While helpful in understanding the agricultural land situation this report does not note increases in productivity due to GM advances, and other high yield advances. It also does not factor in the progress in green house technology and hydroponics which both alleviate need for agricultural land.

From the FAO report- World Agriculture: Towards 2015/2030, subsection ‘Prospects by Major Sector: Crop production’. This offers some more evidence of why Africa will boom over this century.

***Land resources***

**Is there enough potential cropland for future needs?**

It is often suggested that the world may be heading towards shortages of suitable agricultural land. FAO studies suggest that this will not be the case at the global level, although in some regions and areas there are already serious shortages, and these may worsen.

Less new agricultural land will be opened up than in the past. Over the period 1961-63 to 1997-99 the expansion of arable land in developing countries totalled 172 million ha, an increase of 25 percent. In the next 30 years an increase of only 120 million ha, or 13 percent, will be required. Adding an extra 3.75 million ha a year may seem a daunting task - but it is less than the rate of 4.8 million ha a year that was actually achieved over the period 1961-63 to 1997-99. A slowdown in expansion is expected in all regions, but this is mainly a reflection of the slower growth in demand for crops.

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| Fears of an imminent crunch between population growth and land availability are unwarranted. Most future growth in crop production will stem from improved yields. In some countries, however, land shortages may bite. |

There is still potential agricultural land that is as yet unused. At present some 1.5 billion ha of land is used for arable and permanent crops, around 11 percent of the world's surface area. A new assessment by FAO and the International Institute for Applied Systems Analysis (IIASA) of soils, terrains and climates compared with the needs of and for major crops suggests that a further 2.8 billion ha are to some degree suitable for rainfed production. This is almost twice as much as is currently farmed.

Of course, much of this potential land is in practice unavailable, or locked up in other valuable uses. Some 45 percent is covered in forests, 12 percent is in protected areas and 3 percent is taken up by human settlements and infrastructure. In addition, much of the land reserve may have characteristics that make agriculture difficult, such as low soil fertility, high soil toxicity, high incidence of human and animal diseases, poor infrastructure, and hilly or otherwise difficult terrain.

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| **Cropland in use and total suitable land (million ha)** |
| http://www.fao.org/docrep/004/y3557e/y3557e21.gifSources: FAO data and Fischer *et al*. (2000) |

The pool of unused suitable cropland is very unevenly distributed. By the end of the twentieth century, sub-Saharan Africa and Latin America were still farming only around a fifth of their potentially suitable cropland. More than half the remaining global land balance was in just seven countries in these two regions: Angola, Argentina, Bolivia, Brazil, Colombia, Democratic Republic of Congo and the Sudan. At the other extreme, in the Near East and North Africa 87 percent of suitable land was already being farmed, while in South Asia the figure was no less than 94 percent. In a few countries of the Near East and North Africa, the land balance is negative - that is, more land is being cropped than is suitable for rainfed cropping. This is possible where, for example, land that is too sloping or too dry for rainfed crops has been brought into production by terracing or irrigation.

More than 80 percent of the projected expansion in arable area is expected to take place in sub-Saharan Africa and Latin America. Although there is still surplus land in these regions, the expansion may involve cutting back on long rotation and fallow periods. If fertilizer use does not rise to compensate, this may result in soil mining and stagnant or declining yields.

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| The projections suggest that the arable area in developing countries will increase by almost 13 percent or 120 million ha over the years from 1997-99 to 2030. |

In contrast, in South Asia and the Near East and North Africa, where almost all suitable land is already in use, there will be next to no expansion in area. By 2030 the Near East and North Africa will be using 94 percent of its suitable cropland, with a remaining surplus of only 6 million ha. In South Asia the situation will be even tighter, with 98 percent already in cultivation. In South and East Asia, more than 80 percent of the increase in production will have to come from yield increases, since only 5 or 6 percent can come from expansion of the arable area.

Cropping intensities will rise in all developing regions, on average from 93 percent to 99 percent. This will occur through the shortening of fallow periods and increased multiple cropping, made possible partly by growth in the irrigated area.