Personal value positions and *guānxi* – Decision-making determinants of Chinese farmers

D. Weber and H. Bergmann[1]

***Abstract* - Effective agri-environmental development policies require participative approaches that include related actors at micro-level to implement innovative practices. Innovative economic studies increasingly focus intrinsic motivation as flow-promoting collateral determinants for a sustainable adaption of environmentally optimized technologies. This contribution reports key results from a farmers survey in an intensive agricultural area of North China Plain (n=394), in particular the impact of inherent personal value postions and social norm concepts on the farmers' agri-environmental decision-behaviour. The analysis reveals the importance of focussing social and cognitive aspects, given that diverse agri-environmental preferences hearken back to observed value changes and different developed *guānxi* traits.**

Introduction

China is the world's largest producer and consumer of agricultural products. Policies of the last 20 years have successfully increased food production through advertising good outputs, an intensive use of external inputs such as fertilizers, pesticides and irrigation at significant negative external impacts and unthought the subsequent escalating environmental costs. Nowadays depletion and pollution of water resources, land degradation, soil erosion, loss of biodiversity, desertification and deforestation are sufficiently widespread (Ash and Edmonds 1998).

This dilemma has recently become a popular issue in China and the government attaches great importance to the formulation of laws and regulations on environmental protection (UNDP 2006). Accordingly, China's policy requires well-grounded approaches that accomplish of effective agricultural trainings especially focusing the farmers' willingness to adopt new environmentally optimized technologies.

Concepts and Theories

In standard neoclassical economic theory, it is assumed that decision-making is guided by extrinsic motivation. In recent years the influence of intrinsic factors (e.g. social and cognitive aspects as well as surrounding conditions) has been recognized. A range of groundbreaking economic studies have shown that agricultural decisions are not only linked to rational and monetary incentives but also to a wide range of other inherent determinants (Deci and Ryan 1985). However, very few articles are available about specific inherent agricultural decision-determining factors of Chinese farmers. This contribution likes to close a considerable gap in analyzing the Chinese farmers' personal value positions and the impact of their personalized relationship networks, called *guānxi*. Personal values predict attitudes and choices as well as preferences and even, attributed to others, particular behaviour (Strack et al 2008). Furthermore *guānxi* describes the basic dynamics in the complex nature of personalized networks of influence and social relationships (Dunning and Changsu 2007). Both, the cognitive psychological and social approach combined, establish a basis especially for the development of concepts and multilayer models to guide culturally adapted development projects.

Data and Methodology

Methodologically the study refers to various contents as basis for the measurement of the farmers' personal value positions and individual *guānxi* traits. Guided by the literature reviewed, a number of multi-sited items were selected to describe the farmers' varying agri-environmental attitudes, their *guānxi* specifications and their personal value positions (see Vogel 1996; Dunning and Changsu 2007; World Values Survey 2007; Schwartz 2006). Respectively, one up to three items was composed to identify the underlying behaviour generating approaches. Those attitudinal areas were deemed to be the bulk of determinants influencing the farmers' preferences. Because of the suspected overlap of attitudinal areas, the initial large number of items was reduced by means of a principal component analysis.

For *guānxi* characteristics, reliable factors were set for (1) collectivism and harmony, (2) interpersonal relationships defined by reciprocity and loyality, (3) utilitarian favours and benefits and (4) navigating transferable relationships. The personal value items load on two contrarily factors, (1) on social self-transcendent and conservation values and (2) on personal self-enhanced and openness-to-change values (see Table 1). The hence generated factors as well as additionally significant variables enable correlations of particular preferences. They are used as a starting point in constructing and

[1] D. Weber and H. Bergmann are from Georg-August University Göttingen, Department of Agricultural Economics and Rural Development, Göttingen, Germany (dweber2@gwdg.de).

testing a multivariate model of a possible causal relationship between personality, agri-environmental attitudes and behaviour in order to explain the impact of latent variables on manifest empirical indicators of the farmers' agri-environmental behaviour.

Table 1. Results of the Principal Component Analysis.

