

# Planning and organization of transport-policy on a regional scale: The Twente case

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Marc Witbreuk  
University of Twente  
School of Management Studies  
Department of Civil Engineering

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## 1. INTRODUCTION

Transport and mobility are aspects which have become more of interest in the Netherlands (as in many other western countries) the past few years. Transport-flows are increasing rapidly and even on the long run annual growth figures for road-traffic are envisaged of 3 % or more. It will cause problems with regard to environment and accessibility. A deteriorating accessibility of economic centres is weakening the economic development and the mobility-growth has several negative effects (like air-pollution and noise). The Dutch government concluded that policy measures are necessary to reduce the growth of car mobility in order to cope with the accessibility- and environmental problems. The second long term National Transportation Plan provides this new direction in transport policy. The plan focuses on both the improvement or the preservation of the accessibility of important economic centres and the reduction of environmental impacts of transportation. A prominent policy instrument to attain these objectives is to restructure the organization and the allocation of responsibilities, competencies and financial means in the field of transportation policy. Because of deficiencies in the coherence and effectiveness of former national policy schemes and because of the awareness that transportation has a maximum functional coherence at a regional scale, the central government has launched incentives to create new regional public authorities in this respect, which are called transport regions. The existence of these transport regions should facilitate the implementation of a more integral policy and a more collective approach of the problems.

Another development that affects the reorganization of transport policy is the discussion with respect to the administrative structure of the Netherlands. The Dutch government considers cooperation of administrative authorities and a restructuring of responsibilities, competencies and financial means to be necessary.

A transport region is a geographical area. Besides, it is a functional coherent area and it is potentially administrative coherent. It is a territorially restricted, specific area. The transport region is characterized by both (horizontal) intercommunal cooperation and (vertical) attuning between administrative layers. Moreover, in transport regions attuning between administrative layers and the private sector takes place.

Although in the vision of central government transport regions are important with respect to attaining the central objectives of transport policy, the central government has not committed municipalities and provinces to realize transport regions. In the view of the central government, the process of development of transport regions should be bottom-up in stead of top-down (as is usual with regard to almost any policy). Cooperation between municipalities, provinces and the private sector should develop voluntarily. The role of central government was restricted to supporting these processes by supplying human resources. Besides, central government stimulated the cooperation between the actors by rewarding the achievement of some degree of cooperation with funds (which can be used by the transport region at its own insight to realize some transport plans). To receive these funds, the actors in a transport region had to have accepted a transport policy plan, which was written by themselves and which was in accordance with the transport policy plans of the central government. Moreover, some organizational requirements should be fulfilled. Nevertheless, as stated above, the cooperation (that may develop) is voluntarily. Furthermore, the fund-rewarding stimulus is not a very powerful one, since the sources of money of the

central government are by far insufficient. And until the requirements are met municipalities and provinces do receive funds as well. In that situation, however, they do have to ask for every particular project support from the government, whereas in the new situation the transport region gets funds, they can decide themselves when and where to spend the money.

One of the main questions of the study is : How do present theories, which describe cooperation to attain some common goods, refer to the process of setting up organizations (i.e. transport regions) and the functioning of these organizations (i.e. transport regions)? Which theory (present or to build) can explain these processes?

In this paper some preliminary conclusions with respect to this question will be presented. Some remarks will be made about the character of the objectives of Dutch transport policy. Subsequently game theory and theory with regard to collective action will be presented. This theory will be used to describe and evaluate some developments in a particular transport region, the Twente case.

## **2. ACCESSIBILITY AND LIVABILITY AS COMMON INTERESTS**

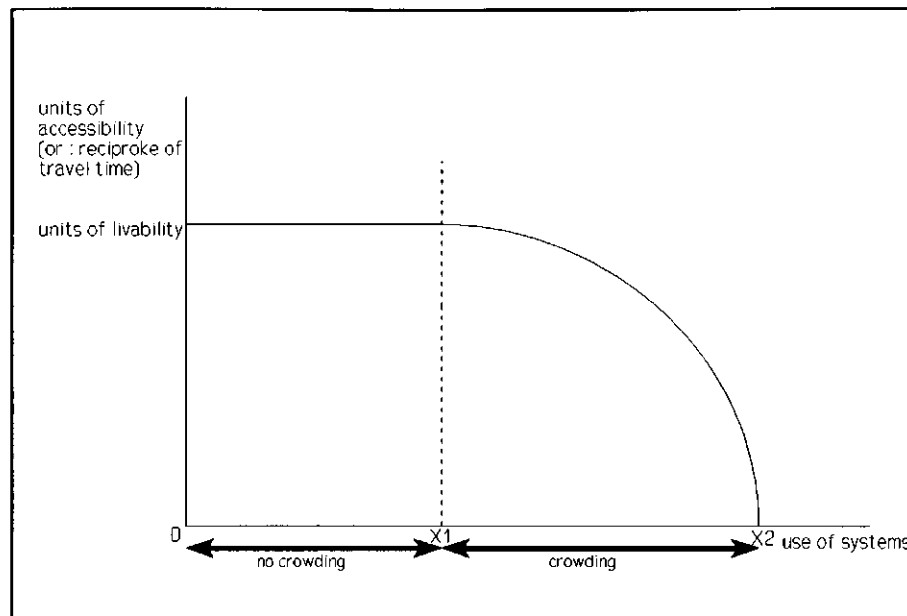
The main objectives of Dutch transport policy (the improvement or preservation of the accessibility of important economic centres and the reduction of environmental impacts of transportation) can be considered to be in the interest of everybody. Therefore, a collective interest seems to be at stake. In general it can be stated that everybody has an interest in a good livability, a clean environment. Moreover, everybody has an interest in a good accessibility. Several theorists have studied the character of these collective interests.

