



DESERTIFICATION

THE INVISIBLE FRONTLINE



DECLINING OPTIONS, GLOBAL CONSEQUENCES

To fight or to flee? These are the stark choices Maria, a single mother from the Bangalala midlands of Tanzania, faces repeatedly. Her choice, along with those of families like hers, are felt all over the world.

"After the rains failed for a few years, some neighbors claimed our trees were drawing too much water from the ground. We cut them down. Our harvests fell. My mother closed her stall at the local market. That is when my father and I moved from the midlands to the Ruvu Mferejini river valley. My brother quit school to help the family. He went to find work but he does not earn enough. My mother stayed in Bangalala so that my daughter could go to school because there are no schools in the valley. But where we moved to, my crop also failed last year. That is why early this year I moved yet again, but I left my father behind. I hope to farm here much longer, as I am sure the people I left behind with my father will have to move too. But when will this moving end? I cannot afford it anymore."

This is not an isolated case. Maria is in the same situation that women in Darfur, Mali, Chad or Afghanistan were in before local conflicts over water or land turned into civil wars, sexual violence or genocide. Nor is this situation unique to sub-Saharan Africa where half a billion inhabitants are rural, a majority lives off the land and desertification is a constant threat to their livelihoods. More than 1.5 billion people in the world depend on degrading land, and 74% of them, like Maria, are poor. Under the United Nations Convention to Combat Desertification (UNCCD), the international legal framework for tackling desertification, land degradation and drought, 169 of its 194 Parties have declared they are affected by desertification.

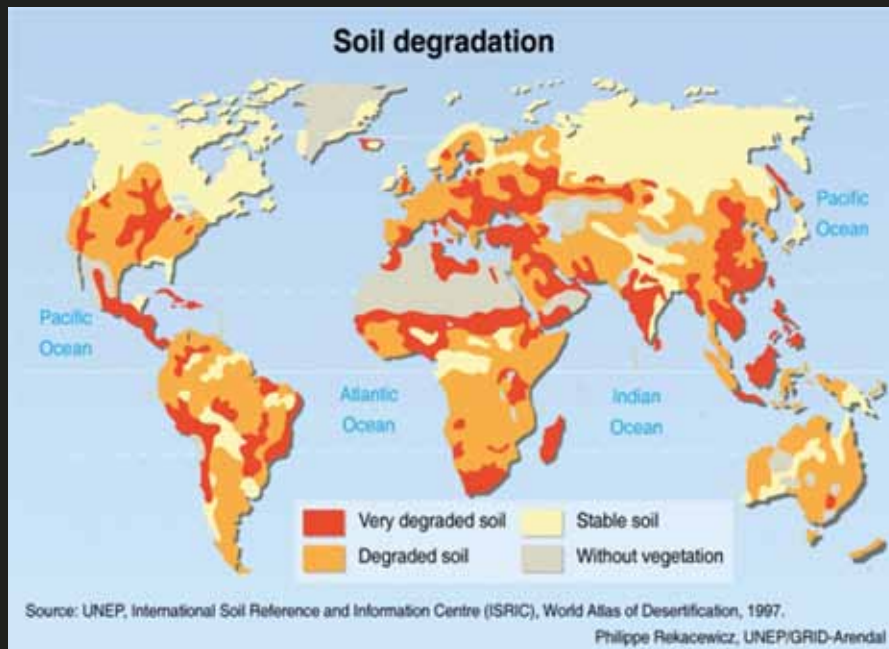
Desertification is a silent, invisible crisis that is destabilizing communities on a global scale. As the effects of climate change undermine livelihoods, inter-ethnic clashes are breaking out within and across states and fragile states are turning to militarization to control the situation. The effects of desertification are increasingly felt globally as victims turn into refugees, internally displaced people and forced migrants or they turn to radicalization, extremism or resource-driven wars for survival. If we are to restore peace, security and international stability in a context where changing weather events are threatening the livelihoods of more and more people, survival options are declining and state capacities are overburdened, then more should be done to combat desertification, reverse land degradation and mitigate the effects of drought. Otherwise, many small-scale farmers and poor, land-dependent communities face two choices: fight or flight.

