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## IRRIGATED AGRICULTURE IN BULGARIA – OPPORTUNISTIC BEHAVIOUR CONSTRAINS COLLECTIVE ACTION

by

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### 1 Introduction

Irrigation, a major water user in Bulgaria until recently, has been drastically affected by the political and economic changes and by the reforms in agriculture which started in 1989. Currently, the irrigation facilities are to large extent destroyed and out of function. The government propagates collective action management solutions for more sustainable resource use. The recently enforced Bulgarian Water Law and the Water User Association Act are driven by the State's motivation to encourage collective action and to establish water user associations (WUA). The former centrally planned water sector should be reformed, decentralised and the involvement of local actors should be increased. Moreover, since 1991, many approaches by World Bank projects have been started to set up water user associations. However, most of those associations were only created formally. In practice, they are neither functioning nor even known by the farmers in the respective villages. Regardless of these formal efforts, little collective action in the irrigation sector can be observed in Bulgarian villages so far.

In this paper, the focus is laid on the prevailing of opportunistic behaviour analysed by governance of information and actor groups characteristics inherited from the transformation process. Both represent constraints for collective action in Bulgaria's irrigation sector.

### 2 Irrigation Water - a Common Pool Resource

Two characteristics distinguish public goods from private goods: 1) excludability that refers to the ability of suppliers of a good or service to exclude or limit potential beneficiaries from consuming and 2) rivalry that refers to whether or not one person's use or consumption of a good or service reduces its availability to others. Water is to a large extent non-excludable. It is, however, subject to rivalry in consumption and, thus, cannot be categorised as a public good. Instead, it is a common pool resource, meaning that there is a finite amount that must be shared in common over a variety of uses and over geographic areas. Other best examples for common pool goods are natural resources, such as forests, pastures and fisheries. Common pool resources can be managed under a variety of property regimes ranging all the way from government to common property to privately owned or open access. BROMLEY (1992) stated that there is no such thing as a common property resource per se – there are only resources controlled and managed as common property, as state property, as private property, or resources over which no property rights have been recognized. For BROMLEY (1992: 14) "Irrigation systems represent the essence of a common property regime. There is a well-defined group whose membership is restricted, there is an asset to be managed (the physical

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distribution system), there is an annual stream of benefits (the water which constitutes a valuable agricultural input), and there is a need for group management of both the capital stock and the annual flow (necessary maintenance of the system and a process for allocating the water among members of the group of irrigators) to make sure that the system continues to yield benefits to the group.” In this paper, the resource under review is a common pool resource, with a formal institutional arrangement of a common property regime, but the effective rule on the ground seems to be an open access, i.e. no property regime.

Authors like OLSON (1965), OSTRÖM (1990, 1992) and WADE (1994) stated that it is neither sufficient to create a system of private property rights, nor is it the only solution that the central government keeps control over common resources. Especially OSTRÖM contributes to an empirically valid theory of self-organisation and self-governance with the view to the problem of common pool resources (OSTRÖM, 1990). Common property resource scholars lead us to the understanding that collective action is a way how societies can overcome the well-known “common-pool resource dilemma” and use the resource in a sustainable way.

### **3 Field Work Methodology**

In the approach institutional change is understood as a dynamic process. In order to analyse especially the changes of the rules-in-use at the local level, six month field work over the last two years were conducted.