Pure public goods are defined by several properties. Potential beneficiaries cannot (simply) be excluded from jointly supplied public goods and use by one beneficiary does not affect another's appropriation of the good. A public good can be produced only by collective action, while the production benefits people regardless whether they join in the collective effort (Schmidtz, 1991). Olson defines a public good as any good such that, if any person  $X_i$  in a group  $X_1, \dots, X_i, \dots, X_n$  consumes it, it can not feasibly be withheld from the others in that group (Olson, 1971). However, a pure public good seems not to have many real-world counterparts.

Ostrom distinguishes between pure public goods and common pool resources (CPRs). In both cases underprovision is the classic problem. As far as the consumption of public goods is concerned, consumption of one person does not influence consumption of another person. With regard to common pool resources, however, this does appear. A person who contributes to the provisions of a CPR cares a great deal about how many others use it, and when and where, even if the others all contribute to its provision. Crowding effects and overuse problems are chronic in CPR situations, but absent in regard to pure public goods. Therefore, the key to the public goods-CPR distinction seems to be the abundance of the resource relative to the function that it performs. Public goods and CPRs are ideal types at either end of a continuum characterized by the degree of rivalry in consumption of the resource. A situation can move along that continuum over time (Keohane/Ostrom, 1994).

With regard to CPRs it is essential to distinguish between the resource system and the

resource units. The resource system produces the resource units. In fact, the resource system can be jointly provided or produced by more than one person or firm. However, the resource units are not subject to joint use or appropriation. Overuse of resource units is affecting the resource system. As a consequence, the resource system will produce less resource units (Ostrom, 1990).



*Figure 1 : accessibility and livability as common interests*

Using the description of CPRs, with respect to the objectives of transport policy, the transport system can be considered to be the resource system, whereas accessibility is a resource unit. Ostrom does not recognize the possibility of a resource unit to be produced by more than one resource system. However, it may be possible. Liveability can be considered to be a second resource unit, (partly) produced by the resource system. The transport system "produces" a quantity of units of accessibility, it makes a certain amount of mobility possible. The use of these units of accessibility, mobility, is affecting the transport system. In fact, every user of a transport network is decreasing the remaining number of units of accessibility. When the transport network is equipped to cope with this use, the transport system is not affected negatively. Overuse of the transport network, however, results in congestion and therefore degradation of the resource system (the transport network). With regard to livability, a similar discussion can be followed. With regard to the transport system and the ecological system, whereas at first these systems may have been public goods, they more and more seem to meet the definition of CPR. As long as the use of the systems does not cause problems and use of one individual does not affect the use of another, they may be considered to be pure public goods. In figure 1 the situation between 0 and X1 occurs. However, when crowding arises and problems arise with respect to the functioning of the system (congestion, livability problems) the systems seem to meet the requirements of CPRs. In figure 1 the situation between X1 and X2 seems to be at stake.

Summarizing, the main objectives of transport policy can be considered to be of common interest. In case of problems regarding overuse and crowding the transport system and the ecological system may be considered to be CPRs. As long as this is not the case, they may be considered to be public goods. Unfortunately, however, the furthering of common interests is not obvious, since people (and organizations) are self-interested in the first place.

### **3. THE COMMONS DILEMMA**

As stated above, the achievement of common objectives is not obvious. Many years ago this phenomenon has already been recognized by Aristotle and Hobbes (Barker, 1979) (Hobbes, 1963). Several theorists have studied this problem. As a result various theories with regard to the process of cooperation between individuals (or groups) aiming at the realization or protection of common interests have been developed.

With respect to the relations between individuals (or groups of individuals) Colman distinguishes several kinds of games which can occur between those individuals (Colman, 1982). With respect to the transport region situations with more than two individuals or groups of individuals do appear. In these multi-person games the strategic implications of coalitions have to be taken into account, unless the interests of the players coincide exactly. The latter are rather special cases, in which the only profitable coalition is the one containing all of the players, since the players' preferences are identical. In competitive and mixed-motive games the players can be motivated to split into alliances, blocs whose collective interests diverge.

The multi-person prisoner's dilemma game, also known as the commons dilemma game, became of more interest during the 1970s. Public concern about pollution, conservation of energy and other scarce resources led to penetrating analyses of the commons dilemma game. The commons dilemma games share a common underlying strategic structure, containing the following properties :

- each player faces a choice between two options which may be labelled C (cooperate) and D (defect);
- the D option is dominant for each player, i.e. each is better off choosing D than C no matter how many of the other players choose C;
- the dominant D strategies intersect in a deficient equilibrium. In particular, the outcome if all players choose their non-dominant C strategies is preferable from every player's point of view to the one in which everyone chooses D, but no one is motivated to deviate unilaterally from D.

