



Building Resilience in the Horn of Africa: Environmental considerations

**Jenny Clover, PhD
UNEP**

Climate change – an unprecedented threat to human security

- ✓ Current discourse – biophysical, economics, politics
- ✓ Insufficient attention to DIFFERENTIAL OUTCOMES
- ✓ **Equity dimension** – reinforces existing inequities and creates new inequities
 - does not affect all countries or people equally
 - Most vulnerable are developing countries
- ✓ **Connectivity dimension** – the interrelated dimensions: complex combinations of socio-economic, political, environmental, structural and cultural → vulnerability

CLIMATE CHANGE IN AFRICA

- ✓ The main hazards that affect Africa are climatological and hydrological in nature
- ✓ Climate Change, a threat multiplier, **will exacerbate mainly water related hazards** in Africa.
- ✓ Even without climate change, **many of Africa's water resources are facing overuse, pollution, and degradation.** Poor land-use practices are contributing to this process.
- ✓ **Drought-affected areas** will likely become more widely distributed, while heavier precipitation events can lead to higher flood risks

Climate Change related security

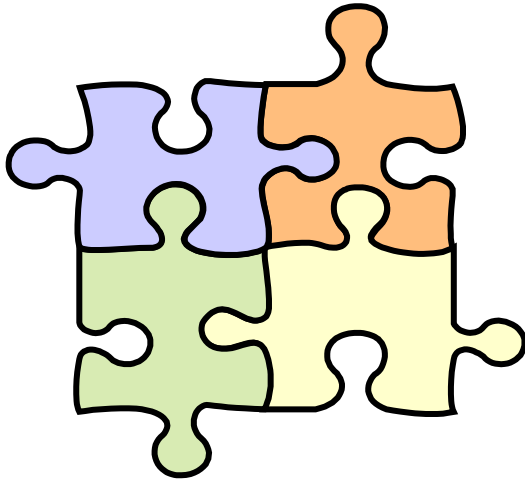
- Climate is becoming increasingly unstable and the weather events are more severe
- Declining yields - great threats to **food security**
- Impact on **water security, public health, natural resources and biodiversity**
- **Climate Change – a “threat multiplier”**: likely to affect security in its narrower and wider sense (livelihoods, migration, conflicts)

The “Hot Spots” in Africa

- **Mozambique...** as much as 25 per cent of the population is at risk from natural hazards
- **Madagascar...** Country of extremes: over the past 35yrs at least 46 natural disasters- cyclones, droughts, floods, famines and locusts
- **Sahel ...**in the past 25 years the most substantial and sustained decline in rainfall recorded anywhere in the world.
- **Horn of Africa**



**Building
resilience –
HAZARDS,
RISKS,
VULNERABILITY**



1. Environmental risk drivers
2. Using natural resilience of ecosystems to build human resilience

**CENTRAL TO
BUILDING
RESILIENCE**

**Natural buffers – Resilient
Livelihoods**

3. Recognise the links between natural resources management, conflict and resilience

Four reasons why ecosystems matter

- **Human well-being depends on ecosystems** that also enable people to withstand, cope with, and recover from disasters.
- **Ecosystems, such as wetlands, forests, and coastal systems, can provide cost effective natural buffers** against hazard events and the impacts of climate change.
- **Healthy and diverse ecosystems are more resilient to extreme weather events.**
- **Ecosystem degradation, especially of forests and wetlands, reduces the ability of natural systems to sequester carbon,** increasing the incidence and impact of climate change, and climate change related disasters.
- **Ecosystem degradation magnifies the destructive impact of extreme weather events ,** further increasing vulnerability and magnifying the risks to disaster

The role of healthy ecosystems

Healthy ecosystems contribute to reducing the risk of disasters in multiple and varied ways.

- Well-managed ecosystems can reduce the impact of many natural hazards, such as landslides, droughts, flooding, avalanches and storm surges.
- The extent to which an ecosystem will buffer against extreme events will depend on an ecosystem's health and the intensity of the event.
- Degraded ecosystems reduce community resilience for sustainable development as well as disaster preparedness and recovery.

