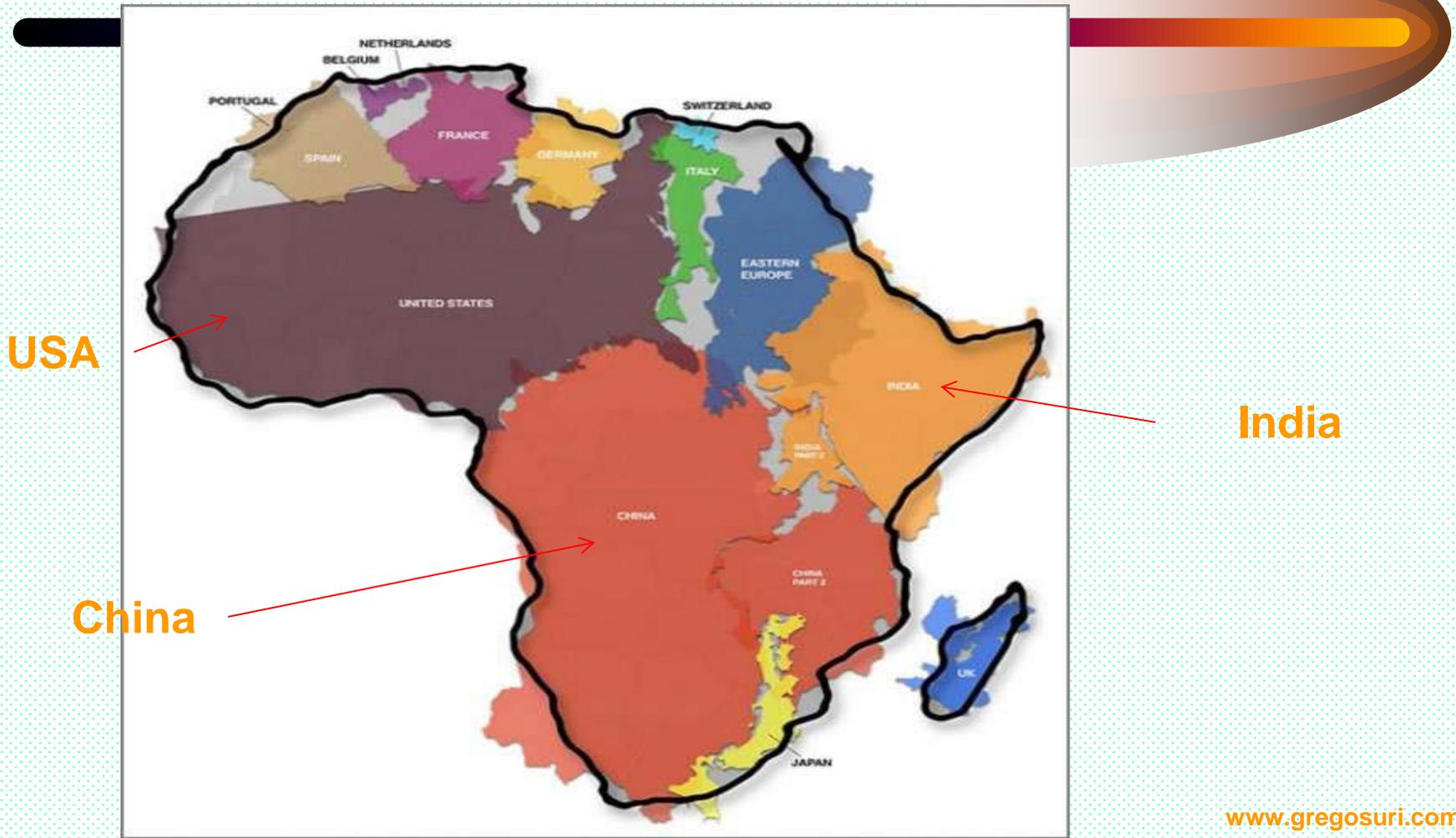
- Key to **food security**

# *Land and Agricultural Production*



- **Land**
  - Base on which all agriculture depends
- **Critical dimension**
  - Agricultural **output per unit area**
    - Kg/ha
    - LSU/ha
    - Etc
- **Sub-Saharan Africa**
  - Has **202 million ha uncultivated arable** land
  - Great potential to:
    - Reduce poverty, **increase food security**, boost growth, etc