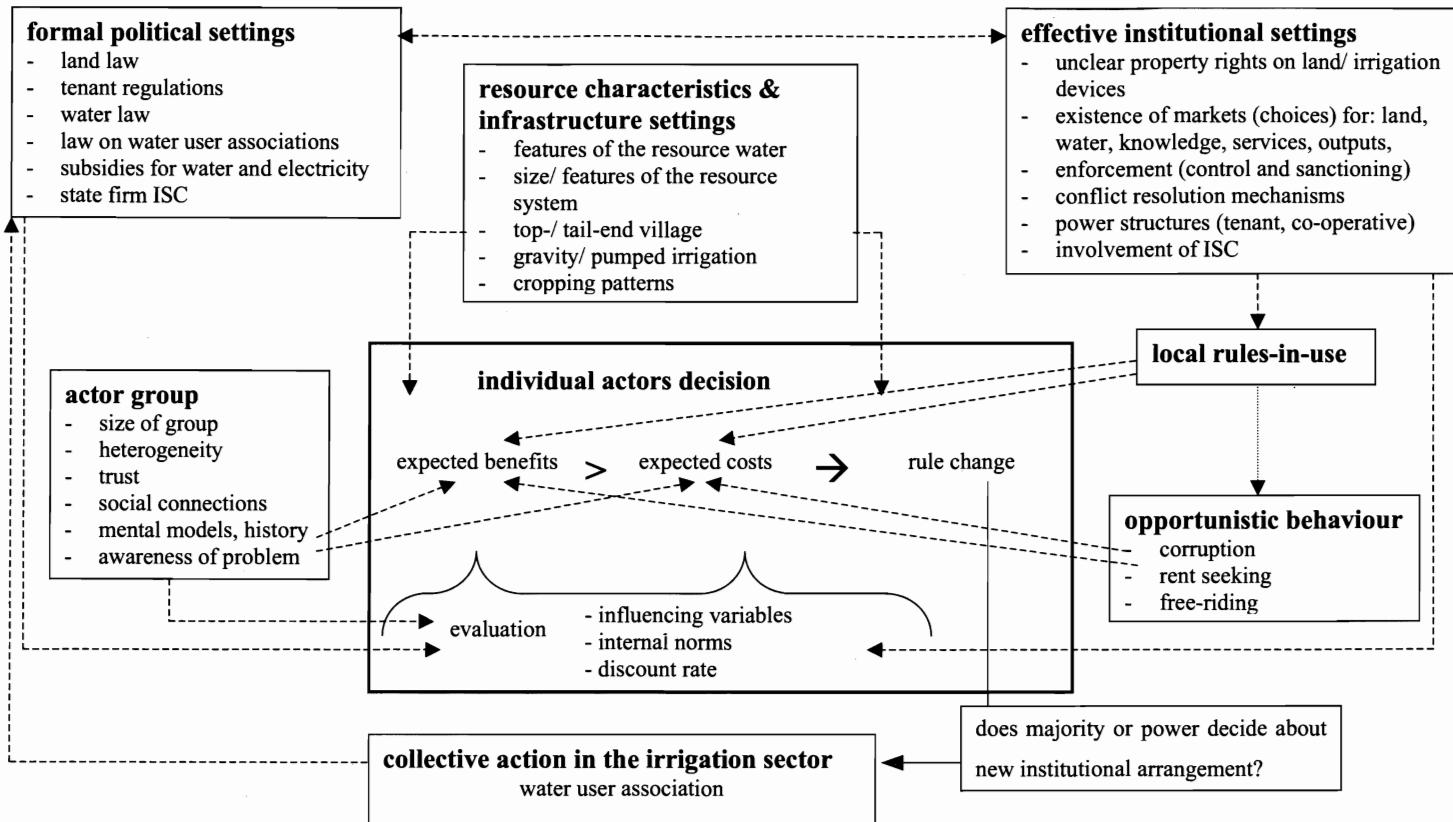
In three regions of Bulgaria differentiated by their natural conditions for soil and water, their farm and crop structures and the size of their irrigation facilities 17 village case studies were conducted. Based on that, in the South of Bulgaria, two “irrigation catchment areas” were selected in order to conduct four profound village case studies. In both irrigation catchment areas two villages were chosen. In each area, one village was located directly behind the water dam (top-ender), the other village further behind, at the middle or tail-end of the canal- and river system.

Qualitative research methods were predominant in this study. Besides expert interviews at the national and regional level, the strategy of case studies was chosen. Referring to POTTER (1996: 94ff.) active participating observation combined with qualitative interviews were the basis for four profound village case studies. Besides observations and interviews, great emphasis was put on including participatory research methods. The most valuable were drawing maps and group discussions. The method of qualitative content analysis according to MAYRING (2000: 472) is used to analyse the empirical material in Section 5.2. The technique of inductive category building is chosen. Categorisation is one form of coding multi-dimensional answers and to cluster the segments relating to a particular research question.