### **4. COLLECTIVE ACTION**

#### **4.1 Introduction**

In case of nonexclusive (and common) goods, three problems may be recognized. If a good is nonexclusive, an individual may feel that enough other people will cooperate to produce the good without her help. Hence, the individual may decide not to contribute, because she can enjoy the good for free. This is the free rider problem. A

second reason not to contribute arises if a person believes it would be futile to contribute because the good will not be provided anyway. Unless the person receives reasonable assurance that other people will contribute enough to assure that his own contribution will not be wasted on a hopelessly underfunded case, the person may decide to save his money. This is an assurance problem. Finally, the third problem is the aversion to being taken advantage of, the exploitation problem. Some individuals may contribute suboptimally not because they are free riders, but because they are averse to being taken for a ride (Schmidtz, 1991).

In addition to the reasons for people not to contribute, there will almost always be people who refuse to contribute simply because they do not attach significant value to the good in question. These people are called honest holdouts. Besides, not everyone is rational. Many perfect rational people might fail to contribute because of ignorance. (It may even be stated that no one is perfect rational.)

Because of the problems mentioned, in case of individuals having a common interest, it is likely that this interest will not or not adequately be furthered by individual unorganized behaviour (Olson, 1971). Hence, organizations can be useful in case of common interests. In general, the basic function of organizations is the provision of public or collective goods. Markets, however, will fail with respect to collective goods (Schmidtz, 1991). Therein lies a role for government. According to Schmidtz, no matter how much people prefer to rely on government to provide them with public goods, a substantial reliance on voluntary cooperation is inevitable. Hence, public policy will not assure success.

The central question in the study of Elinor Ostrom (Ostrom, 1990) is how a group of interdependent individuals can organize and govern themselves to obtain continuing joint benefits, when all face temptations to free-ride, shirk or otherwise act opportunistically. Ostrom states she focuses on small-scale CPRs, where the number of individuals affected varies from 50 to 15000 persons who are heavily dependent on the CPR for economic returns. However, she does not explain why the theory she presents does not apply to CPRs with a greater or smaller number of individuals and less dependence of the individuals on the CPR for economic returns.

With respect to the organization process the individuals having a common interest have to solve several problems according to Ostrom. Firstly, they have to organize which is in itself a commons dilemma with the problems mentioned earlier. Secondly, the problem of credible commitment occurs. Rules with respect to, for example, use of the CPR have to be made. And thirdly, the problem of mutual monitoring. If this problem is not solved, no credible commitment is possible. Mutual monitoring itself constitutes another commons dilemma, because punishing in fact is a collective good. The process unravels from both ends, because the problem of supply (organization) is presumed unsolvable in the first place.

Summarizing, it can be concluded that voluntary cooperation to further some common interest is difficult to achieve. Several problems are likely to reduce the probability of an efficient cooperation.

In this section an overview will be given of aspects and variables which influence the probability of cooperation between individuals or groups of individuals. Several

theories are used to describe the variables. The theories do not entirely coincide with each other. The variables group size, interaction and reputation, heterogeneity, costs and benefits and incentives will be discussed. Finally, some design principles that characterize robust organizations governing common interests will be presented.

## 4.2 Group size

Size of the group may be considered to be a very important variable that influences the probability of voluntary cooperation.

In the view of Olson, the larger the group, the less the group will succeed in attaining its common interests. If a group contains a member who will be better off paying all costs itself than in a situation in which the collective good will not be provided, there is a presumption that the collective good will be provided. This is a privileged group. If the group contains no such individual, and the contribution of any individual is of great influence on the costs and benefits of other individuals, the result will be uncertain. The collective good will not be supplied in a large group, in which the paying or benefiting by an individual does not influence the group as a whole, unless force or external impetuses are used to stimulate individuals to behave in accordance with their common interest. The larger the group, the less likely it is that the contribution of an individual is noticed. Therefore, the greater the impetus for an individual to take a free ride. Besides, the larger the group, the more coordination and organization is needed. And hence, the higher the costs of organization that will be needed before even anything of the common good can be provided. In intermediate groups no individual has an incentive to produce a collective good all by itself. On the other hand, the intermediate group is small enough to enable any member to check whether other members are contributing. In these cases provision of the collective good is uncertain. Anyway, coordination or organization are necessary to provide the collective good. In intermediate groups members can be stimulated by economic and social incentives to contribute in the provision of the collective good. In general social pressure and social incentives are only effective in smaller groups in which members can have face-to-face contact (Olson, 1971).

Russell Hardin distinguishes between static and dynamic analyses of collective action (Hardin, 1982). The general conclusion of static analyses is Olson's: larger groups are less likely than smaller ones to succeed in providing themselves collective benefits. Nevertheless, according to Hardin most collective action problems are clearly dynamic in that they recur or are ongoing, so that there is no single choice, but rather a sequence of choices to be made. Hence, each person's future choices may be (made) contingent on other's current choices. Iterated play is different from single-play in mixed-motive games without communication in that it yields opportunity for tacit communication, so that one may sense that the other player's future choices are contingent on one's own immediate choice. Therefore, although in a single play prisoner's dilemma defection would be "rational", in iterated play it may not be. Nevertheless, as the number of individuals which is playing the game increases, it is increasingly unlikely that cooperation will be narrowly rational even in iterated play. Hence, in either analyses (both static and dynamic), the logic of collective action



militates against cooperation in large enough groups. The prospects for successful contract by convention decline as group size increases because the more people whose behaviour one must know well enough to consider it predictable, the less one will be able to know about each of them on average. In a large group with a cooperating (efficacious) subgroup, the subgroup cannot punish other players who are defecting without hurting themselves at least in the short run. Only to the extent they can convince the others that they are willing to suffer a loss in the long run can they induce the others to cooperate out of self-interest. With respect to very large groups, Hardin states that these groups cannot easily develop conventions that are complex or precise in their objectives or behaviour. In the abstract, a group is likely to face a trade-off between costs of agreement and precision of agreement.

