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Food Security and Land Grabbing in Low-Income Countries of the Sub-Saharan Africa

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Abstract

The fight against hunger and poverty has long been at the heart of international policies in favour of Less Developed Countries. The first two Sustainable Development Goals (SDGs) of 2030 Agenda strategy are just "No poverty" and "Zero Hunger". Notwithstanding the results achieved in the recent past, in the poorest and low-income Countries, especially Sub-Saharan Africa, lots of people continue to suffer from hunger and poverty. In these Countries, the perspective for economic growth and development of agricultural productivity, as currently measured, is not able to assure the elimination of poverty and hunger. These problems will probably tend to focus right in this area, where the maximum demographic increase is also forecast. Despite of the increase of agricultural productivity is paramount for food security, in the Poorest Countries it is, up to now, strictly linked to farm new lands. In the last years, in the Sub-Saharan Africa low income Countries, investments in new lands have been affected by Land Grabbing.
The aim of this paper is to verify whether and to what extent the Land Grabbing operations have affected both the variation of agricultural land and the development of agricultural activities for food security in the Countries concerned.

Keywords: *food security; land grabbing; sustainable development goals; agricultural productivity.*

1. Introduction

The many problems affecting the Least Developed Countries (LDC) usually have one sole cause: the poverty.

Since their institution, the primary objective of International Organizations working in favour of developing Countries, first of all Working Bank (WB), has been the fight against poverty.

Among the many consequences of poverty, problem concerning access to food and, consequently the breakdown of food security, is one of the most important. Although combating poverty has long been a primary goal of international policies, a strategy to tackle the issue of poverty, in its different dimensions, was launched only in 2000 with the adoption, by United Nations (UN), of the Millennium Development Goals (MDGs) (UN, 2000). It is not by chance that, among the eight MDGs, the fight against poverty and hunger are considered in the same goal: goal number 1 (Eradicate extreme poverty and hunger).

As is well known, in 2015, the time for implementing measures aimed at achieving the MDGs has ended. The subsequent adoption, by the United nations, of the document "Transforming Our World", defining the new strategy, called Agenda 2013, opened a new political phase.

Agenda 2030 is a long-term strategy and sets out 17 sustainable goals articulated in 169 targets to be achieved by 2030 (UN, 2015a).

The fight against poverty and hunger has remained absolutely central in this new strategy respectively with Goal 1 (No poverty) and Goal 2 (Zero hunger).

The target defined by objective of Millennium development Goal 1 intended to cut the proportion of both people, living on less than USD 1.25 per day, and people suffering from hunger, by half by 2015.

In the framework of Agenda 2030, the related targets are more politically ambitious and include: the eradication of extreme poverty (less than USD 1.25 per day) and the halving of the proportion of people living in poverty by 2030; the elimination of hunger and of all types of malnutrition, thanks to the twofold increase in agricultural productivity and in the income of small-scale food producers and the implementation of food sustainable production systems, by 2030.

Referring to MDGs, important results for the purpose of eradicating poverty and hunger have been achieved on a global scale. From 1990 to 2015, people lived on less than USD 1.25 per day decreased from 47% to 14% in 2015; the percentage of malnourished people decreased from 23.3% of the two-year period of 1990-1992 to 12.9% of the two-years period 2014-2016 (UN, 2015b). Following this, and in order to better understand the extent of actions that need to be implemented for the attainment of the Sustainable Development Goals (SDGs), we need to consider that, in 2015, 736 million people lived in condition of extreme poverty and 794 million suffered for hunger (average 2014- 2016).

The global data, although important, cannot, however, fully account for the underlying realities. For example, if we take into consideration the Sub-Saharan Africa (SSA) and the Southern Asia (SA), representing the two areas in the world where about 93.0% of people living in extreme poverty and 61.0% of people suffering for hunger, the results seem to be less comforting than might appear to be from the reading of aggregate data. In the period 2000-2015, covered by the measures for achieving the MDGs, the proportion of people living in condition of extreme poverty declined significantly, both in SA (from 38.8% to 16.2%) and in SSA (from 57.7% to 41.1%), but, in absolute terms, the number of extremely poor people has been greatly reduced only

in SA (from 554 to 274 million; -50.5%); as far as SSA, the number significantly increased (from 376 million to 413million; +9.8%) (WB, 2018a). In the same period 2000-2015, for people suffering from hunger, the downward movement in the percentage (SSA from 29.75 to 20.9%; SA from 18.1% to 15.6%) cannot give full account of a situation that, both in SSA and in SA, is rising in absolute terms: SSA from 181 to 204 million people (+12.7%) and SA from 264 to 284 million people (+7.6%) (FAO, 2018a).