### **4 Constraints for Collective Action**

This paper questions if the theories about collective action have to be expanded to features typical for transformation. *The hypothesis is that there are influencing variables inherited from the transformation process which are hindering collective action.* A complex system of interdependencies between certain variables evolve. They are grouped into six dimensions: 1) the formal political settings, 2) the effective institutional settings and 3) the evolving local rules-in-use, 4) the actor groups characteristics, 5) the resource characteristics and 6) the resource system characteristics, i.e. the infrastructure settings. As shown in Figure 1, these dimensions modify the individual actors’ decision for or against new institutional rules.

**Figure 1:** Dimensions Influencing Collective Action



*The sub-hypothesis is that through the combination of the formal political settings, the effective institutional settings, the resource and resource system characteristics and the local rules-in-use as described in the theoretical framework (see Figure 1) a milieu exists where opportunistic behaviour can persist.* In the next section, possibilities for opportunistic strategies are described. Individuals use the power asymmetries to maintain their opportunistic strategies and consequently, they do not agree to any rule change. In Section 4.2 the information asymmetry and with this the governance of information in the four case studies are analysed.

In one tail-end village, formally, a WUA exists. It was founded under the co-operative law by seven people, not living in the village. This foundation appears to the villagers as very non-transparent. The interviewed head of this organisation refused to mention the other members. Most of the villagers do not know anything either about the possibility to establish a WUA or about its formal existence in their village. The villagers speak about this association either as a private water firm or as a tenant who rented the canal system. The villagers know only that the water controller is from their village, but they have no idea who else is involved. But, as there is at least one connection to somebody from their village, uncertainty and uneasiness to speak about this topic was obvious during the study. This WUA has no honest interest to formulate and enforce rules to settle the conflicts and to regulate the water appropriation.

BATES (1995) describes this as "the social dilemma of second order". New institutionalists assume that people encounter a social dilemma would forge new institutions in an attempt to transcend it. BATES (1995: 44) asks the following questions: "Given that the new institution (new set of irrigation rules) would make all better off, the institution itself constitutes a public good. Would not the act of its provision also generate incentives to free ride? And why, then, would individuals, behaving rationally, be willing to pay the costs of its provision?" It appears that the demand for institutional solutions for collective dilemmas does not imply their supply. The solution itself poses collective dilemmas. To answer the question why nevertheless new institutions could evolve; credible commitment is an important factor. Some insights into the provision of this is given in Chapter 5.

#### **4.1 Opportunistic Behaviour in one Tail-end Village**

As observed in the study area, limited sanctioning and enforcement mechanisms and almost no monitoring mechanism provide favourable conditions for opportunistic behaviour. Three types of opportunistic behaviour occur quite frequently in irrigation systems. OSTROM (1992: 32-33) classifies into free riding, rent-seeking and corruption with regard to irrigation. Free riding is investing time in private activities while others are investing in joint activities, such as canal maintenance that increases the supply of water over time to all users. Several opportunities for free riding occur with maintaining and operating the canal system. These circumstances are not discussed in the frame of this paper. Rent-seeking is trying to influence decisions made by donor agencies, national governments or local irrigation associations about the location of and subsidies to irrigation facilities. The person who seeks rents receives a disproportionate profit on private activities because the value of his assets is artificially increased. A person who once managed to be a successive rent-seeker can very easily keep this powerful position and expand his excessive gains (OSTROM, 1992: 54). The head of the WUA is a leader of the Youth Organisation of the Peasant Party. Holding such a position he has access to various kinds of information. He used his power, in terms of his position, good contacts and knowledge to establish this WUA and to persist in this position. As maintenance work is reduced to a minimum, he uses his position to gain income from collecting the water fees. Additionally, he is a young politician who wants to gain status in his party. Corruption in the irrigation sector, defined by OSTROM (1992), is withholding the delivery of water to those entitled to it in order to receive illegal side-payments of money, commodities or special favours. The person who engages in corruption receives a disproportionate gain by using his

