



Tropentag, September 17-19, 2014, Prague, Czech Republic

“Bridging the gap between increasing knowledge and decreasing resources”

Development of Agricultural Land and Water Use and its Driving Forces in North-Western China

TIL FEIKE^{1,2}, YUSUYUNJIANG MAMITIMIN², NAN HA², REINER DOLUSCHITZ²

¹*Julius Kühn-Institut (JKI), Federal Research Centre for Cultivated Plants, Inst. for Strategies and Technology Assessment, Germany*

²*University of Hohenheim, Inst. of Farm Management, Germany*

Abstract

The extremely arid Tarim Basin (TB) in north-western China is one of the country's most important cotton and fruit production bases. However, in recent years the negative ecological consequences of the intensive agricultural production become apparent. Apart from the degradation of riparian vegetation, competition for scarce water resources among farmers tightens, leading to increasing occurrence of droughts and related yield losses. To be able to develop solutions for the aggravating problems it is decisive to clearly understand the land and water use development and its driving forces in the TB. Statistical yearbook data from 1989 to 2011, comprising the four administrative regions of the TB, namely Aksu and Bayangol prefecture, as well as Division 1 and Division 2 of the Xinjiang Construction and Production Corps, and annual producer price data constitute the data base for the present study. Relevant policy documents and data obtained through a stakeholder workshop complement the analysis. It is shown that agricultural land area more than doubled during the 1989–2011 period. This is a result of the interaction of i) vast population growth and related increase in agricultural labour, ii) positive price developments for fruits and cotton, iii) strong increase in agricultural profitability, triggering further land reclamation, iv) afforestation programs pushing the establishment of orchards, and v) insufficient restriction of land expansion. It is recommended to step up the efforts to move people out of agriculture into other sectors, and significantly improve agricultural water productivity by increasing yield levels and shifting towards labour intensive high value crops.

Keywords: China, driving forces, irrigated agriculture, land use change