It follows that, in order to ensure a more correct data reading, we cannot ignore population growth. In fact, always with reference to the period 2000-2015, SA has experienced a population growth of 25.5% (from 1.45 to 1.82 billion people), while in SSA the number of people increased from 645 to 969 million people (50.2%) (UN-DESA, 2017a).

From the above, it can be deduced that the issues of poverty and hunger, even if serious also in other parts of the World, especially in SA, tend to be concentrated in the poorest areas of SSA, where they seem to be difficult to manage than elsewhere.

To confirm this, we must consider that: 27 of the 48 Countries falling in the geographical area of SSA, are classified as Low-income Countries and 14 as Middle Income Countries; Low-income Countries, as classified by WB (Goss National Income (GNI) per capita of USD 995 or less in 2017) (Fantom and Serajuddin, 2016) (WB, 2018b) are 34 and 27 of these are located in SSA; among the 47 Countries classified as Least Developed Countries (LDCs), 33 fall in the geographical area of SSA and only 4 (Afghanistan, Bangladesh, Nepal and Bhutan) in that of SA.

In total, always with reference to the WB classification methods, among the 48 Countries falling in the geographical areas of SSA, 27 are low income Countries, 14 are lower-middle income Countries (USD 996 to USD 3,895 in 2017); only 6 are upper-middle income (USD 3,896 to USD 12,055 in 2017) and 1 (Seychelles) is high income Countries (USD 12,056 or more in 2017).

The OECD fragile States list 2018 (OECD, 2018) includes 58 States, 35 of them are in the area of SSA (27 low income Countries and 8 middle income Countries). This list shows all the Countries incapable to manage their risk and, consequently, they are more exposed to riots, coups d'état, humanitarian emergencies or other forms of crisis.

The framework given seems to be complex and, it is an oversimplification to think that the issue of food security, in the poorest Countries of SSA, can be deal with only with reference to the possibility to increase both production and agricultural productivity.

In the geographical area in question, achieving food security target is dependent on the ability to promote and support sustainable development processes, consistent with the territorial opportunities and the needs of people.

It is, however, necessary to make some considerations in this regard, both on the agricultural variables and the main factors that, in the next future, will be, probably, crucial towards the start of a development process capable of lifting the poorest Countries of SSA from the grip of hunger and poverty.

2. Overcoming underdevelopment in order to obtain food security

One of the main variables to be considered in ensuring the development of the poorest Countries of SSA is the demographic one. In the Past and for a long time, SSA had been considered an unpopulated geographical area but rich of land.

This scenario has quickly changed in the last decades and it is likely to change even more rapidly in the future.

In this respect, it is to be noted that: in 1950 the population of SSA was about 179.6 million people; in 1980 it was about 372 million people; in 2000 about 645 million people and today it is almost billion people (UN, 2018a). However, it is likely that more than half of the growth of world population, between 2015 and 2050, will be concentrated in SSA (WB, 2016).

In particular, the UN projections estimate a strong concentration in the SSA Countries with the lowest incomes, therefore in-cluding the 6 upper-middle income Countries in that area: Botswana, Equatorial Guinea, Gabon, Mauritius, Namibia, South Africa.

This is primarily a result of a fertility rate that, although in constant decline, is, at present, the highest in the world (4.9 births for woman in 2016) and it will continue to be the case in the future (4.1 in 2030 and 3.9 in 2050) (UN-DESA, 2017b).

In this regard, it is to be noticed that, in the world, in the 30 Countries where the highest rates of demographic growth are forecasted between 2015 and 2050, 29 belongs to SSA and, among these, 13 have, at present, a fertility rate from 5 up.

It follows that, in the SSA Countries, especially in the low-income ones, the demographic growth and the resulting increase in food demand will be one of the main factors to be considered for their food security in the future. Projections are not positive in this regard.

The strong demographic growth will affect both food demand and the composition of the population. In fact, it is forecast that, between 2015 and 2050, in SSA the number of children will increase of around 305 million against the 148 expected for the rest of the world. As consequences, the number of working-age people will increase, whose annual growth rate is estimated to be the highest in the world: more than 2.5% per year in the period 2015-2050, compared to 0.8% estimated for SA and 1.2% expected for the Middle East and North Africa.