# *Land in Africa – Plenty?*



# Global Trends and Food Security

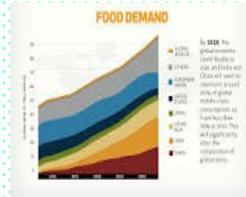
- **Biofuels vs. expensive fossil fuels**

- Land shifted to biofuels crop production at the expense of food crop production
  - Risk of food insecurity



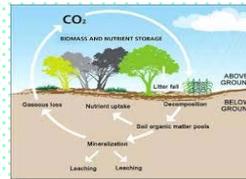
- **Increasing food demand**

- Governments encourage large-scale production at the expense of small-scale production
  - Risk of local food insecurity



- **Demand for arable land for carbon sequestration due to climate change**

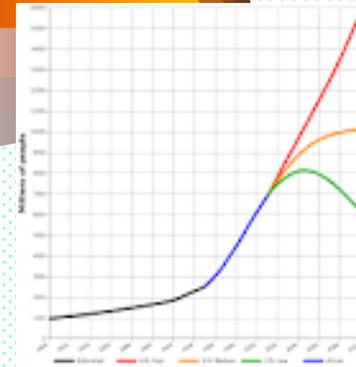
- Carbon sinks being located on arable land, thus taking land out of food production
  - Risk of food shortages



# *Land and Food Security ...1*

- **The challenge**

- Need to **feed 9 billion** people by 2050
- Need to **increase global agricultural production by 70%** to meet this need
  - Need **responsible investments** in agriculture
  - Need both **small scale** and large scale agriculture
  - Small scale farmers need **access** to:
    - Assets (**land**, etc), knowledge, credit, markets, etc



# *Land and Food Security ...2*

- **World's poorest and hungriest people**
  - Live in **rural areas**
  - Rely on **land to survive**
  - Have **no legal rights** to the **land** they rely on
- **Lack of land rights:**
  - Fuels **global hunger**
    - Land is poorly cultivated
    - No incentive to invest in the land
  - Families **subsist** as day labourers or indentured servants



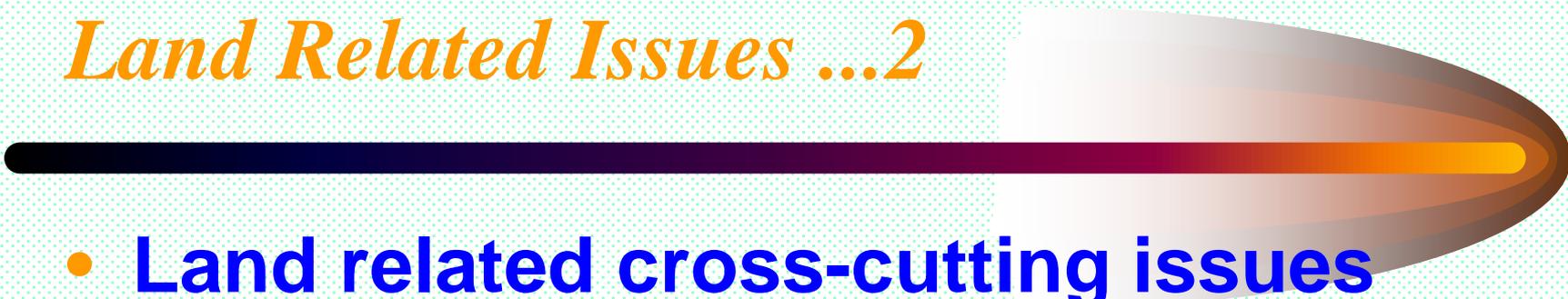
# Land Related Issues ...1

- **Key land issues**

- **Access** to land – individual or collective
- **Right** to land – individual or collective
- Land **tenure** – formal or informal, statutory or customary, permanent or temporary
- Land **tenure security** (security of land tenure)
- Land **governance** – transparency & accountability
- **Use** of land – protective or productive
- **Management** of land – intensive or extensive
- **Scale** of operation – large scale or small scale
- etc



