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SOCIAL OPPORTUNITIES FOR IRRIGATION SYSTEMS

ABSTRACT

The irrigation systems determine the modernization of agricultural activities by promoting technical innovation and emancipation of rural social networks, by inducing and dissipating the organizational behaviours and transformation of rural traditional values.¹

The evolution of local power relations, of the social and human capital, of the specific values, determined the access to the irrigation networks and generated practical modalities of water use for irrigating the cultivated land areas. The limited access to the necessary irrigation water determined the diminution of the capacity of rural communities to fight against food insecurity, to decrease rural young people's unemployment, and a low involvement of women at different agricultural production levels.

Key words: social relations, social capital, demographic capital.

JEL Classification: Q15, Q56.

1. INTRODUCTION

There is a strong relationship between the technical structure, the socio-economic outcomes and the strength of local organizations and involvements – what is sometimes called civil society. The technical infrastructure of the irrigation system created an adequate economic and social system for the rural communities depending on agriculture, on agricultural innovation and modernization, on increased efficiency of agricultural land use. Because the local history was marked by building up the irrigation system (the system was created in the period 1969–1972, with a total area of 67 500 hectares) and by its partial destruction (the process was initiated in the year 1989 and it continues at present), the social and economic relations/networks have changed, becoming both restrictive factors in the use of irrigation water and support factors that promote access to irrigation water.

The ambivalence of the economic and social relations was generated by the mentality, values and habits specific to the rural area from North Brăila Terrace (Terasa Brailei de Nord).

¹ FP-7 Project – Sustainable Irrigation Water Management and River - Basin Governance: Implementing User-Driven Services, (SIRIUS), 2010–2013.

The rural area of Brăila Terrace, consisting of the 4 investigated communities, includes 13 villages; the average number of villages per commune is 3.2; the population of this area totals 11169 inhabitants. The population density, specific to this region, has low values, ranging from 0.15 inhabitants/ha (commune Silișteea) to 1.2 inhabitants/ha (commune Cazasu.).

The investigated rural communities were the place where a relational system was developed that was able to get emancipated by the opening to the exterior, by the adaptation to a fluid macroeconomic framework. Although the relational pattern based on the rural household, on the significance of informal relations in the community life was maintained, the presence of integrating effects of the social networks and a well-defined organizational behaviour were noticed. The content of the social networks was modified in accordance with the demographic and social changes on the rural household; the rural household experienced a demographic contraction process and multiplication of social networks dominated by pragmatic values.

The main attribute of rural networks, *trust*, as a precondition of social existence, has specific mechanisms because it is an *internalization process* by which the external data are analyzed and become internal data, representing the adaptation basis of individuals; in this way, at individual level, a process of incertitude diminution is taking place. As *learning process*, it is a special type of relations that are learnt, being defined in accordance with the characteristics of situations/persons and not with their achievements. As a *symbolic projection process*, trust is a complex of symbols. In this large context of determinations, the personal trust is a set of structuring generalized expectations for the social relations. The mechanism of personal trust in the rural communities is influenced by the existence of situations that can be easily interpreted, subject to certain unwritten laws, and not to certain norms. The trust in the system, or the institutional-based trust refers to the expectations targeting the performance of a certain system and of the persons that are part of the system implicitly. The emergence of new rural institutions – institutionalized mechanisms of the irrigation system – determined the emergence of new forms of processual trust and at the same time induced trust emancipation due to the existence of depersonalized components. The social relations that are trust carriers also represented the source of the social capital specific to the investigated rural communities.

2. STATE OF KNOWLEDGE

The present rural development patterns are based upon the inter-conditionalty of processes, resources and factors that are characteristic for a defined space. The different social mechanisms existing inside the community of users, play a significant role in influencing the outcomes of the institutional schemes for the commons management.

The social relations as driving engine of economic, ecological and social sustainability represented the main subject of development patterns (Callois J., M., 2006). The sociological dimensions of the economic and social development were investigated by: Abdmouleh R., 2009, Beaurain C., 2009, Zacai E., and Villalba B., 2006, Bourdeau Ph., 2009.