To confirm this, it should be noticed that, according to UN projections, it is estimated that, in 2050, 41% of birth and 37% of under 18 years worldwide will be in Africa (in 1950 they were only 10%). Moreover, according to FAO, in 2030 about 380 million of Africans will be entering the job markets and 58% of them (about 220 million) will found themselves in rural areas (Mercandalli and Losch, 2017).

The demographic growth will lead, not only to an increase in food demand, but also in labor supply.

In both cases, only a real process of development may help to fulfill those conditions.

In this regard, it should be considered that, according to ILO data (ILO, 2018), in the low-income Countries, at global level, from 2000 to 2015, the rate of employment in agriculture has gone from 76.0% to 69.5% and the expected rent is 67.6% in 2020 (Table 1). In the same period, the incidence of employees in industry and service sectors has gone respectively from 8.1% to 9.8% and from 15.9% to 20.7% and it is expected to be 10.1% and 22.3% in 2020 (ILOSTAT, 2018). Although the situation showed by these data seems to be serious, it is however slightly better than that of SSA Low-income Countries, where, both for 2015 to 2020, the incidence of employment in agriculture is higher on average, while the incidence of employees in industry and service sectors is lower. In general, this means that in all the Low-income Countries, especially those of SSA, the dynamics of development are in a grip of a sort of paralysis who stops them to create new job and income opportunities alternative to agriculture.

	2000	2005	2010	2015	2018*	2020*
Agriculture	77.4	76.2	73.5	70.3	69.2	68.3
Industry	7.1	7.8	8.1	9.7	9.7	9.9
Services	15.5	16.0	18.5	20.2	21.1	21.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

Table 1. Sub-Saharan Africa's Low-Income Countries: Employment by Sector (%)
Source: Our elaboration on ILOSTAT, 2018

The level of underdevelopment of the SA Low-income Countries, is observable both by the sectoral distribution in employment levels and the incidence of agriculture for Gross Domestic Product (GDP) that, on average, is high and sub-

stantially stable during the period 2000-2017 (WB, 2018c). This broadly stability is recognised both for the generality of Low-income Countries and the whole SSA region, where the average incidence is lower for the presence of a most advanced economy, such as those of South Africa, Angola and Nigeria. Table 2 shows that, in 2017, 7 of the SSA Low-income Countries experienced an incidence of agriculture on GDP more than 30%, and only 4 of them had this incidence lower than 20%. Anyway, the element which seems to associate the different Countries is the broadly stability of the different incidences, over time. This stability, in turns, denotes a slowed down developed dynamics, or even stopped (Senegal) or in decline (Sierra Leon, Guinea Bissau, Mali).

In this regard, it should be pointed out that, notwithstanding the presence in this group of 33 Countries of SSA in a total of 47, the LCD were defined as having a more relevant reduction in the agriculture contribution to GDP, than other Countries considered in table 2.

	Agriculture		Industry		Services	
	2000	2017	2000	2017	2000	2017
Low Income Countries	28.0	26.0	30.0	39.0	42.0	35.0
Least Developed Countries (2000-2015)	29.7	21.7	35.9	33.5	44.4	47.1
Sub-Saharan Africa – Total	17.0	16.0	36.0	33.0	47.0	51.0
Sub-Saharan Africa - LCIs	28.2	27.0	27.5	31.2	44.2	41.7
- Sierra Leon	53.0	60.0	11.7	7.6	35.3	32.4
- Guinea Bissau	45.0	49.0	15.6	18.7	39.4	32.3
- Central African Republic	50.0	40.0	20.3	20.7	29.7	39.3
- Mali	33.0	38.0	31.5	25.3	35.5	36.7
- Ethiopia	41.0	34.0	17.2	29.1	41.8	36.9
- Liberia	45.0	34.0	4.8	12.4	50.2	53.6
- Rwanda	29.0	31.0	21.6	22.6	49.4	46.4
- Gambia	29.0	17.0	17.9	17.2	53.1	65.8
- Guinea	17.0	16.0	38.6	43.3	44.4	40.7
- Senegal	15.0	15.0	31.1	31.2	53.9	53.8
- Zimbabwe	11.0	10.0	38.7	33.7	50.3	56.3

Table 2. Agriculture, Industry, Services, Value Added (% of GNP) in Low Income Countries, Least Developed Countries and Sub-Saharan Countries in 2000-2017
Source: Our elaboration on World Bank Open Data

In a such a complex situation, it seems evident that the growth prospects will depend, to a considerable effect, by the policies to be implemented to support them. In particular, actions aimed at increasing investments, improving health conditions, increasing the educational level and reducing gender inequalities should be implemented (WB, 2018d) (Zecca and Rastorgueva, 2017).