FOOD (IN)SECURITY - FARMING OURSELVES INTO EXTINCTION

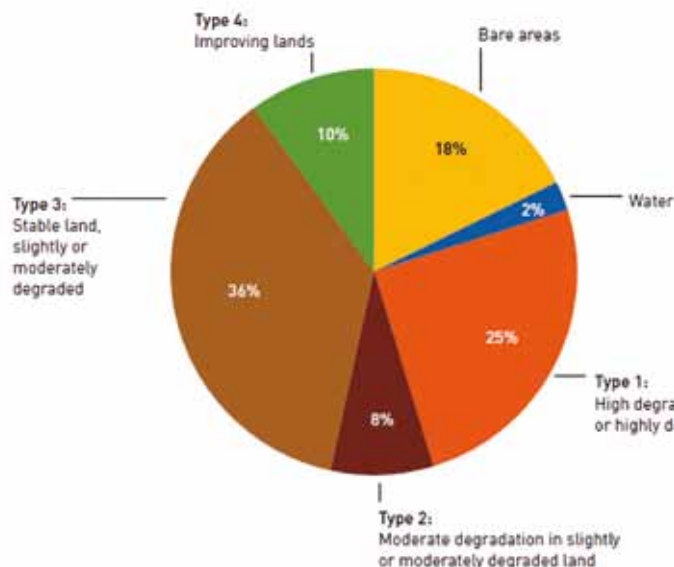


In 2008, food insecurity triggered riots in over 30 countries. But it is rural communities like those of Bangalala, who depend on rainfed agriculture that contribute to global food security. The livelihoods of over 2 billion people worldwide depend on 500 million small-scale farmers. Drylands, which make up nearly 34% of the land mass and are a major source of food security especially for the poor, are being degraded day-by-day. How shall we meet the growing food demand and increase food production by 70% by 2050, when productive land is declining and we do not act on desertification and its related climate challenges?

- 52% of the land under agriculture is moderately or severely degraded
- 12 million hectares of productive land become barren every year due to desertification and drought alone, which is a lost opportunity to produce 20 million tons of grain
- Agricultural yields could fall by up to 50% in some African countries if production practices are not changed
- Poor people spend between 50% and 80% of their income on food



Global soil degradation (1997)



Status and trends in global land degradation

Land degradation is a problem that affects all regions, not only the drylands and developing countries. About one third of all agricultural land is either highly or moderately degraded. Drylands are more vulnerable to natural and human destruction due to the small water containment in soil.

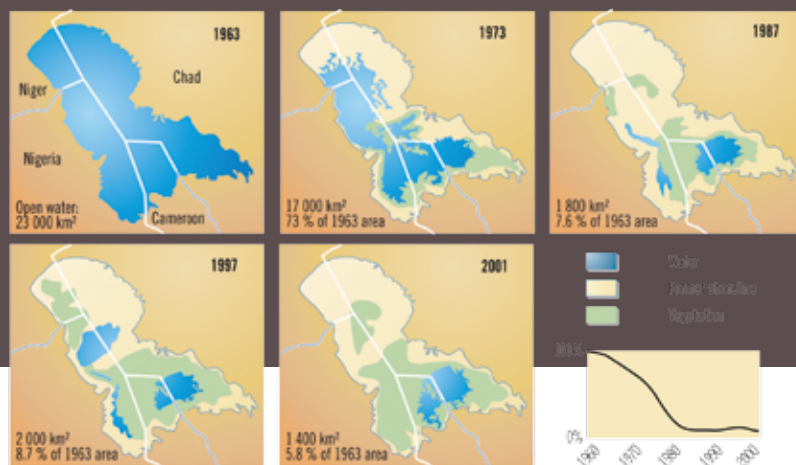
WATER (IN)SECURITY – WATER SCARCITY TRIGGERS CONFLICTS



The increase in droughts and flash floods that are stronger, more frequent and widespread is destroying the land – the Earth's main fresh water store. Droughts kill more people than any other single weather-related catastrophe and conflicts among communities over water scarcity are gathering pace. From the Bangalala midlands to Lake Turkana and Darfur, from Lake Chad to the northern parts of Mali, Niger, Chad and the Central African Republic, communities are migrating and being displaced as they search for scarce water resources. Without restoring degraded land and securing it from further degradation, we cannot save the land from the impacts of climate change, replenish underground sources to meet present and future water demands, diffuse ethnic tensions or reverse migration flows.