Ecosystem Services: The constituents of well being

Provisioning: food; freshwater,
wood, fiber, fuel

Regulation: climate regulation, flood
regulation, water purification

Cultural: educational,
aesthetic, spiritual

**Resilient
ecosystems
support
livelihoods
and human
security!**

Key actions for ecosystem protection and management : Watersheds, forests and coastal zones are naturally linked



Watershed
management



Forest, savannah,
grassland management



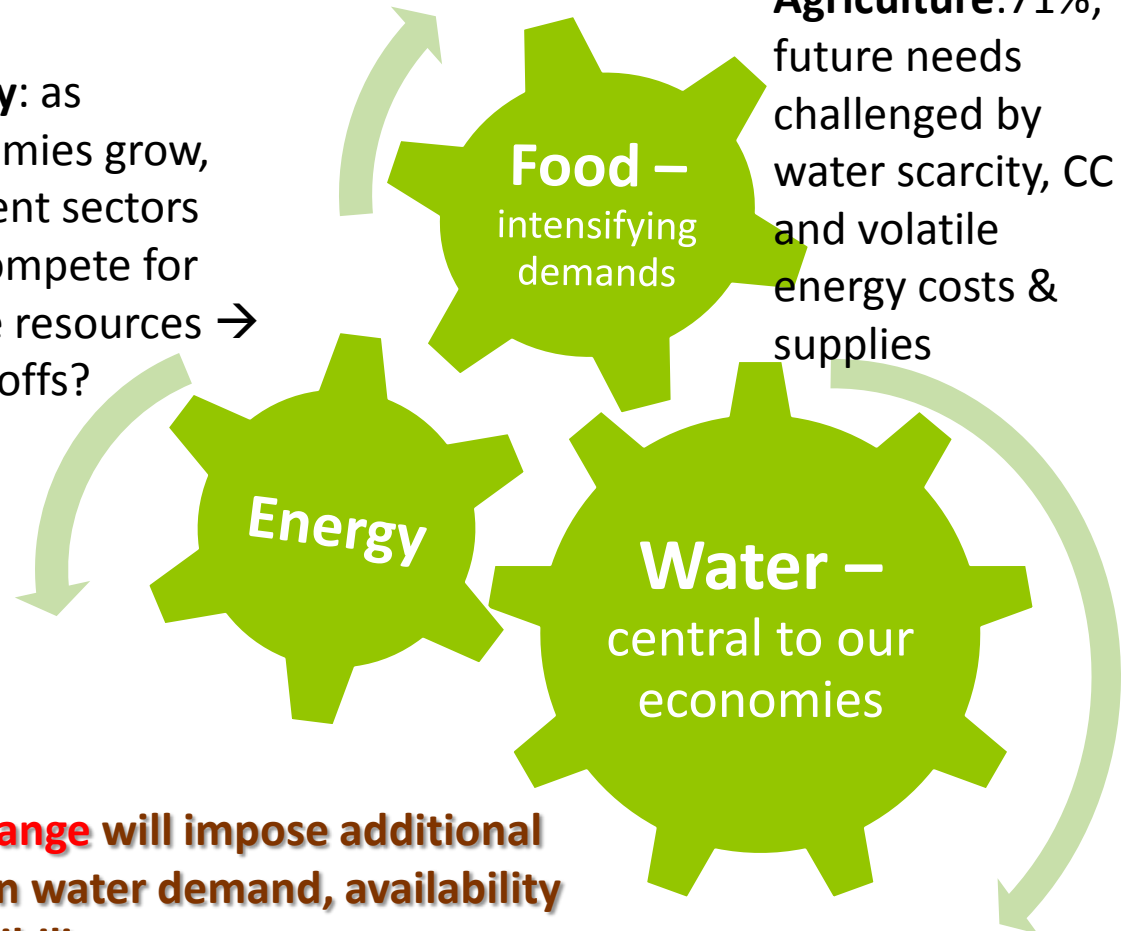
Coastal zone
management



Water – Energy – Climate Change – Food Security

Highly interlinked challenge of meeting our future food, water and energy needs

Energy: as economies grow, different sectors will compete for scarce resources → trade offs?