Finally, Ostrom does consider size of the group of influence as well. She states that the group appropriating from the CPR should be relatively small and stable. If this is not the case, the likelihood of individuals adopting a series of incremental changes in operational rules to improve joint welfare will decrease (Ostrom, 1990).

Summarizing, it can be concluded from the theories that a small group is more likely to succeed in furthering its common interests than a large group.

#### **4.3 Interaction and reputation**

Interaction between actors and the reputation of actors seem to influence cooperation. Besides, these may be considered to be related. Interaction may cause a deterioration or an improvement of one's reputation.

According to Hardin, the greater distinction between small and large groups is not one of Olson's logic, but merely of the likelihood of their being involved in a thick enough network of mutual interactions. The interweaving of dyadic and small-number conventions with large-number conventions may make it possible to enforce the latter (Hardin, 1982). In other words, the more interaction between actors (in whatever situation), the larger the likelihood of cooperation. Ostrom as well recognizes interaction as an important variable. According to her, appropriators who interact with each other in many situations other than the sharing of their CPR are apt to develop strong norms of acceptable behaviour and to convey their mutual expectations to one another in many reinforcing encounters (Ostrom, 1990).

According to Hardin one of the most important external strategies in social contexts is to have one's reputation be at stake. The role of past behaviour is perhaps the most important for its contribution to one's reputation, which is valued because future relations depend on it. Reputation may influence the attitude of the individuals. Schmitz considers most real problems to be dynamic rather than static (as Olson does). As one iterated prisoner's dilemma comes to an end, the buyer and seller enter into another prisoner's dilemma with different partners. To the extent that players know each other's history, reliable trading partners gravitate toward each other. Reputation travels from one game to the next (implying interaction), and the brunt of the negative externalities she creates by defecting in one game will fall squarely on

her as a player of other games.

#### **4.4 Heterogeneity of actors and their interests**

Heterogeneity of actors and heterogeneity of their interests influence the probability of cooperation.

Olson considers the degree of consensus to be important. Lack of consensus (a type of complete heterogeneity of the interests of the actors) is disastrous for group action and group cohesion. However, perfect consensus about the desire to provide a collective good and the most efficient means to produce it does not automatically lead to the real provision of the collective good (Olson, 1971).

Ostrom reasons likewise. Even when individuals have considerable capabilities to engage in self-governance, there is no guarantee that solutions to all problems will be achieved. Individuals who do not have similar images of the problems they face, who do not work out mechanisms to disaggregate complex problems into subparts, and who do not recognize the legitimacy of diverse interests are unlikely to solve their problems even when the institutional means to do so are available to them. She presents some internal characteristics with respect to heterogeneity. Taken into consideration a setting in which appropriators face problems in a remote location under a political regime that is basically indifferent to what happens with regard to CPRs of this kind, in such a setting the likelihood of CPR appropriators adopting a series of incremental changes in operational rules to improve joint welfare will be positively related to the following internal characteristics (Ostrom, 1990) :

1. most appropriators share a common judgment that they will be harmed if they do not adopt an alternative rule;
2. most appropriators will be affected in similar ways by the proposed rule changes;
3. most appropriators highly value the continuation activities from this CPR;
4. most appropriators share generalized norms of reciprocity and trust that can be used as initial social capital.

She mentions two other principles. Those principles relate to size and costs. Nevertheless, the heterogeneity is considered to be more important.

Libecap likewise states that heterogeneity is of interest. According to him, the greater the number of competing interests and hence, the greater the heterogeneity of interests, the more claims that must be addressed in building a consensus on institutional change to further some common interest. Libecap finds a connection between size and heterogeneity. The number of bargaining parties involved can make it more difficult to reach agreement for the usual bargaining reasons. In addition to heterogeneity of interests, he distinguishes heterogeneity of actors. Heterogeneity in capabilities across the parties in information may affect the opportunities to build consensus. These differences affect the ability of actors to engage in collective action (Libecap, 1994).

Hardin concludes that the assumptions that all members have identical interest in the collective good, that all place the same value on a unit of the collective good supplied

and that all place the same value on a unit of cost are not met in most actual collective actions. Asymmetry in the content of a group's collective good may enhance prospects for cooperative action, because the asymmetric group could have an efficacious subgroup that was essentially an intermediate group, while an efficacious subgroup of a symmetric group would be a large group. On the other hand, asymmetries may impair the prospects of direct provision of a collective good. The possibility of generalization depends on elements of commonality of information, experience, and understanding, and also on the lack of conflicting principles from which to generalize (Hardin, 1982).

It can be concluded from the theories that a lack of homogeneity will limit the probability of cooperation.

#### **4.5 Costs and benefits**

Cooperation to further some common interests usually will bring about costs and benefits. The dimensions of these costs and benefits will influence cooperation.