- Over 1 billion people today have no access to water, and demand will increase by 30% by 2030
- By 2025, up to 2.4 billion people worldwide may be living in areas subject to periods of intense water scarcity, which may displace as many as 700 million people by 2030
- Collectively, women from Sub-Saharan Africa spend about 40 billion hours a year collecting water
- Between 1991 and 2000 over 665,000 people died in 2,557 natural disasters, 90% of which were water-related events
- Thirty-four of the 37 countries presumed to be at risk of war due to the absence of trans-boundary water resources cooperation claim to be affected by desertification and land degradation
- Only 3 countries in the world have a national drought policy

Lake Chad - decrease in area 1963, 1973, 1987, 1997 and 2001



The livelihoods of the inhabitants in the Lake Chad region, whose economic means depend mostly on agriculture and fishery, are under threat as the lake shrinks. The degradation of the land through deforestation and inappropriate land management, which is compounded by recurrent severe droughts, has led to declining ground water supplies to the lake.

Aral Sea - decrease in area 1960, 1990, 2000, and 2010



Over-irrigation and the construction of a large-scale network of canals and levees are depleting the Aral Sea water resources through infiltration and evaporation, degrading soils and vegetation, expanding secondary salinization, and reducing agricultural efficiency in oases.

CLIMATE – CHANGING THE FACE OF THE EARTH CHANGES HUMANITY



As the climate changes, so is the face of the Earth, and with devastating effects on the lives of those who depend on the land. Food-production zones are shifting, crops are failing, livestock are dying and ponds, lakes, rivers and underground water sources are drying up. In many degraded agricultural areas, as climate change combines with pre-existing challenges it is compounding the situation and pushing people that depend on farming, pastoralism and other natural resources into forced migrants. Poor rural households that depend on rainfed agriculture are most vulnerable to drought because they cannot absorb the losses. Droughts have led to migration, conflict or cessation in the past, in countries such as India, Bangladesh, Mauritania, Senegal, Morocco and Eritrea. Without a proper adaptation scenario, the prospect of conflict and environmentally forced migration will grow as the soil's water content falls and the land becomes less and less productive.

- From 1900-2005, precipitation declined in the Sahel, the Mediterranean region, southern Africa and parts of southern Asia
- The area affected by drought has increased since the 1970s, with more intense and longer droughts observed over wider areas since then, particularly in the tropics and sub-tropics
- From 1950-1980 10-14% of the land mass was classified as dry, which rose to between 25-30% between 2000 and 2010
- The average river run-off and water availability is projected to decrease by 10-30% over some dry regions, including the dry tropics
- Climatic stresses account for 62.5% of all stresses on land degradation in Africa
- Seasonal temperatures in the Sahel have risen by 1.5-2.0 degrees Celsius, while the incidences of drought and erratic rainfall have increased over the last 40 years

MIGRATION – FIGHT OR FLEE

For poor people, migration is a complex and costly venture. Often, it is the last option in the bid to survive, but many poor people have little choice but to flee their lands. Losing productive land is driving people to make risky life choices. In rural areas where people depend on scarce productive land resources, land degradation is a driver of forced migration. With livelihoods coming under tremendous pressure, people like Maria with few options for survival can feel trapped. Unless we change the way we manage our land, in the next 30 years we may leave a billion or more vulnerable poor people with little choice but to fight or flee.

- By 2020 an estimated 60 million people could move from the desertified areas of sub-Saharan Africa towards North Africa and Europe
- By 2050, 200 million people may be permanently displaced environmental migrants



NATIONAL SECURITY – BREAKING DOWN



Many of the intrastate conflicts taking place today are linked to the control and allocation of natural resources by states. The exposure of more and more poor people to water scarcity and hunger opens the door to the failure of fragile states and regional conflicts. Economic growth, development and poverty eradication are the building blocks for lasting peace and national security. Agriculture is a key driver of these processes for most developing nations, but many are losing crucial Agricultural Gross Domestic Product (AGDP) through land degradation. Without rights to land, however, people like Maria have little incentive to manage the land and other natural resources sustainably. Granting users the rights to own and use the resources they depend on can reverse trends, pull the poor out of poverty and create the conditions to build peace and a lasting security.