Within this context, the main objectives of studies were the following:

– to analyze the socio-economic and environmental impacts of different future scenarios on irrigated agriculture (Ayala J.G., Gomez-Lomin, J.A., 2009, 2011; Heckelei T., Britz W, 2005; Rohm O., Dabbert S., 2003, Riesgo L., Gomez-Limon J.A., 2006);

– to analyze the adaptation of new technologies and more sustainable agricultural systems ensuring the future competitiveness of irrigated farms (Dos Santos, M. J. P. L., Sousa Fragoso R. M., Sousa Henriques P. D., Silva Carvalho M. E., 2011; Bartolini F., Bazzani G.M., Gallerani V., Raggi M., Viaggi D., 2007; Blanco M., F., 1996);

– to analyze irrigation systems as common-pool resources (Bravo G., Marelli B., 2008, Tang S. Y., 1992; Ostrom E., Ahn T., 2008; Lam W. F., 1998; Marshall G.R., 2005).

3. MATERIAL AND METHODS

The intensity of the social mechanisms was established by statistical and sociological methods. The methods on which the study was based were the interview and the direct observation.

4. RESULTS AND DISCUSSIONS

The evolution of the demographic system specific to the investigated area – the rural communities Cazasu, Tudor Vladimirescu, Siliştea, Vădeni – is characteristic to a system that aimed at the modernization of the socio-economic structures; the specific demographic process was the diminution in number of the rural population, being determined by the demographic evolution of its rural localities and by the great political changes, accompanied by specific policies and strategies.

The rural area from Terasa Brăilei consisting of 4 investigated communities has 13 villages in total; the average number of villages per commune is 3.2; the population of this rural area totals 11169 inhabitants. The density specific to the region where this rural area is located has low values, ranging from 0.15 inhabitants/ha (commune Siliştea) to 1.2 inhabitants/ha (commune Cazasu.).

The demographic capital is defined by:

– a balanced structure of genders, the female population representing 50.2%;

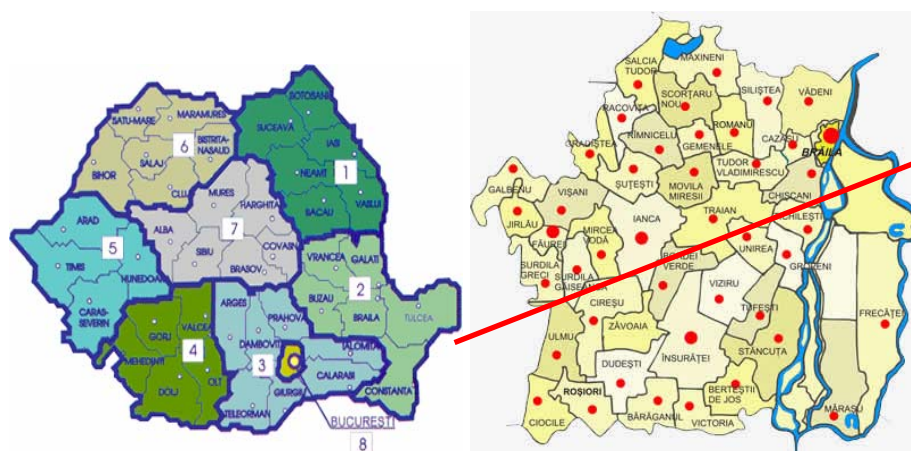


Figure 1. Romania, Braila county and investigated area.

Table 1

Structure by genders of the investigated rural area

- % -

Commune	Women's share in total population	Feminity ratio
Siliștea	50.4	101.4
Vădeni	50.2	101.6
Tudor Vladimirescu	51.7	107.2
Cazasu	49.4	97.5
Investigated rural area	50.2	101.1

Source: Own calculations based on the data from the "Locality fiche", Statistical Directorate of the county Brăila, 2011.

– critical demographic phenomena: the birth rate in the rural area is 8.5‰ and the death rate 13.9‰. The natural population increase was noticed only in the rural community Siliștea (+5.9‰); the remaining communities had negative values, ranging from – 19.5‰ in the commune Tudor Vladimirescu to – 1.2‰ in the commune Cazasu.

Table 2

Main demographic phenomena

- ‰ -

Commune	Birth rate	Death rate	Natural population increase
Siliștea	12.3	11.8	5.9
Vădeni	9.3	13.8	-4.5
Tudor Vladimirescu	5.0	24.5	-19.5
Cazasu	7.8	9.0	-1.2
Investigated rural area	8.5	13.9	-5.3

Source: Own calculations based on the data from the "Locality fiche", Statistical Directorate of the county Brăila, 2010.