According to Hardin cooperation to oppose a loss may be easier than cooperation to support a gain (Hardin, 1982). Possibly, the character of the interest may be of influence as well. According to Libecap, collective action to govern non-renewable resources may be easier to achieve than collective action to govern renewable resources. The expected gains of agreement may be greater for the former, if the parties generally agree (see section 4.4) that resource rents will be permanently lost if collective action is not forthcoming. In the case of renewable resources, there may be disagreement as to whether exogenous factors may lead to a rebound of the resource without action. Furthermore, the problem according to Libecap is reaching agreement on the distribution of the benefits and costs of collective action (Libecap, 1994).

Ostrom states that individuals weight perceived harms more heavily than perceived benefits of the same quantity. Moreover, appropriators pay more attention to immediate costs than to benefits that will be strung out over the future. Therefore, transformation costs take on added importance in the judgments made by appropriators in regard to changing their rules. Besides, individuals are apt to weight recent events more heavily than events more distant in a long history of experience. When appropriators face relatively high information, transformation and enforcement costs, the likelihood of appropriators to adopt a series of changes in operational rules to improve joint welfare will decrease. Furthermore, given the substantial uncertainty associated with any change in rules, individuals are less likely to adopt unfamiliar rules than they are to adopt rules used by others in similar circumstances that have been known to work relatively well (Ostrom, 1990).

#### **4.6 Incentives**

Voluntary cooperation is hard to achieve. No one is obliged to cooperate while anyone will benefit the production of a good, regardless whether he or she does

contribute. (see section 4.1)

A solution might be the production of a non-collective good from which individuals can be excluded. A non-collective good may offer individuals a selective incentive to contribute to the provision of the collective good. Hardin offers this solution of selective incentives, but apart from the production of noncollective goods, which could stimulate individuals to participate in an organization aiming at a common interest (by-theory), he discusses three extrarational intrusions. Firstly, moral motivations. Secondly, the desire for self-development through participation. It is the desire to take part in history, to be there. And finally, ignorance (lack of information) and misunderstanding (see section 4.4 as well). Organizations whose objectives are supported by moral commitments, rather than merely by self-interest, are likely to be more assiduous in working toward their objectives. Just as selective incentives might induce one to contribute to a objective one does not support, so too the desire to participate in experiences of one's generation might lead one to participate in an action or movement whose purposes one does not support. If the players of an iterated coordination game successfully achieve tacit communication to cooperate, they are adhering to a convention. A convention is honoured because, once it exists, it is in our interest to conform to it. To establish a convention in a particular group is to give the members of the group power to sanction each other's violations of the convention. Moreover, relevant external strategies to be used by the subgroup are such devices as bluffing, external commitments and external incentives (Hardin, 1982).

According to Olson, neither the state nor any other large organization can maintain itself without sanctions or another stimulus. This stimulus is, independent of the collective good itself, necessary to stimulate individuals to bear part of the burden of maintaining the organization. Large organizations which are not able to enforce membership of the organization have to provide with non-collective goods to stimulate individuals to become a member of the organization (Olson, 1971). Summarizing, to assure cooperation, selective incentives are necessary. Coercion may be necessary.

Schmidtz points out the problems of voluntary cooperation as well (Schmidtz, 1991). Voluntary solutions to the public goods problem will typically be inefficient because people will withhold even in some cases where cooperation has a higher payoff. They will not take the social benefits of their contributions fully into account. Coercive solutions, however, can ensure cooperation but will typically be inefficient because government officials often enforce cooperation even when withholding has a higher payoff. Besides, coercion quickly becomes complicated when we turn to the question of how to control the controllers. Schmidtz assumes an assurance contract to be a genuine alternative to coercion. An assurance contract is enforceable against a contributor if and only if the rest of the group agrees to contribute enough to ensure that the collective good can be produced. Nevertheless, an assurance contract must leave the free rider problem unresolved. In the context of voluntary public goods production, reciprocity may be the pertinent moral principle. A reciprocator will cooperate if and only if his partner (or group of partners) is a cooperator. Reciprocal strategies are agreeable to cooperative partners and punishing to exploitive partners. Anyway, when coercive production is necessary for the survival of a society, then the rationale for the restriction against coercion in that case is undermined. Schmidtz

considers the use of coercion in that case acceptable.

#### **4.7 Design principles of organizations governing the commons**

If cooperation to govern the commons is developing, an organization will result. In contrast to the other authors, Ostrom pays attention to the structure of the organization which should be used in the management of CPRs. Ostrom presents a set of design principles that characterize robust CPR institutions. By design principles Ostrom means essential elements or conditions that help to account for the success of those institutions in sustaining the CPRs and gaining the compliance of generation after generation of appropriators to the rules in use. The design principles are (Ostrom, 1990) :

- clearly defined boundaries: individuals or households who have rights to withdraw resource units from the CPR must be clearly defined, as must the boundaries of the CPR itself. As long as this is not the case, no one knows what is being managed or for whom.
- congruence between appropriation and provision rules and local conditions: appropriation rules restricting time, place, technology and/or quantity of resource units are related to local conditions and to the provision rules requiring labour, materials and/or money. The perseverance of the CPRs is supported by these rules.
- collective choice-arrangements: most individuals affected by the operational rules can participate in modifying the operational rules. CPR institutions that use this principle are better to tailor their rules to local circumstances.
- monitoring : the presence of good rules does not ensure that appropriators will follow them. Therefore, monitoring is necessary.
- graduated sanctions : violators have to be punished. This can be done by an external authority or by the appropriators themselves. The latter offers the advantage that appropriators learn about the level of (quasi-)voluntary compliance in the CPR. If no one is discovered breaking the rules, the monitor himself will also be stimulated to comply.
- conflict-resolution mechanisms : applying the rules is never unambiguous. Therefore, there must be some mechanism for discussing and resolving what constitutes an infraction.
- minimal recognition of rights to organize : the right of appropriators to devise their own institutions are not challenged by external governmental authorities. If the latter presume that only they have the authority to set the rules, then it will be very difficult for local appropriators to sustain a rule-governed CPR over the long run.
- nested enterprises : appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises.