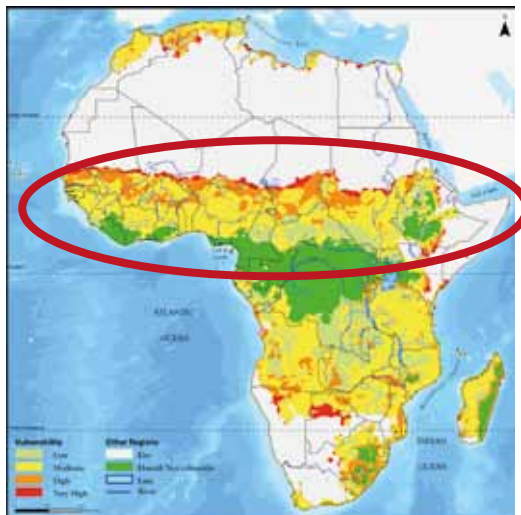
- 40% of intrastate conflicts over a 60-year period were associated with land and natural resources
- Simulations show that future AGDP losses could be as high as 4% in India, 20% in Burkina Faso and up to 30% in Mali
- In 14 Latin American countries, the estimated losses in AGDP range between 8-14%
- On average, male land holdings are not only larger than those of females, but few females have control in managing agricultural land, with this right ranging from 5% in North Africa and West Asia to 15% in Sub-Saharan Africa and 25% in Latin America

INACTION, RECIPE FOR INTERNATIONAL POLITICAL AND ECONOMIC CHAOS

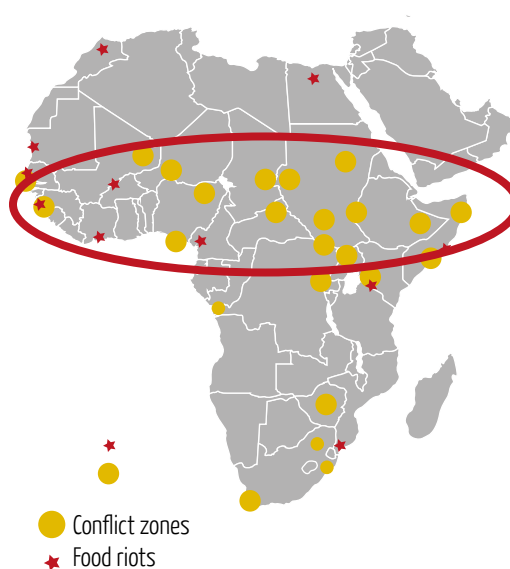
Countries with weak economic and political systems cannot meet or respond quickly enough to the various demands coming from thousands of communities like those in Bangladesh, which are dealing with multiple threats to their survival. At the same time, forced migration, which is a diversification strategy for such communities and, more often, a last resort for survival, is becoming ever more difficult due to the political instability it is creating in many countries. This makes vulnerable communities easy prey for agents of radicalization, political extremism, strife and conflict. And it enables the masterminds to act simultaneously across many countries and thus, create political instability globally. These pressures may increase as the population rises. Failing to tackle desertification alongside climate change and poverty is a recipe for political and economic chaos.

- In 2007, 80% of the major armed conflicts that affected society occurred in vulnerable dry ecosystems

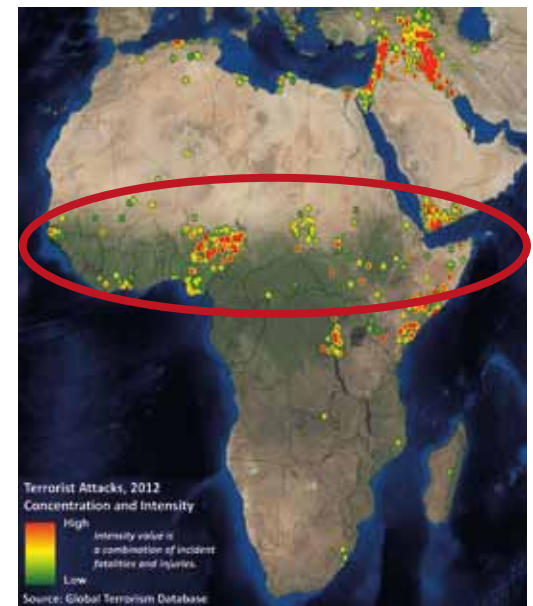
Desertification vulnerability in Africa (2008)



Conflicts and food riots in Africa 2007-2008



Terrorist Attacks 2012



These three maps of Africa vividly show the concentrations of past terrorist attacks, food riots and other conflicts in areas that are vulnerable to desertification.