The particularity of the occupational pattern consists in the occupational disequilibrium generated by the prevalence of employment in the agricultural sector. The excessive job supply contraction supports this pattern, which became specific for the rural area from Brăila county.

Table 3
Occupational structure indices

- % -

Commune	Share of employed population in total rural population	Share of population employed in agriculture in total employed population
Siliştea	33.0	76.0
Vădeni	38.0	62.0
Tudor Vladimirescu	35.0	63.0
Cazasu	38.0	62.0
Investigated rural area	35.7	58.0

Source: Own calculations based on the data from the “Locality fiche”, Statistical Directorate of the county Brăila, 2010.

The excessive high share of the population employed in agriculture reveals the excessive economic and social dependence on agriculture, also indicating the high risk to which the respective rural communities are subject to. A mono-occupational structure results in high vulnerability to any natural, social and economic risk.

The unemployment phenomenon affects the employed population of the investigated area, the most vulnerable group being the male population.

Table 4
Unemployment indices

- % -

Commune	Share of unemployed people in employed population	Share of unemployed men in total unemployed people
Siliştea	4.4	85.2
Vădeni	3.1	68.1
Tudor Vladimirescu	5.2	83.8
Cazasu	4.0	74.6
Investigated rural area	4.0	76.5

Source: The commune fiches applied in the period June 2011 – March 2012.

While at the level of the statistical analysis one can identify problems that emerged as a result of the lack of jobs, of the non-diversified and non-multiple supply, at the social analysis level much more complex problems were established. In the formal leaders’ opinion, the vulnerability is based on the lack of funds, poverty, incorrect implementation of agricultural policies.

Table 5
Problems of the investigated rural communities

Commune	Community problems
Siliștea	Temporal gaps of subsidies – lack of concordance between the periods when these are necessary and the time when these are allocated
Vădeni	Lack of funds for commune modernization
Tudor Vladimirescu	Lack of jobs
Cazasu	Rural poverty

Source: The commune fiches applied in the period June 2011, March 2012.

The identification of problems is tributary to the socio-economic history of the area; the collective mentality, generated several decades ago, according to which the problems are generated only by factors exterior to the community and must be solved by exogenous factors are materialized into problems identified by the leaders.

The defining *social capital* for the investigated rural communities is characterized by:

– **social relations** with positive effects (information dissemination, knowledge and information exchange, internalization of the interests of the group the rural actors are part of) and negative effects (their sticking to the traditionality matrix results in the emergence of an “anti-novatory” behaviour and the low internalization of values in relation to natural environment preservation).

The first category of social relations is based on water users’ organization into formalized entities (there are 6 irrigation water users’ organizations) and on the establishment of producers’ associations (“Association of sheep and cattle raisers” from the locality Siliștea).

Table 6
The water users’ organizations as perceived by the formal leaders of rural communities

Commune	The water users’ organization is beneficial because:
Siliștea	–it respects the members’ rights –it settles down the intra-organizational conflicts –it settles down the inter-organizational conflicts
Vădeni*	
Tudor Vladimirescu	–it respects the members’ rights
Cazasu	–it respects the members’ rights –it provides help to members –it settles down the intra-organizational conflicts –it meets the members’ needs/desires

*missing data

Source: The commune fiches applied in the period June 2011, March 2012.

The irrigation water users’ organizations are a relational “core” benefiting the entire rural community.

The organizational cohesion is a characteristic because: *“We get on well together, we are like a family, we have no problems”* (IWUO president Petroiu); *“There are no problems, it is the farmer with 440 hectares who pays, then he gets his money back”* (IWUO member APT Comăneasca, commune Tudor Vladimirescu).

The organizational solidarity was based on the respect of members' rights and on helping the members; the legal norms ensured the emergence and development of this type of association and succeeded in implementing a modern economic behaviour: *“The rights are ensured by law”* (IWUO president Silișteea)... *“Farmers get help, water is paid for the small farmers who became members because they grow vegetables”* (IWUO member APT Comăneasca, commune Tudor Vladimirescu).