According to Ostrom, public policies based on the notion that all CPR appropriators are helpless and must have rules imposed on them can destroy institutional capital that has been accumulated during years of experience in particular locations. In other words, Ostrom considers a lot of interference by an external authority as undesirable.

## **5. COOPERATION IN TWENTE**

### **5.1 Introduction**

The theory of collective action may be used to describe, explain and predict developments in coordination, cooperation and success or failure in the transport regions. And in case real developments are contrary to the predictions of the theory, the theory may be adapted to fit. In this section an attempt will be made to use the theoretical variables to describe and explain cooperation in the transport region of Twente. The section is based on an inquiry, executed in 1994. This inquiry was carried out among politicians and officials of the 21 participating municipalities. Besides, meetings of the transport region have been attended and literature and reports of participants have been studied.

Twente, a region in the eastern part of the Netherlands, is one of the more important transport regions. The region, part of the province Overijssel, counts about 600.000 inhabitants, its surface is about 1300 km<sup>2</sup>, and 21 municipalities do cooperate. The centre of the region (3 larger cities) is urban, its environment has a more rural character. Problems in the larger cities are the more common "city-problems", for example problems of accessibility, whereas the more rural municipalities do not have those kind of problems.

Until now, in Twente only regional transport plans are made. These plans (and correlating measures) are not carried out yet. Therefore, with respect to the cooperation only the developments inclusive the approval of these regional plans can be discussed.

### **5.2 General remarks with respect to cooperation in Twente**

The three problems defined by Schmitz all seem to be present in the transport region of Twente. Some municipalities behave like free riders. They do not contribute (or insufficiently) in the organization of the transport region. They do try to hold back as much as possible. Secondly, participants face an assurance problem. They can not be assured that when they contribute the common objectives will be attained. A money-back-guarantee does not work in this case, while the benefits can not be assured, even when all participants do contribute. Finally, some municipalities fear they will be exploited. They fear the economic strength of neighbour-municipalities when they should adopt for example a parking restriction policy. Furthermore, rural municipalities fear to be exploited by the urban municipalities. They fear to lose funds for the benefit of urban municipalities. This fear has been strengthened because the central government has reduced public transport, particularly in the more rural areas.

Some rural municipalities state that according to them the transport region is not relevant, since in their municipalities no problems exist. These municipalities may be regarded as honest hold-outs. On the other hand, these municipalities may suffer a lack of information causing them to behave like hold-outs (see section 5.5) whereas actually they have an interest in the cooperation.

Nevertheless, the objectives of transport policy can be considered to be in the interest of all actors. Therefore, cooperation may be profitable. According to Olson, some form of organization is indispensable to achieve the common objectives. This could be a transport region, but another organization would have been possible as well.

### **5.3 Group size**

The transport region seems to be an intermediate group, where face-to-face contact is present and members are able to check whether other participants are contributing. Moreover, no participant is able to produce the collective good all by itself. The desire of the government transport regions being broad platforms where numerous participants collectively formulate and execute transport plans is contrary to the necessity of having as small as possible groups. After all, the larger the group, the less the group will succeed in attaining its common interests. As group size increases, the prospects for successful contract by convention declines. Large groups cannot easily develop conventions that are precise or complex in their objectives or behaviour. The trade-off between costs of agreement and precision of agreement seems to be present in the transport region of Twente. The transport plan can be considered to be a kind of convention. The objectives of the plan are general and vague, because agreement between the participants was considered to be necessary. Although the objectives of the transport region seem to be common objectives, the participants consider some of their own interests to be in conflict with these common objectives (see section 5.5 as well). The resulting broadness of the common objectives causes imprecision and therefore the trade-off seems to be present. The broadness of the objectives is facilitating general agreement about the plan. On the other hand, however, when the transport region of Twente starts to prosecute its objectives by means of taking measures, these objectives will probably have to be defined more precisely. Moreover, choices will have to be made about where in the region to invest resources. At that point, the parties may be faced with disagreement and new problems may arise.

### **5.4 Interaction and reputation**

Reputation and interaction are considered to be important factors influencing cooperation. In the transport region of Twente, participants hardly knew each other at the beginning of the cooperation. Actors did not interact with each other in many other situations than the sharing of their CPR. This situation applied for officials even to a greater extent than for politicians. Therefore, reputations were hardly based on experiences with respect to transport. Nevertheless, participants had formed images of each other based on other experiences and, for example, newspapers. Especially rural municipalities had formed an image of urban municipalities as dominant and mainly looking after their own interests. As cooperation endured, reputation grew. Moreover, the increasing interest of regional developments in addition to the transport policy does increase interaction. Participants can judge more objectively other participants. The reputation of some participants impair the cooperation. For example, the province is considered to be mainly interested in increasing its own power at the expense of

municipalities. Hence, municipalities try to reduce the position of the province as much as possible. It can be concluded that the increased interaction causes heterogeneity to become more manifest. On the other hand, some municipalities increasingly improve their cooperation.