SECURITIZING PRODUCTIVE LAND - SECURING PEACE AND STABILITY

Desertification is tied to the security concerns of displacement, refugees, forced migration, radicalization, extremism and violence. The US National Security Strategy refers to climate change as a key global challenge that will lead to conflicts over refugees and resources, suffering from drought and famine, catastrophic natural disasters, and the degradation of land across the globe. With 20 years of experience in hindsight, investing in practical solutions that transform lives and reduce the vulnerability of communities like Maria's would be cheaper and work better than investing in walls, wars and relief.

Sustainable land use practices:

Over 250 sustainable land management (SLM) techniques that, at once, combat land degradation and build its resilience to drought and climate change are available through the Convention alone. Land users in China, for instance, have access to over 1,000 SLM practices. SLM methods are cheap, but durable. With the right incentives, they can be disseminated widely and rapidly to land users, including communities like those in Bangalala.

Experience

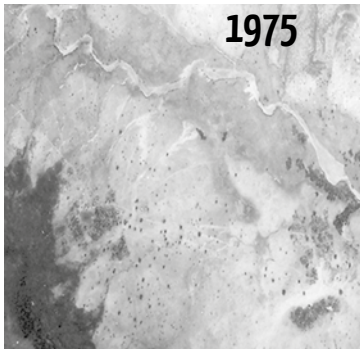
In Niger, where some SLM practices are in use, it costs between USD 25 and USD 65 to rehabilitate a hectare of degraded land. The humanitarian assistance of USD 161 million provided to Niger in 2011 could have secured between 3-7 million hectares of land, a country whose total arable area is 15 million hectares.

In Harshin, Ethiopia, the cost of providing 5 liters of water for five months to the 80,000 people displaced by the 2011 drought was estimated at USD 3 million. Rehabilitating all non-operational local water schemes was estimated at USD 900,000 – less than a third of the cost. In some parts of the Batodi region of Niger, access to water and resilience to drought improved dramatically by using SLM practices. Water levels in depleted underground aquifers rose by up to 14 meters. Women who once suffered like Maria are now fetching water in wells that are half an hour, not half a day, away from their homes. Their households are less vulnerable to drought and migrants have returned.

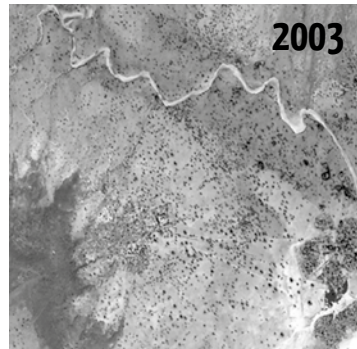
- Small holders manage over 80% of the world's estimated 500 million small farms and provide over 80% of the food consumed in a large part of the developing world
- Rainfed agriculture is practiced on 80% of the arable land



Farmer Re-greening Galma, Niger, 1975 & 2003



In 1975, at the time of the worst drought to hit Niger, the Galma region practically had no trees



Galma region in 2003, has a higher tree density, despite a growing population and increasing urbanization. These are trees planted by local communities to fight desertification and mitigate drought effects



INVESTING IN LARGE-SCALE RESTORATION INITIATIVES



The climatic effects on land occur at ecosystem and landscape levels. Therefore, individual and community efforts to rehabilitate the land are at their most effective when they are part of a country-wide or regional-level effort to preserve and rehabilitate landscapes. Large-scale interventions provide multiple benefits that go beyond national and regional levels.

Experience

The Three North Shelterbelt is China's initiative to rehabilitate over 90 million hectares of desertified and degraded lands in its northern regions. The initiative has clear targets and is part of the country's National Economic and Social Development Plan. In addition to recovering productive land and restoring groundwater sources for China, this afforestation programme is sequestering tonnes of carbon from the atmosphere and is expected, eventually, to eliminate the dust storm hazards that stretch from Beijing through the Korean Peninsula and Japan to the United States.

- Over 2 billion hectares of land have potential for recovery through restoration approaches that combine activities like forestry with farmland re-vegetation
- The restoration of over 5 million hectares of land by communities that live across Burkina Faso, Niger and Mali has reversed outward migration flows



DROUGHT-MANAGEMENT MEASURES

Drylands are prone to drought and desertification, but they are vital for global food security today and harbor valuable plant and animal species that are essential for humanity's adaptation and resilience to climate change. Drought impacts are most visible in human losses and on agricultural production, but have higher knock-on effects on other economic sectors. Droughts do not have to kill, lead to displacement or forced migration, even in drylands. Setting up national and regional drought policies would enable countries and regions to preempt their impacts, respond to crises and manage droughts effectively. Voluntary co-contributory insurance schemes and risk transfer mechanisms designed for communities in drought-prone areas need to be part of these efforts. Drought relief may be rewarding poor resource managers and punishing proactive planners that lack support mechanisms.

