LAND AND WATER GRABBING **IN AFRICA**

WHAT IS LANDGRABBING?

Land grabbing is when areas larger than 200 ha are contracted for commercial agriculture, for the purpose of timber extraction, carbon trading, food, feed, and renewable energy production. Africa is the continent where most land has been contracted due to cheap land and labour costs, but also to the potential to

HOW MUCH LAND?

Since year 2000, an area the size of the UK has been contracted to foreign investors, leading to increased pressures, competition and conflicts over freshwater resources. Currently 3% of contracted land is in production.



boost yields and reduce yield gaps with modern agricultural techniques and irrigation systems. The investors are currently key players in the modernization of African agriculture, and imply a conversion from smallholder production or community use to a commercial use of land and water.

"BLUE WATER HOTSPOTS"

The map below shows "Blue water hotspots" for three irrigation scenarios. These are areas where crops demand more water from irrigation than what can be supplied by soil moisture, where the potential water demands from land grabs pose

Water requirements (km³/vear)

+ + = Current irrigation efficiencies

he most efficient irrigation

system that saves water

and fertilizer by allowing

water to drip slowly to

the roots of plants

through a network of

pipes and drippers. This

management is expensive

and rarely implemented on

a large scale.

+ = Sprinkler irrigation + pipelines

= Drip irrigation + pipelines

0.01

a risk for increased competition over water resources due to overconsumption of blue water, and where socio-environmental systems might face increased conflicts and tensions over water resources. Even if the most efficient irrigation systems were implemented (drip irrigation), 18% of the landgrabs (red, 22 locations) would still require more than 50% of water from

blue water sources.

If less efficient sprinkler irrigation is applied, the hotspots include 5 additional locations (red + yellow). With current national irrigation efficiencies, 42 areas would be hotspots (red + vellow + blue). The size of the circles indicates the total water demand (green + gross blue). The blue water hotspots are scattered over all climate zones from dry to tropical, which indicates that it is not only the lack of rainfall that gives rise to water scarcity hotspots, but also crop choice and scale of production.

CLIMATE 70NES

ARID & SEMIARID Dry climate, desert or shrub vegetation.

TEMPERATE

Long hot summers and short mild winters with seasonal rainfall.

Warm and moist year-round, rich in biodiversity

This method has lower water use efficiency than drip irrigation and is often implemented on a large scale. Water is usually pumped through pipes and sprayed into the air through sprinklers so that it breaks up into small water drops.



CROPS AND WATER

Oil palm, sugarcane and rubber cover most of the grabbed land, and have high water requirements. It is possible to distinguish between two crop groups, one with lower recipitation stored in soils water demand (sorghum, soybean, wheat, maize, rice) and consumed by plants nrough evapotranspiration and one with higher water demand (cotton, eucalyptus, jatropha, oil palm, pine, rubber, sugarcane, teak, trees). Within each group, there is a large variation in the amount of green and blue water required to meet the total water demand. For instance, sugarcane in Sudan (green bubble in upper left corner) has an average net water demand of 13390 m³/ha

demand is 15% lower, of which 11% is required from blue water sources and 89% supplied from green water (green bubble in the lower right corner).

Used for producing vegetable oil and biodiesel. Large-scale production of palm oil is a dominant driver of deforestation and biodiversity loss

This infographic is made by **Emma Li Johansson**, PhD candidate at Lund University Centre of excellence for Integration of social and natural dimension of sustainability (LUCID). Facts and figures from Johansson et al. 2016 "Green and blue water demand from large-scale land acquisitions in Africa", PNAS.

Green water is the site-specific

Blue wate

is stored in **rivers**, lakes,

dams, groundwater and

aguifers, and can be

and renewable sources for

irrigation

(bubble size) of which 90% is blue water and 10% is green, JGARCA while in Gabon the average net water extracted from non-renewable

A water-demanding flexible crop that can be used for bioethanol, sugar, and energy production. OILPALA