power over the allocation of valued resources to extract an illegal payment from someone else. Bribes are paid to have water in the canal in time. This is more common for larger producers with crops, such as pepper. Pepper is a crop that needs irrigation at a certain time that cannot be delayed without having huge yield losses. In those cases the canal is filled for only one producer, even if the formal rule exists, that several orders from appropriators have to be collected before the barrage is opened. Many opportunities for corruption are offered in the way how the water price is calculated and collected. For example, the association adds two Leva "XMT tax" to the water price per each irrigation run. The only information source about this tax is the water price information sheet, a little sheet of paper glued at the door of the post office. This sheet shows the water price for the season. It explains that this tax is added to each irrigation unit. Many different speculations exist among the villagers what this tax is about. Moreover, the controller can give wrong receipts. The water price for one irrigation run per decar<sup>1</sup> pepper may, for instance, be 15 Leva. A farmer may be offered then to pay only ten Leva but receives a receipt for five Leva.

## 4.2 Governance of Information

In transition countries, we observe a big discrepancy between formal political intentions and informal effective institutional change at the local level. Transformation requires a high demand of knowledge, because of simultaneous processes at all levels and its short duration (SCHLÜTER, 2001: 6). This knowledge is not centrally accessible, but it exists decentralised by certain actors, e.g. with the water controller in a village. Therefore, transition economists regard information and knowledge asymmetries as one important characteristic of transition. Especially BATES (1995) gives a valuable theoretical discussion. His main point is that the new institutionalists suggest that people create institutions in an effort to move toward the Pareto frontier. BATES (1995: 42) argues: "The new institutionalists have been slower to acknowledge that the creation of economic institutions takes place not on the 'level playing field' of the market but rather within the political arena, in which some are endowed with greater power than others." The new institutionalism should take into account the allocation of political power in societies and the impact of the political system on the structure and performance of economic institutions. When social dilemmas are solved and new rules are implemented some people benefit more than others. Indeed, some may even benefit at the expense of others.

In the distribution theory of institutional change mainly developed by KNIGHT (1992), the power asymmetries of the actors represents the main determinant of institutional change. This bargaining power is a function of their resource provision. Knight argues that the significance of information and information asymmetries as a strategic resource in the process of institutional change is underestimated. According to SCHLÜTER (2001: 99), the transformation is a period with a high rate of institutional innovations. Information about these innovations represents a scarce resource which is distributed asymmetrically among the actors. In the following empirical findings are presented in short.

The invitation to a village meeting to establish a WUA was analysed. This example shows that the possibility to distribute information in a directed way, i.e. decide where it is announced, is a means of power. It can be concluded that the mayor has successfully chosen the proper distribution channel to reach those who will help him to enforce his ideas.

Moreover an analysis was made of the governance of information with regard to the water price. The following questions were asked. *How is information about the irrigation system, the availability of water in the canals, the urgently needed repairs and the water price passed on? Is there a water price? What is the water price? Do you know how it is calculated? Does*

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<sup>1</sup> 1 decar = 0.1 hectare

*the price stay the same once it is announced or is it changing?* According to the technique of inductive category building, a categorisation is made and the following results can be drawn. It is derived from the answers of 39 probationers of four villages. A share of 23% argued that they did not know how the price was composed and calculated. One producer from a village argued: "We also do not know if the current price is the real price for the water." A manager of a co-operatives explained: "I once wanted to know how the price is composed. This, they [the former WUA] could not tell me. What about production costs? How many decars do they irrigate all together? Electricity, maintenance and wages?" There was not even one farmer who possessed information about the calculation of the water price according to costs from the suppliers. But at least, some were aware of their lack of information. As summary serves a quotation from a small farmer: "The Irrigation System Company (ISC, the state monopoly firm) is speculating in information on the water price." Moreover, a share of 8 % does not know the price for the current season. Farmers complain about the fact that they are told about it very late, i.e. after having taken crop decisions or even after having planted crops.