In the light of the above, the current WB projections show that, without considering Angola, Nigeria and South Africa, i.e. the largest economies of the region, in the period 2017-2027, the others SSA Countries could achieve growth rates between 5.2% and 5.8%, according to the policies that will be conducted.

Always without considering Angola, Nigeria and South Africa (with which the annual rates would be reduced to a level between 3.2% and 3.8%), the growth levels would lead the Countries concerned to a level on average higher than estimated, for the same period, for the other Developing Countries (4.8%).

It should, however, be considered that even when the growth forecasts highlighted above are confirmed, they couldn't lead to a considerable improvement in terms of GDP per capita, in view of the awaited significant population growth. It follows that, the current growth forecast appears insufficient in order to lead to a significant reduction in poverty and, consequently, to create particular progress in improving food security.

The projections relating to the level of achievement of SDGs, especially goal 1(No poverty) and goal 2 (Zero hunger), should be considered worrying.

According to ODI data (ODI, 2018), of 58 Countries included in the OECD fragile list, only 5 (9%) could achieve the goal 1 "end to extreme poverty" and only other 8 (14%) could be considered on the track to meet it. Much better projections, but not enough to meet the planned objective, concern the generality of Low-income Countries and Middle-income Countries; in these Countries it is, in fact, expected that about 31% could achieve the objective and 40% could be on the track to meet it.

Since then, according to ODI, we should only expect a strong concentration of extremely poor people in a few Countries. In particular, it is expected that, in 2030, 85% of extremely poor people will be concentrated in the fragile Countries according to the OECD designation, compared to 57% you find there now.

Similar considerations can be related to goal 2 (Zero hunger). According to ODI projections, it is expected that, among the Countries of the OECD fragile list, nobody is able to achieve goal 2 and only 7% can be considered "on track". The same for the complex of Low-income Countries and Middle-income Countries, in respect of which it is expected that only 9% could achieve the goal and 12% is "on track" (UN, 2018b)

Considering all the projections concerning the possibility to meet the targets in the poorest Countries, it is clear that, in all probability, the results which may be achieved for extremely poverty reduction won't such as to have positive effects in combating hunger.

The framework is, undoubtedly, even less reassuring in the case of SSA Low-income Countries that, as we have seen, are in the OECD fragile list 2018.

If, as is quite possible, the expected levels of economic growth will not be sufficient to start a development processes able to provide satisfactory answers in significantly combating hunger and poverty, we should only expect that phenomena, such as regional and international migratory and the shift towards urban centres, are going to be more pronounced (IOM, 2017). International migration shifts the problem of insufficient economic development to Countries where migrants hope to find better working and income conditions. At the same time, the movement into urban centers, with fewer people farming, accentuates the need to an agriculture development consistent with the need to ensure food supply to a growing number of people no more engaged in farming in that Countries.

Here again, attention should be paid to what extent, due to the expected demographic evolution, the increase in food demand might actually lead to a real demand that, on the one hand, can be supported by an appropriate level of income and, on the other hand, can be satisfied from boosting internal agricultural supply.

In this regard, it should be considered that, at present, in the average for the SSA Countries, the main source of caloric intake is staple foods (cereal, roots and tubers); in particular, 49% of energy intake is provided by cereals alone and, among these, the white maize account for 19% of caloric intake.

According to FAO-OECD projections (OECD-FAO, 2018), for the period 2018-2027, the above-mentioned dietary composition, typical of less developed Countries, will continue to be so and the role of cereals will increase up to 50% in 2027.

This confirms, on one side, the poor economic growth prospects and, consequently, the shift towards more different and "richer" eating habits in comparison with cereals, on the other side, the need to significantly increase the production of cereals as a result of the population growth. In fact, only for white maize, the expected increase is of about 18 million tonnes in the next ten years: a quantity of half of the expected increment of corn food consumption over the next ten years.

In confirmation of the role of economic development and population growth in affecting both economic growth and food consumption, it should be noticed that the amount of consumption of products of animal origin, that generally increases with income increasing, will rise in total quantities but will decrease for per capita consumption.

In particular, the total consumptions of fish, meat and dairy products are expected to raise respectively of 28% and 24% while per capita consumptions are estimated diminishing 3% meat and fish and 7% dairy products.

Notwithstanding other considerations in respect of the role of the current outlook for economic growth in combating poverty and hunger, it is essential to meet the needs of the growing food demand following the population growth.

