

# Land-use change dynamics in Argentina linked to international trade: An eHANPP analysis for the period from 1985 to 2013.

Simon Büchler

## Research Interest:

This master thesis has laid its main focus on portraying the long-term development of the national **Argentine HANPP**. Furthermore, a key focus was to identify the eHANPP associated with all biomass-based traded goods, and contrast it with the national HANPP in order to measure the **influence of trade** on the national developments in a time series from 1985 until 2013.

## Main Questions:

- How did Argentina's HANPP evolve between 1985 and 2013?
- Which fraction of the HANPP is associated with the international trade of biomass-based products in Argentina?
- How did this relation change between 1985 and 2013?

## Methods and Data

- Concepts: HANPP and eHANPP
- Data: FAOSTAT Database, Data from the National Statistics Institute of Argentina (INDEC), various studies, interviews carried out in a research trip between february and march 2018

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## Main results

By this paper's estimates Argentina's **HANPP as % of NPPpot** in Argentina rose from **25,47% to 29,94%** between 1985 and 2013. The component of **trade related** HANPP of Argentina has grown from **25,8% to 42,8 %** of the total HANPP between 1985 and 2013.

## Components and Dynamic

The growth of HANPP as % of NPPpot is mainly caused by **land conversions from forestland to cropland** and **intensification** on those two land use types:

- From 1985 to 2013 cropland increased from 28 Mha/yr to 41 Mha/yr, while forestland decreased from 36 Mha/yr to 28 Mha/yr.
- HANPP<sub>harv</sub> for forestland grew from 0,46 t dm/ha/yr to 0,99 t dm/ha/yr and for cropland from 4,67 t dm/ha/yr to 7,72 t dm/ha/yr between 1985 and 2013.

## Local land use problems

- Gran Chaco: semi-arid eco-region covered by tropical rainforest with high biodiversity. High yearly deforestation rates (1,02% 2012) → Loss of biodiversity, CO<sub>2</sub> sinks, etc.
- Pampa and Espinal eco-regions: semi-arid (Grassland, Steppe, Savanna und dry forests), main region for Agriculture, Expansion and Intensification processes accompanied by ecological problems (e.g. erosion, soil drainage, more floods etc.)

## Open research questions

Further research is necessary regarding the deforestation in Argentina, its drivers and potential countermeasures. Furthermore the grazing system and the linkages between grazing and agriculture demand further research, as they are the main components of the Argentine HANPP.