## *Land Related Issues ...2*



- **Land related cross-cutting issues**
  - **Climate change**
  - **Gender** – women, youth, the elderly, marginalised groups
  - Bio-fuels (**energy**)
  - Large scale (foreign) **land grabbing**
  - etc

# *Women – Land – Food Security*



- **Ownership & control of land by women**
  - Determines what **households produce**
    - Grow more & earn more
  - Determines how proceeds from production are **spent** or allocated
    - Larger proportion spent on caring for the **family** (c.f. to men)
    - Allocate a larger proportion of the budget to **food issues**
  - **Significantly improves household food security**

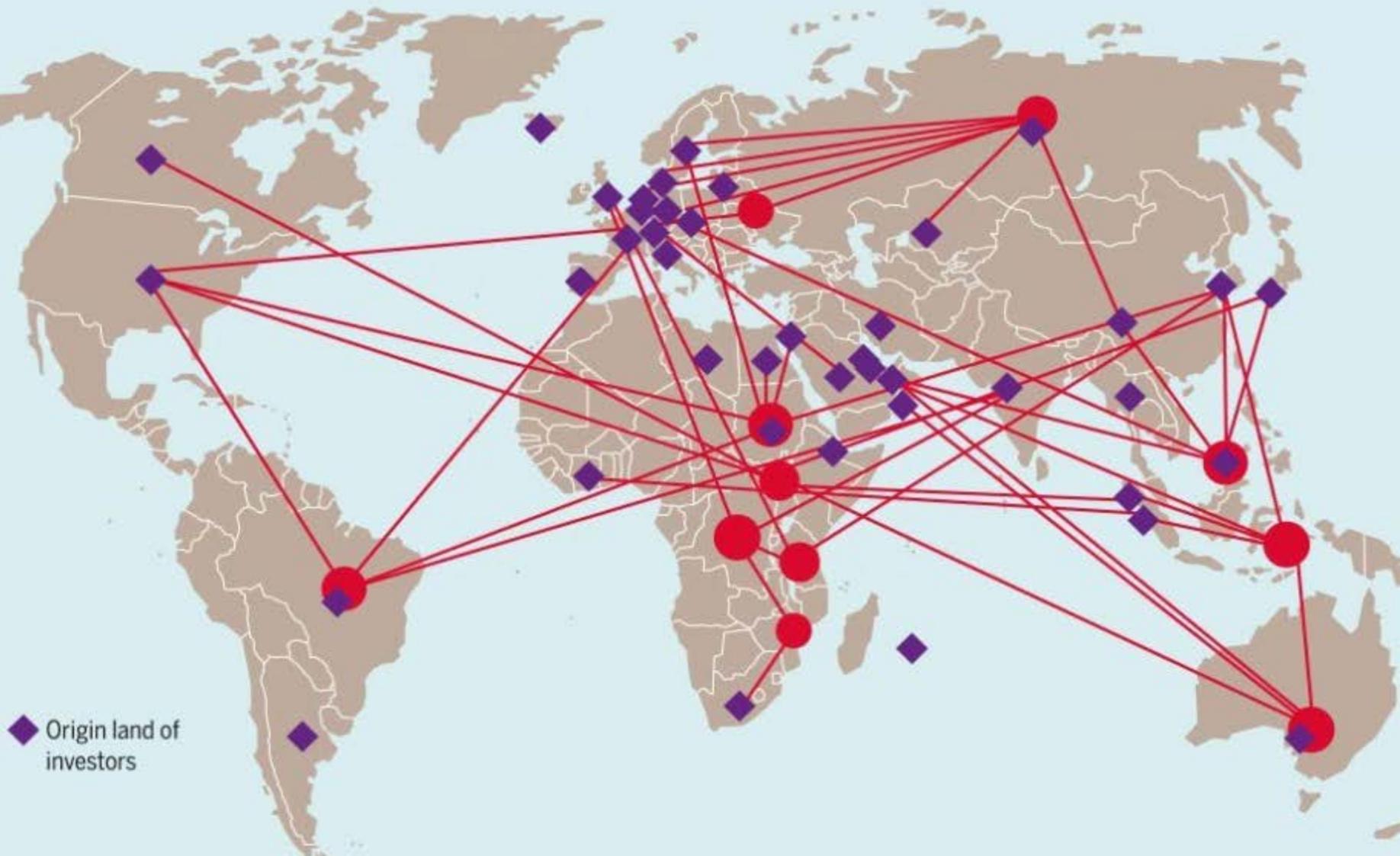
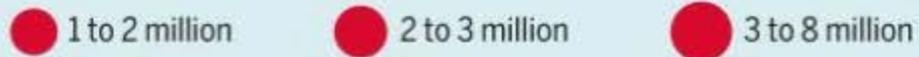
# *Large-scale Land Grabbing (Acquisition)*