Agriculture: 71%; future needs challenged by water scarcity, CC and volatile energy costs & supplies

Climate change will impose additional pressure on water demand, availability and accessibility

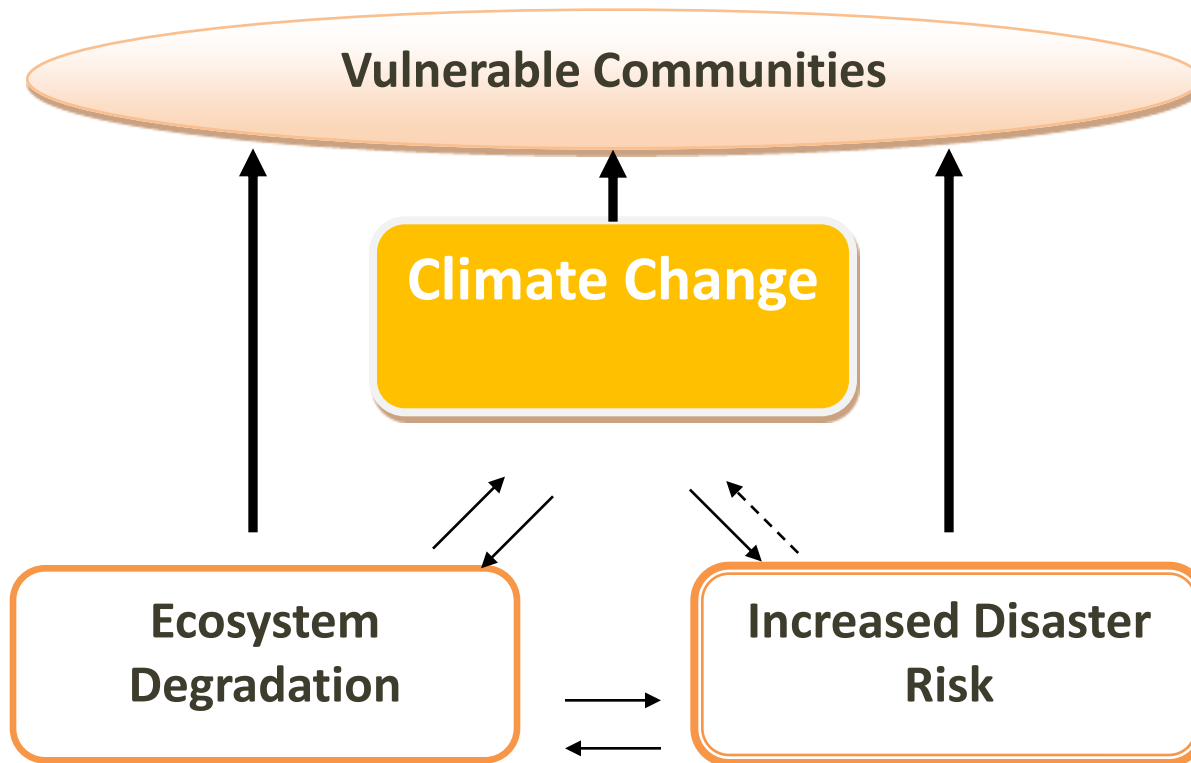
Growth strategies must accommodate the interrelated environmental constraints - & meet development needs

- **Over-exploitation of resources** or higher demand for ecosystem goods than can be sustained, such as overfishing; unsustainable grazing and fire regimes;
- **Land use and land cover changes**, or changes to habitats due to conversion to croplands and urbanization;
- **Climate change impacts** are affecting ecosystems and exacerbating environmental degradation;
- **Invasive alien species** are introduced species that compete and encroach vigorously upon native species, with the potential to degrade ecosystem services and cause severe economic damage;
- **Pollution**, from chemical waste and agricultural inputs, has severely degraded many ecosystem services, and continues to act as a major driver of change.

Water – Energy – Climate Change – Food Security

- These issues are highly interlinked and must be addressed in tandem – solutions to one can in fact worsen another
- Scramble for resources that may create new geo-political dynamics - challenges of natural resource scarcity (e.g. land/water grabs; transboundary waters such as Nile) – potential for conflict?
- Complex and cross-sectoral approaches and political commitment are central
- Multi-stakeholder platforms to generate consensus