As stated above, in the Low-income Countries of SSA, agriculture absorbs 70% of labour force and fundamentally affect the GDP (27%). In addition to this, at present, about 70% of the poor live in rural areas (WB, 2018). It follows that, in this context, the development cannot ignore both agriculture and the implementation of policies aimed at improving the general context, favouring the movement of workforce to high-productivity sectors.

In this perspective, agriculture has a dual role: activating and supporting the general dynamics of development and responding to the growing demand of food products.

To that end, the ability to realise productivity gains will be crucial, making it possible both to respond to the increasing of demand and, at the same time, to ensure environmental, social and economic sustainability of production processes.

As is well known, the relationship between production and the combination of inputs used to set it determines the Total Factor Productivity (TFP) index that refers to how efficiently and intensely inputs are used in the production process. While in the advanced Countries, the areas of agriculture are tending to dwindle and the productive growth more and more depends on the combined use of various inputs, in Low-income Countries land is the main productive factor to increase production; it is estimated that more than 45% of the current productivity gains is determined by land expansion (WB, 2013).

This aspect is particularly important because the heaviest concentration of the global total of the unused lands suitable for sustainable production expansion (about 45%) is in the Low-income Countries of SSA (FAO, 2017) (AGRA, 2018). This is also the case with water resources, that, to this day, are still widely unused or under-utilised (only 2% on average 5% around the world) and contribute slightly (about 2.5%) to current productivity improvements.

As is known, the target 2.3 of the SDG 2 (zero hunger) determines of doubling agricultural productivity and income of small-scale food producers. According to USDA data (USDA-ERS, 2018), the current growth rates of agricultural productivity, in the Low-income Countries, are far below (less than half) than what is necessary in order to reach the said objective. The situation is particularly serious in the low-income Countries of SSA where it is expected that the current rates of agricultural productivity are sufficient to meet only 8% in the additional demand expected to result from the population growth (Global Harvest Initiative, 2017).

From the above, it appears clear that, lots of important implications from the point of view both of the sustainability and the observance of the local populations' rights are emerging within this context, where the increase in productivity is strictly linked to land expansion and to the use of new water resources. These are such big issues, also taking into account the particular fragility conditions characterizing these Countries that, among other things, are those where agricultural productions are far more exposed to the negative effects that, in the near future, might result from the climate changes now underway. For this reason, particular attention must be paid to the sustainability of current and future agricultural activities.

3. Land expansion and land grabbing in the Low-income Countries of SSA

Over the past few years, financial players have highly recommended to invest in land (FAO, 2009). This situation is actually unprecedented; its main motivation is the serious economic crisis in financial markets (tech stocks, sub-prime, sovereign debt) since 1998, that drove investors to look for forms of investment alternative to the traditional one. Both cyclical circumstances and the forecasts of the main international Organizations, such as FAO, OCSE and WB, have influenced this evolution. In fact, the projections argued that agricultural production and productivity should be increased in order to face the expected population growth; they contributed to shaping a long-term environment more conductive to international investments in agriculture. For this reason, interest in land focused inevitably in the areas of the World where it would have more easily been acquired, because of the existence of non-cultivated areas and the lack of legal systems on property rights and access to land (Von Braun and Meinzen-Dick, 2009).

The cultivation of new lands needs to be organized in a sustainable way. For this reason, only areas of low population density, areas not covered in forests and not environmentally protected areas should be considered for this purpose.

According to WB (WB, 2013) and other studies (Deininger, et al., 2011), many areas in Africa have such characteristics (about 45%) and about 30% are in 8 Countries of sub-Saharan area (Angola, Democratic Republic of Congo, Madagascar, Mozambique, South Sudan, Sudan, United republic of Tanzania and Zambia).

Amongst the many investment operations on land carried out in Developing Countries in the recent past, cases have also been recorded of breaches of human rights and detriment of local people (Davis, D'Odorico and Rulli, 2014).

These operations, commonly known as Land Grabbing (LB), although identified, have not been officially listed, because of the absence of an agreed definition which make it impossible developing official statistics.

Despite this, the Lang Grabbing has, universally recognized, negative connotations with the result that most of International Organizations, Governments and economic operators involved in various way in investments on land, have regulated their operations in order to avoid, or at least limit, any negative impacts.

At present, the commonly agreed definition of Land Grabbing is the one included in the Tirana Declaration, promoted by the International Land Coalition (ILC) in May 2011 (ILC, 2011). This Declaration has been signed by 150 representatives of International Institutions (FAO, IFAD, UNEP and WB). According to this Declaration, Land Grabbing is defined as acquisition or concessions that are one or more of the following: in violations of human rights, in particular women's rights; not based on free, prior and informed consensus of affected land users, in particular the indigenous people; without considering social,

economic and environmental impacts, including the way they are gendered; not based on transparent contracts that specify clear and binding commitments about land use and benefit-sharing; not based on effective democratic participation of local communities, independent oversight and meaningful participation.