- **Large-scale land grabbing**
  - Foreign companies **leasing large tracts of land**
  - A recent phenomena with mixed reactions
    - +ve → **cost-effective** production
    - -ve → disempower **the rural poor!**
- **Large-scale land grabbing & food security**
  - Can significantly **enhance national food security** through efficient production
  - **Local food security may suffer** depending on the arrangements (e.g., locals **lose their land**, locals are simply labourers!)

## WHO BUYS WHERE?

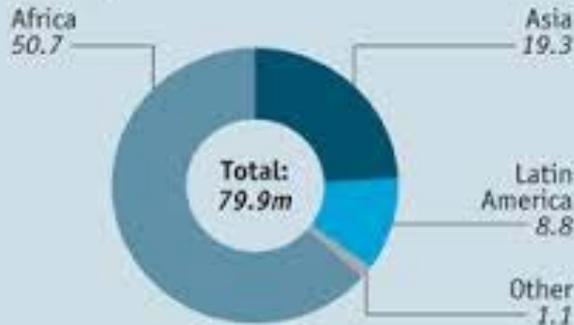
Land transfers in the 11 most important target countries, with origin of the investors, 2012, in hectares



# LAND (GRAB) DEALS in AFRICA

## Go Africa

Total area of reported land deals\*, 2001-11  
Hectares, m



Source: Oxfam, CIRAD, CDE at University of Bern, International Land Coalition

\*Preliminary estimate

## The 21st-century African land rush

Worldwide, up to 115 million acres of land are being bought or leased by foreign investors, and the bulk of this is in Africa. Food security and the push to produce biofuels drive the land rush. This map shows a sampling of reported land deals in Africa.



## Land, water and crop deals



### Who are the dealers?

- > Foreign investors (private and public): Gulf countries, India, China, US and EU - and Egypt
- > 'National' investors: agri-business companies, diaspora, etc
- > National governments: federal and regional level

## *Closer to Home: Land Reforms & Food Security*



- **Land reforms**
  - **Redistributing land** to correct historical land ownership (access) imbalances
  - Internationally **politically contested!**
- **Recent regional reforms**
  - Zimbabwe
  - Namibia
  - **South Africa??**
- **Implications on Food Security??**

# *Zimbabwe Land Reform & National Food Security*



- **Zimbabwe land reform**

- 30+ years of **land reform experience** in 3 stages
  - Stage I: 1980 – 1985 → willing buyer willing seller
  - Stage II: 1986 – 1999 → ESAP driven
  - Stage III: 1999 – date → FTLRP
- In the beginning → **6 000 LSCF** controlled **15 million ha** of the most productive land
  - Agriculture contributed 40% of GDP & exports
- In the end → **240 000 families** controlled **13 million** of the 15 million ha