Rotated Components	*Personal Value Positions*	*Value Items*	1	2	Cronbach's Alpha
Social value focus	Self-transcendent and conservation values	Security	,738		,792
		Security	,699		
		Universalism	,695		
		Benevolence	,682		
		Benevolence	,674		
		Conformity	,643		
Personal value focus	Self-enhanced and openess-to-change values	Achievement		,771	,698
		Achievement		,749	
		Power		,628	
		Stimulation		,600	
		Selfdirection		,519	

RESULTS

Major findings reveal that a societal value change is taking place, when it comes to certain groups of self-enhanced and open farmers. Self-enhanced farmers with strong personal interests and stimulative achievement values agreed that the application of mineral fertilizers results in environmental problems. Whereas older farmers agreed significantly to the statement „Environmental problems are not related to my behaviour in fertilizer usage", especially younger farmers, accept that fertilizer usage is somehow related to their behaviour. They seem to reflect environmental problems arising from their agricultural practice.

Additionally, significant correlations occurred as well between those informed farmers and the *guānxi* trait factors (1) collectivism and harmony as well as (4) navigating transferable relationships. Knowing that harmony and communitarism are highly valued *guānxi* traits for those farmers and navigating transferable relationships constitute an important part of their daily live, respondents with an intensified affinity to those traits have found to be more able to gain enough available information about environmental consequences of their fertilizer use from their networks of contacts than other farmers.

The selected results reveal exemplarily on the one hand remarkable social and cognitive findings in general, on the other hand they in turn affect arbitrative agri-environmental decision-domains like a farmer's preferences concerning his agricultural information search or his attitudes towards the application of mineral Nitrogen. Having a closer look at the farmers' information sources on groundwater pollution caused by nitrogen-overusage, the frequency distribution shows that directly after television (54%), community members and friends (14%) represent a remarkable group that indeed is in turn defined by exactly those *guānxi* traits.

Detailed further results of the multivariate structural equation modeling for explaining agri-environmental decision-making at large with more influencing determinants will be presented in the full paper.

CONCLUSION

Thus to conclude, both personal value positions as well as the Chinese social concept of *guānxi* are relevant determinants for farmers decision-making. Personal value focused young farmers with high achievement and stimulative values and distinct navigating *guānxi* relationships behave different from traditional and conservative farmers with social value focus. Thus, for intended behaviour modifications, there is a need for individually adapted incentives. Furthermore, the results of *guānxi* and the farmers' information sources revealed the neccessity to adress and exploit the existing *guānxi* networks via systematic infiltration of persuasive agricultural information by carefully selected and trained contact persons.

In order to meet the challenge to enhance a sustainable agricultural production, it is indispensable for future policy recommendations (measures and instruments), to reveal the determinants of agri-environmental decision-making. Effective agricultural trainings in terms of an environmentally sensitive fertilization strategy need to integrate well-grounded approaches as well as to consider inconspicious appearing social and cognitive determinants.

ACKNOWLEDGEMENTS

The authors would like to thank the BMBF and the Chinese Ministry of Science and Technology for funding the project on "Innovative nitrogen technologies to improve agricultural production and environmental protection in intensive agriculture". Furthermore, we like to acknowledge our Chinese partners from Chinese Center for Agricultural Policy (CCAP) for their organizational and scientific support and Dr. Marco Roelcke for his invaluable help and guidance, unless the research would not have been possible.

REFERENCES

Ash, R.F. and Edmonds, R. L. (1998). China's Land Resources, Environment and Agricultural Production. *The China Quarterly* 156:836-879.

Deci, E.L. and Ryan, R.M. (1985). *Intrinsic Motivation and Selfdetermination in Human Behavior*. New York: Plenum.

Dunning, J.H. and Changsu, K. (2007). The Cultural Roots of Guānxi: An Exploratory Study. *The World Economy* 30:329-341.

Schwartz, S.H. (2006). Basic Human Values: Theory, Measurement, and Applications. *Revue française de sociologie* 42:249-288.

Strack, M., Gennerich, C. and Hopf, N. (2008). Warum Werte? In: E.H. Witte (ed.). *Sozialpsychologie und Werte*, pp. 90-130. Lengerich: Pabst.

UNDP (2006). *China Environmental Awareness Programme (CEAP)*. Government of PRC/ UNDP.

Vogel, S. (1996). Farmers' Attitudes and Behavior. A Case Study for Austria. *Environment and Behavior* 28:591-613.

WVS (World Values Survey) (2007). *Study Description: China*. In: http://www.wvsevsdb.com/wvs/WVSDocumentation.jsp [10.10.2009].