Amongst the many available information about the amount of agricultural land subject to Land Grabbing, the information collected by the Land Matrix Centre (an independent agency to monitor investments in land acquisition) seem the more consistent with the content of Tirana Declaration and the most useful for the purpose of this paper (Land Matrix, 2018).

According to Land Matrix, the operation of Land Grabbing concluded between 2000 and 2018 (update November) concerned about 49.1 million hectares, 50.9% of these are situated in Africa. Overall, Land Grabbing operations have been conducted in 88 Countries; 60.7% of these (29.8 million hectares) concentred in 10 Countries, among which 5 are in the area of SSA.

In particular, on a global level, the Democratic Republic of Congo is the Country principally concerned with Land Grabbing (10.6% of the total); in the list of the Targets Countries, the other Countries of the SSA area are, respectively, in the sixth (South Sudan, 5.5%), seventh (Mozambique, 5.1%), eight (Congo, 4.7%) and ninth place (Liberia, 3.8%). Among the five Countries above-mentioned, only Congo is a Lower- middle income Country (GNI income per capita $996 to $3,895), the remaining four are Low-income Countries. Overall, 29.8% of Land Grabbing operations, on a global level, and 49.0% with regard to those carried out in the ten most affected Countries, have been concentrated in these five Countries of SSA. In any case, it should be pointed out that Land Grabbing operations do not concern only agriculture. It is particularly significant, in this regard, the case of the Democratic Republic of Congo, that is the most affected Country by Land Grabbing but most of it related to the forestry sector.

According to LM data, with regard to the area of 49.1 million hectares affected, on a global level, by Land Grabbing, there is available information about the intend-land use of 41 million hectares; only 8.7% of them are solely aimed at food crops.

On a global level, the most frequent intended-land use is non-food (38.5%) with the peak in Africa (57.9% of the areas affected by Land Grabbing) (Table 3).

In this regard, it should significantly point out that an analysis on 1,000 contracts between 2000 and 2016, showed that 27% of the areas affected by Land Grabbing consisted by forest (Nolte, Chamberlain and Ginger, 2016). Considering this, the need to take into consideration the environmental impact is of particular importance, also with regard to the ongoing climate change resulting from the farming of new lands, especially in cases like these, in which their main destination is not the achievement of food security.

	Area		Food Crops (%)	Non Food Crops (%)	Flex Crops (%)	Multiple Crops (%)	
	Hectares (th.)	%					
Africa	20,855	50.9	7.8	57.9	10.2	24.1	100.0
America	6,092	14.9	21.4	20.1	21.7	36.8	100.0
Asia	6,275	15.3	2.8	33.5	41.9	21.7	100.0
Europe	5,432	13.3	7.4	3.8	0.1	88.8	100.0
Oceania	2,331	5.7	2.7	7.0	05.8	84.4	100.0
World	40,985	100.0	8.7	38.5	15.2	37.6	100.0

Table 3. Land Grabbing: land extention and intended-use by geographical area
Source: Our elaboration on Land Matrix, 2018

Taking into consideration, both the diffusion of Land Grabbing operations in the SSA and the role plaid by land for the increase in agricultural productivity and, consequently, the food security in these Countries, it is interesting to try to understand to what extent the same Land Grabbing operations could have affected the recent evolutions of the agricultural systems of production of SSA Countries, in particular low-income ones where the issue of food security is much more serious. Referring to LM data bank, since 2000, 20 Low-income Countries of SSA presented Land Grabbing. If we limit our observation solely to the Land Grabbing case of investment in agriculture, 5.8 million hectares are affected by this phenomenon and 70.8% is concentrated in six Countries: Ethiopia (17.0%); South Sudan (13.8%); Liberia (10.7%); Sierra Leone (10.5%); Madagascar (9.9%); Mozambique (8.8%). To better understand how significant Land Grabbing operations could have been for the recent evolutions of agricultural systems of production of the Countries concerned, first of all, efforts were made to monitor to what extent they have influenced the variance of registered agricultural land, both in the years at which Land Grabbing operations were carried out and during the whole period considered (2000-2016) (Table 4). It is clear that, this exam can only give an indication, not an exact extent. Land Grabbing operations shall not only be read with the meaning of an increase in invested areas, because they may have concerned also lands that already had an agricultural purpose or they can be considered in the general framework of reduction of invested areas. For example, such situations can be recognized in Senegal and Central African Republic (Land Grabbing with a decline of total agricultural areas), Liberia, Sierra Leone, Madagascar, Senegal, Guinea and Rwanda where Land Grabbing has been conducted in areas exceeding the variance in Agricultural Land, in the same period. It should be noted that we miss data on Agricultural Land variance in South Sudan, during the period considered, because of the long conflict with Sudan (1983-2005) and of its recent independence (2011).