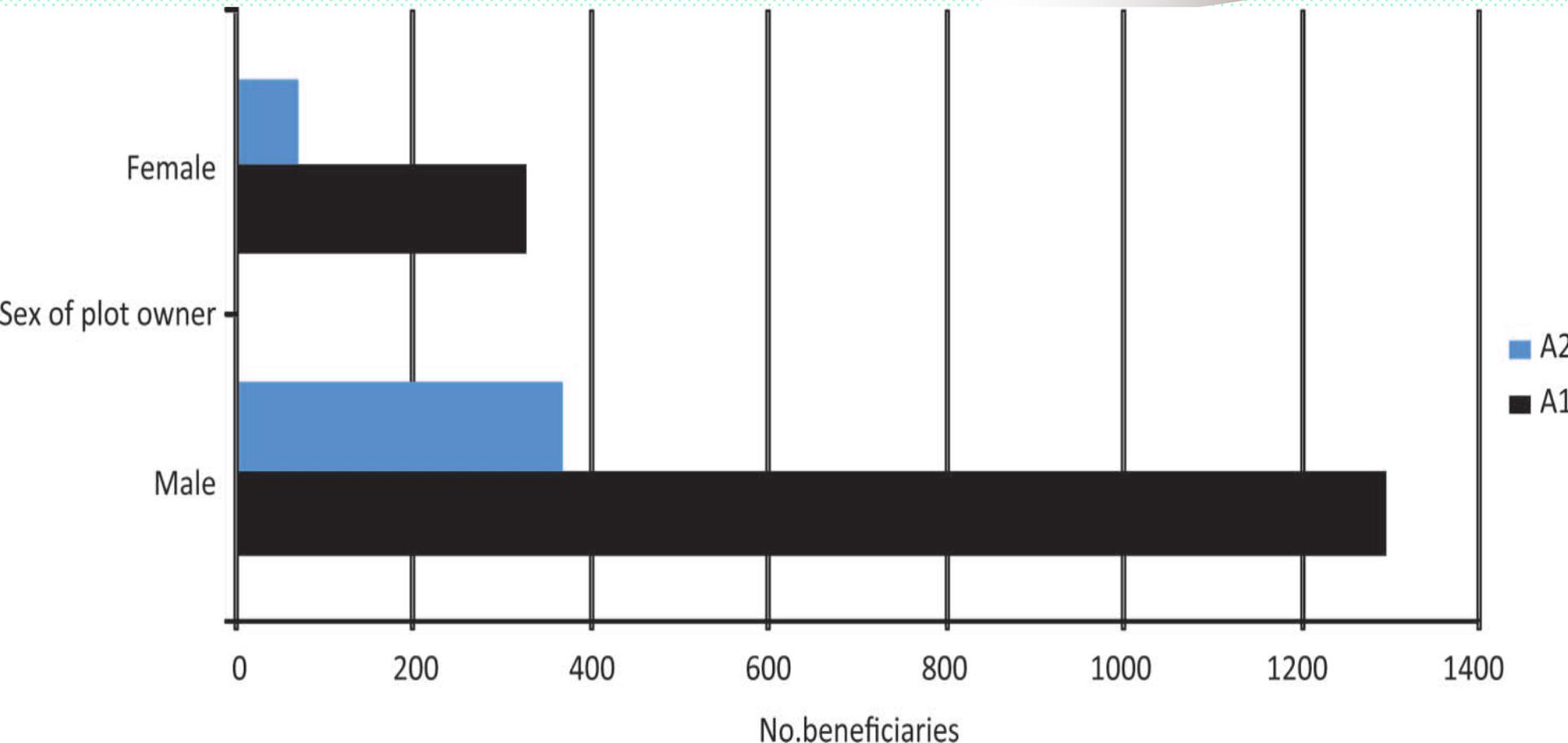
# *Zimbabwe Land Reform & National Food Security*