The interweaving of dyadic and small-number conventions with large-number conventions, by Hardin prescribed, is present with respect to some participants, especially the urban municipalities. Besides, some rural municipalities do cooperate. However, it can not be concluded that a thick enough network of mutual interactions is present. Therefore, this principle is probably not met sufficiently.

### **5.5 Heterogeneity of actors and their interests**

In the transport region of Twente a heterogeneity with respect to the actors and their interests seems to be present.

A heterogeneity of capabilities of the actors seems to be present. Especially the rural municipalities do have a lack of information. Often they are ignorant of the developments in the organization of the transport region. Besides, the officials of these municipalities are characterized with a lack of knowledge with regard to transport and transport policy.

In the second place, interests do not appear to be equal. Consensus seems to be not present. Generally, the participants all support the central objective of the transport plan. Unfortunately, this objective is a very broad one. Hence, everyone can interpret the objective his way. Moreover, not all participants consider the objective to be a common objective. When participants is asked to formulate the objective more precisely, different definitions appear. Therefore, if in the near future the broad objectives will have to be defined more precisely, even more heterogeneity is likely to show up. Furthermore, all members of the transport region neither place the same value on a unit of the collective good supplied nor place the same value on a unit of cost. Besides, there seems to be a lack of consensus with respect to the desirability of the transport region and the content and organization of it. And although participants with differing interests might recognize the legitimacy of diverse interests, they do not want to bear the consequences of that recognition. Therefore, asymmetries are typical of the transport region. These asymmetries, however, do not create an efficacious subgroup in the region of Twente. On the contrary, the asymmetries seem to impair the cooperation and coordination.

In case of fear for economic concurrence reciprocity may help to persuade municipalities to adopt car-mobility-growth reducing policies. The rural municipalities do not face accessibility problems and are not willing to adopt those policies, because according to them in their region no reasonable alternative transport mode is available. Therefore, as already stated above, they could be considered to be honest hold-outs with respect to the accessibility-problem. Nevertheless, some more urban municipalities declare to fear a loss of customers at the benefit of these rural municipalities. Therefore, to apply stringent policies only to the urban municipalities is not entirely



acceptable to the urban municipalities.

According to Ostrom, these facts will impair the transport region of Twente in managing their CPR. A common judgment that the participants will be harmed if they do not adopt a policy to achieve the common objectives should be shared by the participants. Participants should be informed as good as possible. Probably, then they will recognize they all will be affected in similar ways by the proposed transport policy. Besides, lack of knowledge about the CPR may cause disregard for the value of the CPR and the necessity of a change of transport policy to preserve the CPR. The group should be relatively small and stable. As long as the organization of the transport region consists of politicians of municipalities, stability is hard to achieve. These politicians have to deal with the electorate of their municipality in the first place. Accordingly, they will stand up for the interests of their community in the first place.

## **5.6 Costs and benefits**

To adopt a transport region and a change of transport policy may be considered to be cooperation to oppose a loss : a loss of accessibility and a loss of liveability. Hardin considers cooperation to oppose a loss easier to achieve than cooperation to support a gain. On the other hand, some participants are characterized by a lack of information. As a result, these participants may not recognize the cooperation to be cooperation to oppose a loss. Besides, to achieve the objectives, municipalities have to adopt a change of policy which may cause losses. Measures will cost money. Measures to restrict car-mobility may cause automobilists to visit other cities with corresponding losses of revenues. Several participants in the transport region of Twente do value these direct losses to be more important than the expected loss in the future that will appear when no (or insufficient) policy measures are taken.

The municipalities are faced with immediate costs and long term benefits. Among the costs are the measures that have to be taken to reduce car-mobility and to stimulate the use of public transport and bicycle. And when they take, for example, some parking restriction measures, they fear a loss of customers. These customers may visit other (neighbouring) cities that have not taken those car-unfriendly measures for their shopping. The benefits, especially livability, are strung out over the future. And although overall costs may be considerably smaller than overall benefits, these features will be a disadvantage in the realization of cooperation to govern the CPR. And, providing that cooperation will be realized, although a radical change of policy may be necessary to attain the common objectives, individuals are less likely to adopt such a radical change of rules than they are to adopt rules used by others in similar circumstances that have been known to work relatively well. In Twente, the participants already look after policies in other transport regions and use existing knowledge.

## **5.7 Incentives**

It can be concluded that it is uncertain whether voluntary cooperation will succeed. To achieve reciprocity will be difficult, because some participants suffer a lack of

information, some seem to be honest hold-outs and problems seem to differ between urban and rural municipalities. An assurance contract is not possible in this situation. Reputation may be important, but participants seem to be more interested in their own interests than in the improvement of their reputations. The question if moral motivations and the desire for self-development play a part in the cooperation is hard to answer. Social pressure to persuade municipalities will probably not be effective, since politicians of the municipalities have to deal with an electoral concurrence in their communities.