In the considered Countries as a whole, Land Grabbing operations had an impact of 31.8% on Agricultural Land variances (FAOSTAT, 2018), in the identical years the same operations were made and of 22% for the period 2000-2016. It follows that, Land Grabbing represented an important factor in the land -use for agricultural purpose. This is so, even despite the fact that, Land Grabbing concerned cultivated land for the first time or already used farmland. In this regard, it is useful to recall the data in table 3, concerning, on one side, the high incidence of investments in no food crops (57.9%) and, on the other side, the limited presence of food crops (7.8%) of the total of land grabbed lands.

The incidence of the areas involved in Land Grabbing on the total of Agricultural Land variance registered in the Countries concerned, although important, does not seem to have produced significant results for food security. Table 5 shows the development in the number of undernourished people and the average dietary energy supply adequacy, an index used by FAO for measuring out the availability of food, that expresses the dietary energy supply as a percentage of the average dietary energy requirement (FAO, 2018b). Table 5 provides the data on the total range of the Low-income Countries of SSA and the detail, for the latter, of Countries involved in Land Grabbing, excluding South Sudan and Democratic Republic of Congo; for both of them there are no figures available both for the indicators and for the period in question.

Figures demonstrate that both for the LCD as a whole and the SSA, notwithstanding the worse position of LDC, the food

Country	A	B	C	D	B/D	B/C
Ethiopia	2000-16	996,196	5,597,000	5,597,000	17.8	17.8
South Sudan	2008-10	810,404	n.a.	n.a.	--	--
Liberia	2008-11	628,483	90,000	75,000	838.0	698.3
Sierra Leone	2003-15	613,799	1,139,000	383,000	160.3	53.9
Madagascar	2005-12	578,322	915,000	522,000	110.8	63.2
Mozambique	2004-14	517,422	1,800,000	1,100,000	47.0	28.7
Democratic Rep. Congo	2005-14	294,568	600,000	650,000	45.3	49.1
Senegal	2003-16	243,229	-159,000	236,000	103.1	-153.0
Mali	2007-16	214,574	2,601,000	604,000	35.5	8.2
Guinea	2007-2010	210,319	1,011,000	120	175.3	20.8
United Rep. Tanzania	2000-15	209,505	5,650,000	5,650,000	3.7	3.7
Burkina Faso	2007-2010	202,644	2,330,000	1,110,000	18.3	8.7
Malawi	2005-14	141,811	1,060,000	610,000	23.2	13.4
Zimbabwe	2011-14	62,677	1,140,000	-200,000	-31.3	5.5
Benin	2003-2011	43,000	555,000	63,000	68.3	7.7
Uganda	2001-14	37,950	1,903,000	1,803,000	2.1	2.0
Gambia		30,000	53,000			56.6
Rwanda	2009-14	11,130	141,000	700,000	1590.0	7.9
Central African Rep.	2003-2004	5,317	-60,000	20,000	26.6	-8.9
Guinea-Bissau	2009-10	1,214	2,000	20,000	6.1	60.7
		5,852,564	26,368,000	18,420,700	31.8	22.2

Legenda: **A** Period of Land Grabbing; **B** Areas involved in Land Grabbing for agricultural purpose; **C** Agricultural Land variance 2000-2016; **D** Agricultural Land Variance in the period shown in column A

Table 4. Agricultural Land variance and Land Grabbing
Source: Our elaboration on FAOSTAT data and Land Matrix