- **Implications on food security**
  - By the 2000s – production of main **food grains had declined** by between 35% to 65% of past levels
  - **Food shortages** in the mid to end 2000s & 2010s (land reform or international politics (sanctions)?)
  - Now → cash crop (tobacco) production on the up, **food crop production still lagging**
  - Wide spread **food assistance** to **rural population**

# Zimbabwe Land Reform & National Food Security

- Zimbabwe land reform & the gender dimension



# South Africa Land Issues & Food Security

- **Recap Freedom Charter (1955)**

- *“Restrictions of land ownership on a racial basis shall be ended, and all the land re-divided amongst those who work it **to banish famine** and land hunger;... All shall have the right to occupy land wherever they choose.”*
- Note → ... **to banish famine** (emphasis added!)

# *South Africa Land Issues & Food Security*



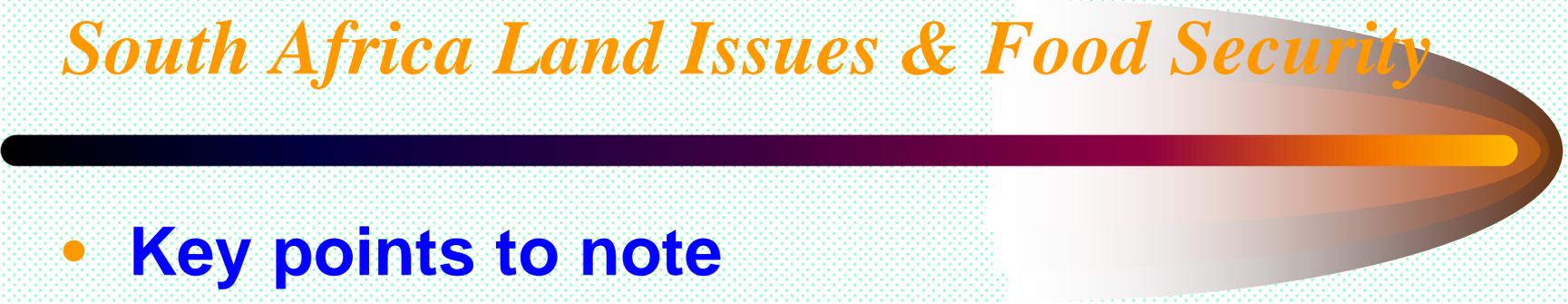
- **In the beginning**
  - ‘Willing buyer willing seller’ concept
    - Most believe its **not working** – reform lagging behind targets
- **Land restitution**
  - Restitution of Land Rights Act of 1994
  - Key points on land?
- **Food security**
  - National food security not affected
  - Local food security another issue

# *South Africa Land Issues & Food Security*



- **New proposals on land issues**
  - **The (Land) Expropriation Bill**
    - Expropriate land in the public interest...
      - Disputes referred to court...Okay
  - **Dept. of Rural Dev final policy on land reform**
    - Expropriate ½ of all commercial farmland → farmworkers get shares in the expropriated land

# *South Africa Land Issues & Food Security*



- **Key points to note**

- De-racialise & **transform agriculture and land ownership** in SA
- Ensure **economic sustainability** of the agricultural sector
- Nation's **agricultural performance and food security** are critical variables in the land reform debate

- **Implications on food security?**

# *South Africa Land Issues & Food Security*



- **Some statistics**

- SA total land surface area = 122 mill ha
- SA agricultural land = 101 mill ha
- Dryland plantations land = 17 mill ha
- Stock farming land = 84 mill ha
- Agricultural land worthy = R155 bn
- Debt owed by farmers on the land = R88 bn
- In 1994 → 80000 farming entities
- In 2014 → 35000 farming entities (1/2 for sale!)
- **ONLY 105 FARMING ENTITIES PRODUCE 76% of SA'S FOOD**

# *Summary & Conclusion*



- **Water-Land-Food nexus**
  - Inextricably linked
  - Careful **handling & balance** required by
    - Politicians
    - Technocrats
    - Everyone
- **Land**
  - **Key component** of the W-E-F nexus in Southern Africa region