It can be concluded that voluntary cooperation in the transport region of Twente will not be successful. According to Schmidtz the use of coercion may be necessary in case the objectives to be attained are considered to be essential for the "survival" of the region. In case a more powerful incentive is not possible, the use of force to further a common interest may be necessary, whether it is acceptable by the participants or not.

### **5.8 The transport region and design principles**

To have a chance of succeeding, in the view of Ostrom the organization of the transport region of Twente should meet some design principles. With respect to the first design principle, the presence of clearly defined boundaries, some problems already show up. Neither with regard to the transport system nor with respect to livability participants share an equal definition of what are the boundaries of what the transport system and the ecological system can handle. The second requirement is not met either. Every person can use accessibility (transport system) and livability as much as he or she likes (as long as one has paid his or her taxes of course). Therefore, there are no rules which help to account for the perseverance of accessibility and livability. Theoretically, the third principle is met. Individuals are represented by elected politicians. Accordingly, every individual potentially affected by the rules can participate in modifying those rules, albeit indirectly. Because the organization of the transport region is not yet completed, with respect to the fourth, the fifth and the sixth principle no conclusions can be drawn. The seventh principle prescribes a minimal role for external authorities (central government). Nevertheless, in the Netherlands the central government is increasing her role. The government increasingly requires the transport regions to meet principles. Finally, the eighth principle seems to be met. The transport region seems to be nested in multiple layers at the moment. At the moment, the design principles can not be used to estimate prospects, because the organization is not completed yet. Anyway, to increase the prospects for success, the organization of the transport region of Twente should meet the proposed design principles.

## **6. REFLECTION ON THE THEORY**

The preceding two sections have given an overview of some theoretical notions on cooperation and cooperation in the transport region of Twente. When the theoretical examinations of the cooperation in Twente are considered, some remarks can be made with respect to the theory used.

Firstly, the theory seem to be useful in describing cooperation. The theory offers

variables that are of influence with regard to the success or failure of cooperation to further a common interest.

Secondly, according to the theory success in the transport region of Twente is not likely to be achieved. All theories recognize the absence of perfect consensus to be of importance. This lack of consensus, the absence of similar images of the problems and the dominance of own interests of participants do keep cooperation from being effective. Except for Schmidtz, all theories presume the size of the group to be essential. The larger the group (organization), the less the prospects for success. Moreover, all theories consider the intensity of relations between participants of influence. Hardin recommends interweaving of conventions and considers reputation to be important. Schmidtz mentions reputation as well and Ostrom considers the interactions between participants in other situations than the sharing of the CPR important. Olson supposes social pressure to be of interest and social pressure presupposes relations as well. Moreover, heterogeneity is a very important variable. The greater the heterogeneity, the smaller the prospects for success. The degree of information is an aspect that may cause heterogeneity. According to Hardin, Schmidtz and Ostrom a lack of information may cause participants to underestimate the usefulness of cooperation. Olson does not consider the influence of information. However, the by the other authors presumed influence of information does not conflict with his theory. The role of finances is definitely recognized by Ostrom and Hardin. The objectives of transport policy presume considerable investments. Whatever the long-term benefits, the role of these immediate costs and perceived harms will keep participants from taking measures and adopting radical policies. Finally, incentives may stimulate individuals to contribute to the furthering of a common interest.

Thirdly, differences between the theories do exist. Whereas Hardin does not really offer a solution when cooperation to achieve some common objective is hard to achieve and selective incentives are not effective, Olson and Schmidtz consider the use of force (by an external authority) an (ultimate) possibility. On the other hand, Ostrom does not consider the use of force by an external authority to be attractive. She prescribes a minimal role for external authorities. However, Ostrom does recognize the possibility of sanctioning by the participants themselves. Besides, Ostrom is the only author presenting well-defined design-principles. To maximize the chance for success, an organization managing a CPR should meet these principles.

Finally, a combination of the theories may be possible. The theories of Hardin and Schmidtz seem to be a sharpening or improvement of Olson's logic of collective action. The theory of Ostrom and especially her design principles may be considered to be a broadening of the former theories. The first steps in the cooperation process are discussed by all authors. All claim the success or failure of cooperation to be dependent on several factors. When cooperation is established and an organization is realized Ostrom specifies several features of the created organization that according to her are important with regard to the achievement of continuing success.

Up to now no events have been recognized that force to an adaptation or rejection of the theory described in this paper. Moreover, the process of cooperation is in a premature stage. Therefore, the design principles offered by Ostrom can not be tested yet. Besides, predictions made on the basis of the theories (viz., success of the transport region will be hard to achieve) can not be evaluated at the moment. In the continuation of the study the gained experiences with regard to the transport region of

Twente will be used together with the theory given to build an overall model that should be useful to describe, explain and predict success or failure in transport regions.

## 7. SUMMARIZING REMARKS

In the paper the theory of collective action has been used to examine the cooperation in the organization of the transport region of Twente. According to the theory, the present features of cooperation in the transport region of Twente do not entirely meet the conditions which are required to achieve success. If no changes are implemented in the cooperation, failure is likely to be the consequence. According to the theory, to improve prospects for success, several recommendations can be done. The size of the group should be minimized and homogeneity (viz., the degree of information) should be increased. Furthermore, a thick enough network, implying increasing contacts between the participants, might improve prospects for success. But even when these recommendations are implied, the role of finances may seriously limit cooperation and the adoption of perhaps very necessary measures. Other incentives, possibly even force, may be needed to further the common interests.

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