	Number of People Undernourished (millions)				Average Dietary Energy Supply Adequacy (percent)			
	2000-02	2005-07	2010-12	2015-17	2000-02	2005-07	2010-12	2015-17
Least Developed Countries	226.0	213.7	212.1	237.1	90	93	95	95
Sub-Saharan Africa	182.3	177.1	182.6	220.7	95	99	101	99
- Benin	1.5	1.2	1.1	1.1	108	115	119	123
- Burkina Faso	3.1	3.4	3.3	4.0	109	116	123	122
- Central African Republic	1.6	1.6	1.5	2.8	92	94	99	79
- Ethiopia	33.5	30.3	27.6	21.9	87	92	97	105
- Gambia	0.2	0.2	0.2	0.2	115	113	122	120
- Guinea	2.3	2.0	1.9	2.4	109	114	116	115
- Guinea-Bissau	0.3	0.3	0.4	0.5	105	104	106	102
- Liberia	1.2	1.3	1.5	1.8	96	99	102	101
- Madagascar	5.8	6.3	7.0	10.7	95	99	98	89
- Malawi	3.1	3.3	3.4	4.8	105	107	110	104
- Mali	1.6	1.3	1.0	1.1	119	127	136	142
- Mauritania	0.3	0.4	0.3	0.5	120	120	127	126
- Mozambique	7.5	7.7	7.2	8.8	96	99	107	106
- Rwanda	4.1	4.1	3.5	4.3	91	94	102	100
- Senegal	2.8	2.2	1.7	1.7	97	103	109	111
- Sierra Leone	1.9	2.0	1.7	1.9	94	101	108	109
- Uganda	6.8	7.6	11.1	17.2	110	108	103	95
- United Republic of Tanzania	13.0	13.6	16.0	17.8	97	103	103	106
- Zimbabwe	5.0	5.5	5.9	7.5	92	90	91	87

Table 5. Number of unnourished people and availability of calories for human consumption in LCD and SSA Countries in the period 2000-2017
Source: FAO Food Security Indicators

supply slightly improved until 2010-2012, and, then, experienced a stable (LDC) or decreasing trend (SSA). Looking more closely at the 19 Low-income Countries of SSA for which data are available, notwithstanding a general increasing trend in food supply for the period in question (14 Countries in 19), 13 Countries have been reports of worsening of the given indicator, in the period 2015-2017 than 2010-2012. In any case, 4 of 19 Countries concerned, don't reach an average availability equal to energy requirements and 8 reaches indicator values ranging from 100 to 109. Less comforting results regard the number of unnourished people. Considering Low-income Countries as a whole, the number of unnourished people has increased from 226.0 to 237.1 million people (+4.9%) that, associated with the population growth of 43.9% (from 664.8 to 956.6 million people) translate into a reduction in the incidence rates from 34.0% to 24.8%. It follows that, the increase in the number of unnourished

people in LCD is mainly attributable to SSA Countries. This confirm the phenomenon which was previously reported.

4. Conclusions

The fight against poverty and hunger is an absolute priority of international policies and, as such, has been addressed both in the recent past and in the current framework of Agenda 2030. The achieved results could, however, not prevent the concentration of extreme poverty and hunger situations in the least developed regions where, population growth, by reducing relative weight, hides the number of poor and hungry people, in absolute terms. The issue is particularly serious in the Low-income Countries of SSA, where the current huge problem of concentration of poverty and hunger, is even expected to increase in the future. Current estimates for economic growth and agricultural productivity, together with the population growth, are not enough to meet the needs and foreshadow the failure to achieve SDG no. 1 (No poverty) and SDG no. 2 (Zero hunger) right now. To launch sustainable development processes for ensuring food security, an important role will be played by agriculture.

Economic growth needs not only the resizing of agriculture, whose impact on employment and GDP is far too high, but also the improvement of agricultural production processes, and, therefore, the increase of the current productivity levels.

This is of paramount importance for food security, given that the current productivity levels are able to satisfy only 8% of the expected increase in demand as a result of the expected population growth between 2015-2050.

In the Low-Income Countries, the main factor of the growing agricultural productivity is, at present, the land.

In the last years, partly because of the numerous financial market crisis and the guidelines of the International Organizations, the interest towards investments in agriculture has grown steadily. Some of the operations performed have had a negative impact from a political, economic, environmental and of human rights point of view.

These operations are known as Land Grabbing. They have spread in the Low-income Countries of SSA, where there were the best conditions to perform them: availability of land, poor respect for human and property rights, low costs, insufficient attention to the environmental, economic and social sustainability.

The operations carried out in the Low-income Countries of SSA encompassed 22.2% of the increase in agricultural areas registered between 2000 and 2016 in the Countries concerned.

Taking into consideration both the importance of land, for the increment of agricultural productivity and the destination use of the grabbed land, that only minimally, concerned food crops, we can say that these operations have produced a serious damage both for agricultural development and food security in the Countries concerned.

To confirm this, the growing number of people suffering hunger and the lack of substantial progress in food supply in the SSA for the period 2000-2016.

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