Experience

In 2012, the state of Ceará in Brazil suffered its worst drought in nearly five decades. Yet, communities that in the past succumbed to drought effects were resilient. They did not damage their land through exposure to erosion or overuse. Following early warnings, they did not invest money in cultivation and sold their livestock before the drought arrived. When drought effects began to bite, households received monthly payments as insurance compensation from the schemes they had contributed to. Water was supplied from the state-constructed and regulated reservoirs that are monitored in real-time. These combined measures helped the state to respond effectively and vulnerable populations to withstand one of the worst droughts. A recent pilot project in Malawi shows that drought insurance schemes for vulnerable populations are a viable and feasible mechanism for adaptation and resilience building.

- 50% of the world's livestock are in the drylands
- One in three crops cultivated today, including oats, barley, tomatoes, potatoes, cabbage and saffron, originated from the drylands and many of their wild relatives are still there
- The cost of food and non-food assistance provided in 10 southern African countries in response to the 1991-1992 drought was more than USD950 million
- USD15 billion is the total estimated capital needed to develop adequate water infrastructure in sub-Saharan Africa



INSTITUTIONAL REFORMS



Smart incentives are needed to change current practices in areas vulnerable to desertification and drought by: discouraging land use practices that degrade the land; accelerating the adoption of sustainable land use practices and drought planning; harmonizing action and aligning policies across ministries and agencies with land mandates; strengthening and simplifying the rights to land and investments in natural resources; and strengthening drought policies and climate adaptation and resilience mechanisms.

Experience

In Israel, a fund was created to compensate farmers for the output they would lose for converting to sustainable land management practices. By early 2013, four years after the fund's creation, not a single demand for compensation had been submitted by those who had adopted SLM practices.

Cutting down trees for charcoal and fuelwood production is the leading driver of land degradation in Africa. In some parts of Uganda, however, women feel no obligation to plant trees because they cannot own any tree they plant; not even those they plant on family land. In Niger, once the government guaranteed tree ownership to the planters, agroforestry and tree-planting gathered momentum among women, the landless, and even on communal land.

- Giving women the same access men have to agricultural resources in developing countries would raise farm production by 20-30% and increase total agricultural production by 2.5-4% in some countries

TAKING ACTION NOW

Land is our natural capital. But healthy, productive land is diminishing rapidly, along with the usual coping mechanisms used by the over one billion people like Maria, who depend on degrading land and live in poor countries or fragile states. If we secure productive land, we will strengthen the livelihoods of households, promote agriculture for national growth and economic development, protect the social fabric from collapse and bolster political systems in fledgling democracies. Early intervention is far cheaper than relying on relief and military means to respond to political crises rooted in desertification and climate change-induced drought.

The international community is defining the future targets for poverty eradication and sustainable development. Poverty eradication is lagging most among populations affected by desertification, who also face increasing water and food scarcity. These populations have to be at the center of our targets for the Sustainable Development Goals and the post-2015 Development Agenda. To improve their well-being is to improve our own well-being, our national security and to secure international stability today and in future.



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Maps and graphics

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 p. 6: Lake Chad - decrease in area 1963, 1973, 1987, 1997 and 2001: Philippe Rekacewicz, UNEP/GRID-Arendal, http://www.grida.no/graphicslib/detail/lake-chad-decrease-in-area-1963-1973-1987-1997-and-2001_641b
 p.6: Aral Sea - decrease in area 1960, 1990, 2000, and 2010: Maps of World <http://www.mapsofworld.com/pages/world-trivia/aral-sea-map/>
 p.10: Desertification vulnerability in Africa (2008): UNEP, Atlas of Our Changing Environment, <https://na.unep.net/atlas/africa/book.php>
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 p.12: Farmer Re-greening Galma, Niger, 1975 & 2003: Photo provided courtesy of Gray Tappan, U.S. Geological Survey - EROS (Earth Resources Observation and Science Center), USA

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