Ecosystem Degradation



**Magnifies destructive impact of extreme weather
→ increases vulnerability and magnifies risk to disasters**



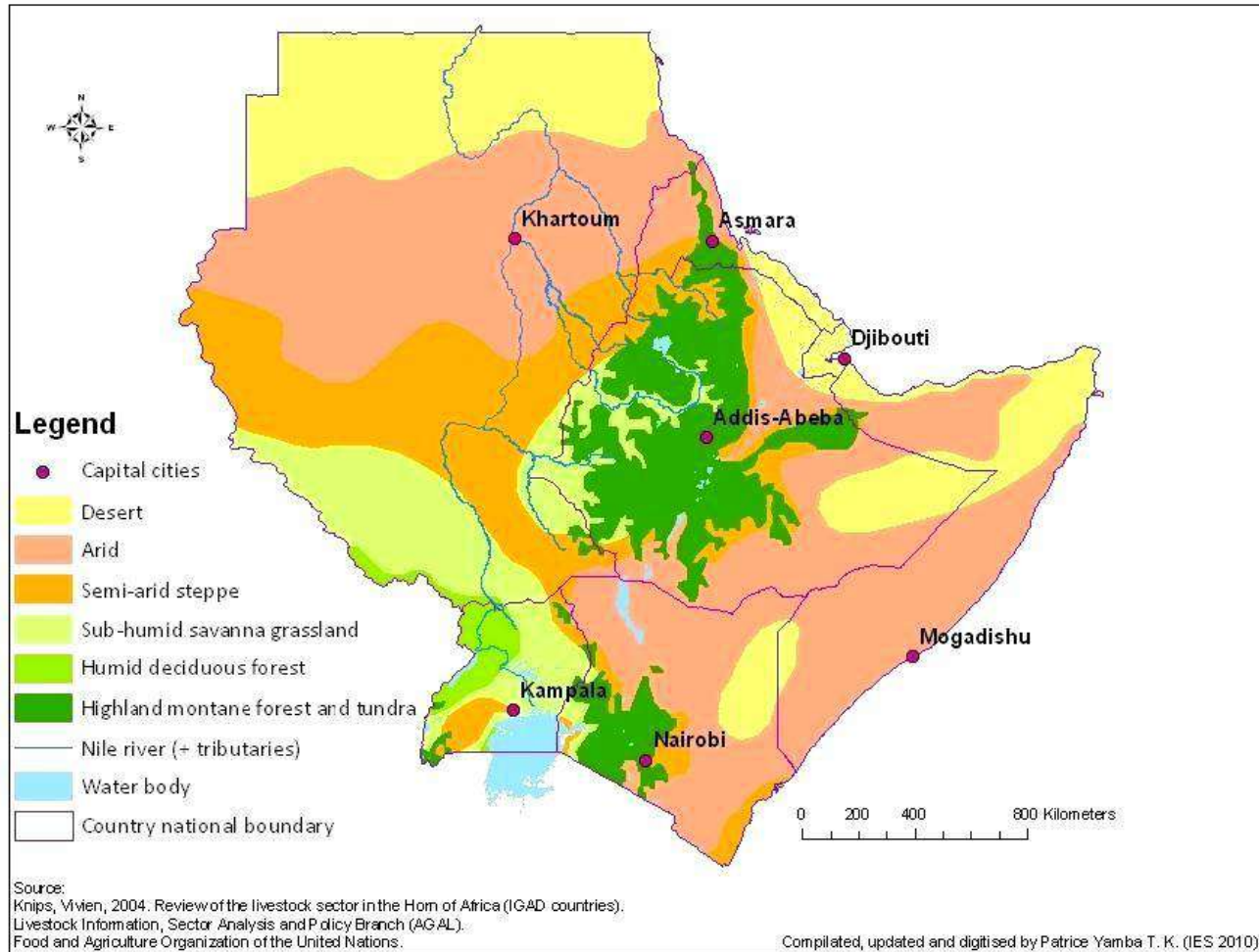
Environmental degradation is one of Africa's key challenges

- Water based ecosystems are now the world's most degraded natural resources.

First signs of water stress are experienced through environmental degradation of natural ecosystems, then agriculture

- Nile – being drained for irrigation?