These findings reveal five power strategies concerning governance of information:

1. to distribute information in a directed way
2. to use only limited information channels
3. to give unclear, confusing information
4. to give information late or too late
5. to withhold information

In the first section of this chapter it is explained how to distribute information in a directed way which enables the sender to reach certain target groups. Passing on information to those recipients who support the idea and exclude the critics can help to enforce decisions in the senders' favour. The second strategy is to use only limited information channels. Without different information sources about the same fact, there is no chance to cross-check the facts. A share of 82 % of the villagers mentioned either the water controller or the regional branch of the ISC in Haskovo or both as the only information sources for irrigation matters. From the viewpoint of the sender of information it is easier to influence the distribution and the facts themselves if the channels are limited. The third strategy is a mean to maintain the chaotic, unclear situation. Those fuzzy information situations are a precondition for opportunistic behaviour and corruption networks. The fourth one leads to high planning insecurity for the farmers keeping them dependent on the water suppliers. The intention is similar to the third strategy. The fifth strategy has also its reasoning. It was not possible to see any cost budget of the ISC in Haskovo. Even expert interviews conducted in Haskovo did not provide information on how the costs are calculated. These five strategies give insights how governance of information paves the way for power networks and as a possible result, for opportunistic behaviour.

## 5 Actor Groups Characteristics

*The sub-hypothesis is that experiences from the socialist time and the transition process have resulted in specific actors characteristics that constrain the possibilities of collective action.* Therefore, in this chapter, it is focused on mistrust, which hamper credible commitment. In Section 5.2 attitudes against collective actions are analysed. This is done through direct questions or indirect by assessing the time horizon of the actors. Proverbs used in one tail-end village are given as additional indicators. The information in this chapter shed light on the social capital of the actors.

## 5.1 Mistrust

Collective action needs credible commitment and one decisive requirement for credible commitment is trust among the actors. Trust is the initial social capital for collective action. In the research area, local people feel mistrust and envy as prevailing characteristics of their community. There are different methodological approaches including direct questions used in the study to excess trust relationships. In Table 1, some actions and behaviours expressing mistrust which derived from the participatory observations are provided.

**Table 1:** Observed Examples of Mistrust

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### **Irrigation pipes from the river**

The wells in the household plots are not sufficient for irrigation during the summer. Therefore, the plots are irrigated with pipes from the river. Ten households each possess an individual underground pipe from the river to their plot in order to secure water access in drought periods. The plots are located in one geographical line from the river. Instead of one joint pipe with junctions for each plot, there are ten single pipes, which is much more expensive and requires more maintenance. "I want to have water, when I need it", was the argumentation.

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### **Guarding the fields**

Many farmers guard their fields, often armed and over night, to prevent their fruits, often melons, from being stolen.

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### **Irrigation practice**

When the water in the canal passes somebody's field he will start to irrigate immediately, no matter whether crops would actually need irrigation. Nobody wants to rely on the water supply that was ordered for a future day. The risk is too high that others in front of him at the canal start to irrigate, even if it is not their official turn. Often brawls are the consequence (see rules-in-use). "Many irrigate without the need for it."

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### **Damming up water**

Some water users build high barriers to dam up the water above irrigation level in the canal so that neighbouring fields are flooded.

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### **Guarding water storage basins**

The night before a farmer's turn to irrigate with the paid and ordered water, he arms and guards the water storage basin. He has to watch out that nobody else is using this stored water during the night. Otherwise, he would not have sufficient water the next day, no matter that it is his official turn.

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### **Tenants of the water dam**

Farmers cultivate crops on plots that are irrigated from a small water dam. The tenants of this water dam did not release water in the year 2000 and the crops dried off. In 2001, the dam is still leased and in the hollow that is filled from the dam, there is only melted water from the last winter. There is no sign that the tenants will release water for the current season into the hollow.