There is a functional system in place with the institutions, exterior organizations: *“We have very good relations with the Agricultural Directorate, they keep us informed about the modification, each month, help us to draw the documentation and now we also appealed to them”* (IWUO President Silișteea). *“The relations existed, because there were years when they provided subsidies and had to report to the National Association for Land Irrigation”* (IWUO member APT Comăneasca, commune Tudor Vladimirescu).

The social relations with negative effects are determined by:

– **poverty**: *“... people are aware of being dependent on water but they are too poor to irrigate, although these are the small private farmers who do not have any other source of money”* (IWUO member APT Comăneasca, commune Tudor Vladimirescu).

As the dependence on water is characteristic to the investigated area, rising the people's awareness of drought-driven poverty is defining for the local mentality: *“... we remember this... we had nothing to eat, we were with our poor mom, we had nothing to eat and we used to work from early morning till night ...”* (R.S., 91 years, commune Silișteea); *“...the great drought in the year 1946,1947, in these two years, the drought affected a whole world, our people... we had to go and buy grains from Oltenia...”* (C.T., 89 years, commune Cazasu).

Drought was perceived as a “divine punishment” implying religious solutions: *“A female saint was brought from a monastery, the closest in the vicinity, priests came, they read from their books, and the clouds gathered in the sky after one day sometimes.”*

(C.T., 89 years, commune Cazasu); *“The priest used to go in the field with barrels with water, with those large icons, he went to the fields and read, emptied the barrels and then clouds came and the rain started... now he takes out only the icons from the church and we go in the fields with them, Holy Mary and Jesus Christ, ...”* (R.S., 91 years, commune Silișteea); *“In 1946, '47, the year of the great drought, the priest from the village went with the people in the field and read God's Book with the icon, I think that it was Holy Virgin Mary Icon ...”* (C., N., 75 years, commune Silișteea).

The mentality, specific to the investigated area, is defined by:

– a passive behaviour, still within paternity limits: *“People do not irrigate the land, they are waiting for money from the state”* (C.T., 89 years, commune Cazasu); *“When drought comes, we are in God’s hands!”* (R.S., 91 years, commune Siliştea);

– the social modernization process: *“Things are not as they used to be, those who had calluses on their hands disappeared, now the young people are half town people half peasants, the town is close by, in the villages far away from town it is the need that gets people better organized”* (C. N., 75 years, commune Siliştea); *“The young people are smarter, they want a lot of money and less work”* (R.S., 91 years, commune Siliştea);

– the learning pattern of irrigations techniques (empirical or scientific) is dominated by traditionality because: *“The important thing was what mother or father taught you, to take care not to cut the maize...they would not teach me when to irrigate, you prayed to God to rain, I saw how to irrigate from neighbours”* (R.S., 91 years, commune Siliştea). The minimum technical skills to fight against drought were disseminated and consolidated by the existing organization forms from the period previous to the 1990s: *“I learnt how to irrigate the maize crop in the time of the cooperative farms, otherwise we had to look up in the sky and wait for the rain”* (R.S., 91 years, commune Siliştea);

– **rural cohesion** generated by a specific participatory pattern. The involvement in the community life is ambivalent; a non-involvement in the public works exists: *“Lazy people, if the townhall has something left, why can’t we get it as a gift”* (employee, Cazasu town hall), *“No, the great majority are old people”* (vice-mayor, commune Tudor Vladimirescu). There is also a manifest participatory pattern: *“They are eager to do things, 50 people came up to shovel off the snow”* (town hall secretary Siliştea). The producers’ professional organizations are early nuclei of the institutionalized capitalism, being created in the rural communities where entrepreneurs exist and in which life quality is high. The farmers’ organizations are characterized by the rupture of formal structures and an effective operation.

– **“the confidence radius”**, assessing the contribution of social relations to sustainability, enabling the opening of the rural community to the exterior. In general, the association forms have formalized relations, for instance, the irrigation water users’ organizations had an essential contribution in the opening of rural communities to the extra-rural institutions.

5. CONCLUSIONS

The demographic capital is a restricting factor in the irrigation system functionality; the decrease in number of the population and population’s ageing result in an increase of rural passivity and a very low involvement in the innovation process and modernization of agricultural activities.

The social capital has positive implications, being one of the beneficial factors of the irrigation system. The socio-economic history of the irrigation system utilization modality proves the possibilities of the rural communities to adapt to agricultural modernization through the intermediary of social capital.

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