Horn of Africa – environmental overview



State of the Environment

- Renowned source of biological resources and historical “gene centre”
- Among the most threatened eco-regions in the world
- Major environmental problems: deforestation, land degradation, pollution, biodiversity loss
- 41 protected areas – only $\frac{1}{3}$ IUCN, incomplete protected areas system
- Water security more serious than in many other parts of Africa
- Greatly underutilized potential of rainwater for harvesting and irrigation
- Growing energy demands – 90% come from biomass
- Depletion of marine and freshwater fish

History of conflicts: links to natural resources

- Multiple challenges to peace and security with a long history of multi-layered regional-level, cross-border conflicts
- Issues of natural resource allocation, ownership and access have played a critical role in conflicts – and are an integral part of peacebuilding
- Increasing competition and conflict over diminishing renewable resources – land and water; climate-security nexus
- Factor in most of the conflicts in the HoA – and this link doubles the risk of conflict relapse
- Resources should contribute to development ... not fuel instability and conflicts

Pastoral conflicts

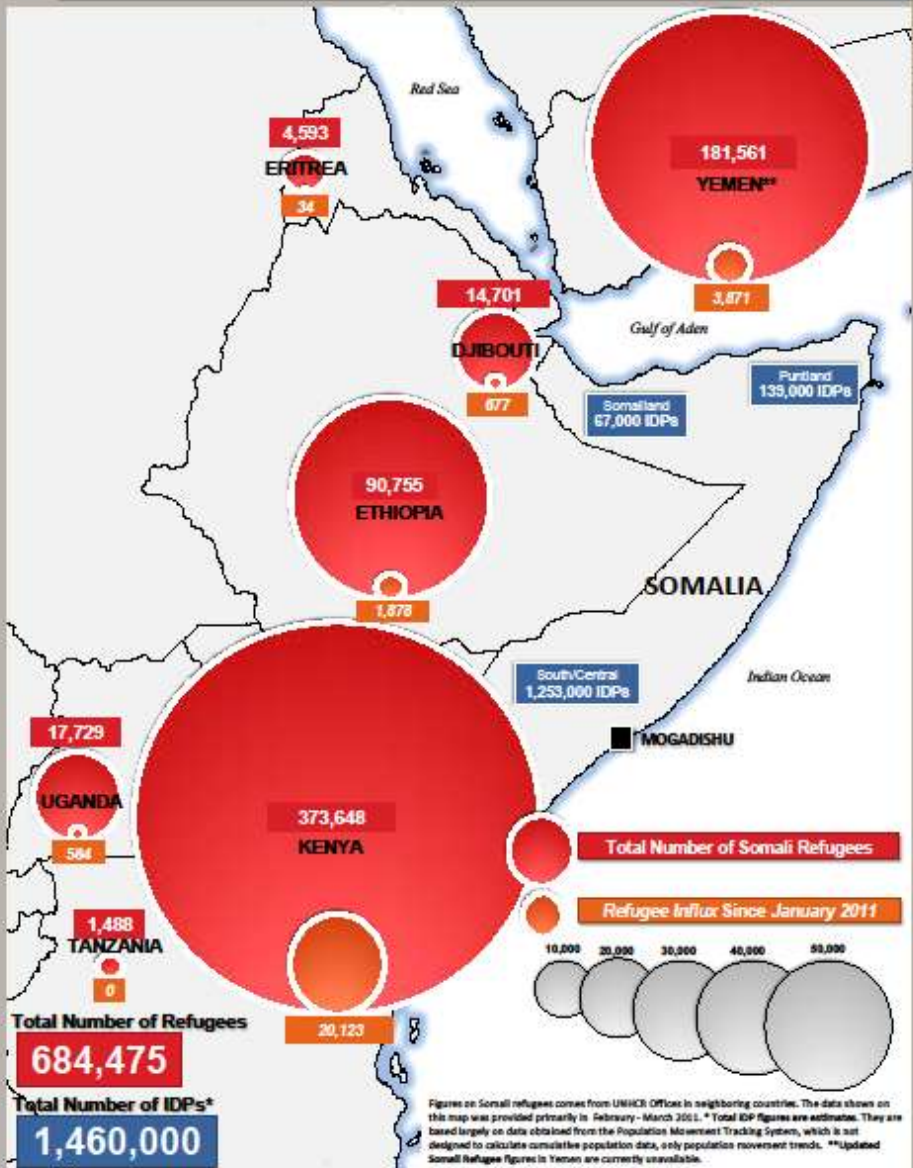
- Endemic insecurity – competition for shrinking pasture and water resources, aggravated by
 - recurrent natural disasters, particularly long drought periods
 - different migrating groups, who are competing for the use of key resources
- Conflicts more frequent and unpredictable, exhibiting a marked escalation in violence and geographic distribution
- Cross border pastoralist conflicts concentrated along the international borderlands of Ethiopia, Kenya, Somalia, Southern Sudan and Uganda