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## 5.2 Assessment of Collective Action

One way to analyse the actors' attitude towards collective action is through direct questions. One, on purpose, provocative question asked with the standardised questionnaire was: *if you hear the word "collective action", do you spontaneously have positive or negative feelings?* Why? This open question was asked to 22 probationers in one tail-end village. Analysing the answers, the result can be shortly summarised: 15 actors (68 %) gave negative answers, four (18 %) did not understand the question, and only three (14 %) gave positive answers related to trust and collective action. Some recurrent arguments of probationers are given in extracts.

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<sup>2</sup> The word *collective action* was here explained from the translator.

- Bulgarians have at the moment no mentality to do something jointly; Bulgarians are not ripe for such activities; Bulgarians are at the moment not grown for joining; the collaboration period is over for the Bulgarians.
- Irrigation is in the responsibility of the State; the State should take care of this.
- People cannot do something like this; they are too old; too many old widows.
- I want to work 100 % individually; I am sick of co-operatives and collective working; I want to be responsible only for myself; at the moment it is better to work alone; I am not interested in what other people do, I care for how my own things are running; everybody is working for his own profit in the village.
- too many free riders; all villagers are very envious; there is no trust among the people; you can trust nobody; people behave to each other like animals; there is no trust in collaboration; people have been lied to from all sides for the last ten years; collective leaders only want to gain profit and enrich themselves.
- positive, if professional could co-operate; they could enforce their interests better; those who collaborate believe in the future; with trustful and serious initiators I would join.

In the following the actors time horizon is analysed as an important characteristic. The questionnaire contains several questions forecasting the future by the interviewees. One of those questions is exemplary analysed: *how do you evaluate the future of your farm in the next ten years? Will your children continue in agricultural production on your land?* The answers from 21 probationers can be clustered as follows:

- no descendant will continue farming → 14 answers (67 %)  
(Children have different interests; they do not want to work in agriculture; they live in the city and have other jobs; they have different ideas)
- unsure, if descendants will continue farming → two answers (9.5 %)
- young families want to continue farming → four answers (19 %)
- descendants want to expand the agricultural production → one answer (4.8 %)

According to Ostrom (1990: 211) the likelihood of common pool resource appropriators adopting a series of incremental changes in operational rule to improve joint welfare will be positively related to internal characteristics of the group. Exactly those incremental changes in operational rules are needed when establishing water user associations based on collective action. One characteristic mentioned is that most appropriators highly appreciate the continuous usage of this common pool resource. In other words, their discount rates should be low. People not expecting their descendants to continue farming on their land have little motivation to invest time and money in the establishment of collective action solutions or another more sustainable resource management.

Additionally, in informal interviews the following proverbs could be identified. The existence of proverbs is a good indicator of how people think and of cognitive patterns.

*Neither God is with us, nor is the King!*

*No dog will ever join a pack for action!*

*If three people are given a 50 Leva note at least one will say my note is dirtier!*

*I can stand being not well off, unless my neighbour is not better off than me!*

## 6 Conclusions

Empirical results confirm the hypothesis that there exist transformation-typical features inherited from the past constraining the process of finding collective action solutions for common pool resource management in Bulgaria. It remains questionable if measures in facilitating self-governance can be successful at the local level. The current formal attempts do not meet a ground where collective action can grow. The appearance of non-sustainable water user associations, founded often by outsiders, is the consequence. Those specious associations do not have the aim to enforce rules which would minimise the high uncertainty of irrigation in agricultural production. Those associations will come and go in the future, but the crucial point is that they destroy the belief of local people in this kind of institutional arrangement to deal with common pool resources. People are confirmed in their individualistic behaviour. During the transformation process asymmetrical power relations emerged among different actors. Individuals use their power to maintain their opportunistic strategies and consequently, they do not agree to any rule change. Especially the information asymmetry and with this the governance of information plays an important role in transition economies. Five power strategies concerning governance of information persist in the villages: 1) to distribute information in a directed way, 2) to use only limited information channels, 3) to give unclear, confusing information, 4) to give information late or too late, 5) to withhold information. The general attitudes towards collective action is very pessimistic. Mistrust is a striking characteristic of the rural community. The lack of trust among community members has a crucial impact on the evolving of credible commitment which is one prerequisite for collective action.

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