Somali Refugees in the Region

As of March 2011

UNHCR Somalia
Mogadishu, Kenya

UNHCR Office, UNHCR Office of
Operations, UNHCR Office of
Management, UNHCR Office of
Information, UNHCR Office of
Legal and Policy, UNHCR Office of
Research and Statistics, UNHCR
Office of the High Commissioner



Figures on Somali refugees comes from UNHCR Offices in neighboring countries. The data shown on this map was provided primarily in February - March 2011. * Total IDP figures are estimates. They are based largely on data obtained from the Population Movement Tracking System, which is not designed to calculate cumulative population data, only population movement trends. **Updated Somali Refugee figures in Yemen are currently unavailable.

Disasters and Vulnerability to Climate Change

○ **History** of disasters – floods and droughts

- 1970 to 2004 most of the reported at least 10 occurrences of drought - an average of once every 3 years

○ **Vulnerability** to climate variability and change is very high

- strong dependence on rain-fed agriculture
- limited capacity of people and institutions to adapt to changing circumstances
- high poverty levels

The environmental and development related risks due to large-scale land acquisitions, concessions and leases

- But the main drivers are growing demand for food and fuel amid increasing water scarcity in investor countries
 - Global power struggle for food security: surge in world food prices, food supply bottlenecks
- Investors are targeting countries with weak laws relating to land title and ownership and water management.
- Protecting our natural resources and ecosystems - large parts of the continent are facing ecological damage

COMMERICAL AGRICULTURE



www.shutterstock.com · 32502286

The inappropriate use of water resources

- Dramatic increase in irrigation and large dams
- Increased diversion of water from major rivers
- Clearing of vegetation from around water sources; soil erosion
- Increased competition for water resources
- Over-abstraction of groundwater for irrigation → saline intrusion

The environmental related risks due to large-scale land acquisitions, concessions and leases

- Risks to water-sheds and river systems
- Loss of biodiversity
- Deforestation and loss of pastures
- Increased competition for water resources
- Loss of access to natural resources and loss of livelihoods
- Pollution and biodiversity loss in coastal and marine ecosystems

COMMERICAL AGRICULTURE



Deforestation

- Carbon emissions
- Land degradation
- Risk of flooding
- Risk of landslides
- Degradation of wetlands
- Loss of livelihoods from forest resources
- Loss of biodiversity – flora and fauna

COMMERICAL AGRICULTURE



Monocropping

- Increased pressures from crop diseases → large scale use of pesticides, fungicides and herbicides may lead to depletion of soil fertility, perpetuate ecologically destructive production practices that lead soil & water contamination

Potential for conflict: Transboundary waters; Land

- The ‘technical’ side of natural resources management cannot be addressed in isolation from the **institutional and governance aspects**, which together are the main determinants of how land and water users relate to each other.
- All countries need to attain a reasonable measure of water security to attract investment
- Benefit sharing; manage the shared risks
- Nile Basin
- Ethiopia / Kenya
- Ethiopia / Somalia

Managing the challenges & seeing the opportunities

International community and donors

- Address the drivers of risk
- Invest in people – innovation and CC adaptation
- Free trade of agricultural produce
- Conflict sensitive development
- Positive investments

Investments do not make positive contributions to sustainable development by accident – THEY DO SO BY DESIGN

- **Private Sector and PPP** – resource efficient energy; irrigation, risk insurance

Managing the challenges & seeing the opportunities

National governments

- Good governance of NRs and environment; Mainstream CC; adaptation and mitigation
- Sub-regional cooperation
- Valuation of NRs
- Specific attention to:
 - Integrated approach to sustainable management of land, water and biodiversity
 - Food security needs efficient use of land and water resources
 - Invest in agriculture - small farmers
 - Modern agricultural technology can be a big part of the solution but transformation needed
 - Green Jobs – link ecology & poverty reduction



Ecosystem protection and management must be a priority to effective CCA and DRR that limits the scale and scope of climatic destabilization.

Thank You!