Collective action regimes in seaport clusters: the case of the Lower Mississippi port cluster

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Abstract

This paper analyses the competitiveness of the Lower Mississippi seaport from a cluster perspective, discussing the importance of local governance and collective action regimes for the competitiveness of the cluster. The case study of the Lower Mississippi port cluster shows that collective action regimes are relatively poorly developed in this cluster, compared with the seaport cluster of Rotterdam. Furthermore, the case shows these ineffective regimes are one of the reasons explaining the declining market share in overall throughput in the Gulf region. Houston, its nearest and main competitor, has grown much more than the Lower Mississippi port cluster. A number of collective action problems require effective collective action regimes that render significant benefits at the cluster level. Several proposals are formulated to improve the quality of the collective action regimes and hence enhance the performance of the Lower Mississippi port cluster.

Keywords: Seaports; Clusters; Mississippi; Governance; Collection action problems; Collective action regimes

1. Introduction

This paper discusses the importance of collective action regimes for the competitiveness of ports. The paper builds on earlier work, where it was argued that ports can be fruitfully analysed as clusters of economic activities, related to the arrival of cargo and ships, and where a framework to analyse governance in port clusters was developed (de Langen, 2004). Furthermore, it was shown that five important collective action problems exist in seaports: training and education, innovation, marketing and promotion, hinterland access and internationalisation. Effective regimes that free resources for investment in these five areas do not develop automatically, despite the positive effects of these investments for the cluster as a whole. Individual firms may have difficulties providing the resources required to develop effective collective action regimes, because of the free rider problem, externalities, and other market failures (Visser and Boschma, 2004).

This paper presents a case study of the port complex of the Lower Mississippi. The study reveals the importance of collective action regimes for the competitiveness of the port cluster, and shows the complexity of creating effective regimes. We analyse the shortcomings of the existing regimes and opportunities to improve the quality of the regimes. Empirical evidence from a case study in Rotterdam is used as a ‘benchmark’ for the Lower Mississippi port cluster (LMPC).

The paper is structured in the following way. The relevance of the concept ‘collective action regimes’ in seaports is discussed in Section 2. A framework to analyse the quality of collective action regimes is discussed in Section 3. Case study evidence on the LMPC is presented in Section 4. Initiatives to improve the quality of governance in the LMPC are discussed in Section 5. A concluding section finalises the paper.

2. The relevance of analysing collective action regimes

A port cluster consists of all economic activities and public (-private) organisations related to the arrival of
ships and cargo in ports. Cargo handling, transport, logistics, manufacturing and trade activities are included in the port cluster (de Langen, 2004).

The bulk of the literature on port competitiveness deals with ports as transport nodes (see, e.g., Teurelincx, 2000). The 'typical' performance indicator in these kinds of studies is the volume of throughput. This indicator, however, is inadequate to capture a wide range of (direct, indirect and spillover) effects generated by ports, at different spatial scales. The value added generated in a port region is a better performance indicator, for the (local) port authority, local governments and local businesses (Haezendonck, 2001).

In general, the competitive position of the transport node and the port cluster are complementary. An effective node increases the attractiveness of the port region for logistics and industrial activities, and a growing port cluster leads to a larger captive cargo base and, therefore, more cargo passing through the port. However, the value added per ton throughput is not similar for all ports, and changes over time. In Antwerp for example, value added per ton increased by 7% from 1990 to 2000 (Nationale Bank van België, 2003). In Rotterdam, value added per ton increased by 31%, in the same period (RMPM, 2003; Nationale Havenraad, 2003). The widespread use of the volume of throughput as a performance indicator for ports ignores the performance of the port as a cluster of economic activities. In turn, this leads to an overemphasis of factors such as depth, location and terminal handling charges, at the expense of factors that have an indirect, but increasingly important effect on the performance of the port cluster, such as the presence of knowledge, the quality of the hinterland access, and the quality of the labour pool. Upgrading these factors requires joint efforts of various actors in the port cluster in a 'collective action regime' (Campbell et al., 1991).

The effectiveness of collective action regimes is important for port clusters, because cargo owners make investment, routing and logistic decisions on the basis of the price and quality aspects of a port. A variety of firms, such as pilots, terminal operators, hinterland transport companies, transport service providers, warehousing firms, and transport intermediaries contribute to the quality of the port service. Each firm benefits from a competitive port service, hence, coordination is required to bolster investments in the long-term interest of all actors in a port cluster.

The analysis of seaport governance is often limited to the role of the port authority (Goss, 1990 and Stevens, 1999) and the appropriate mix of public and private investments (see the port reform toolkit of the World Bank, 2002). Notwithstanding the central role of port authorities, these are but one 'actor' that aims at improving the quality of collective action regimes in port clusters. Other actors, e.g. leader firms and branch associations, can also be important for the governance of change in port clusters.

3. Collective action regimes

Five variables that influence the quality of a collective action regime can be identified, based on a literature review (see de Langen, 2004 for a detailed discussion). Various actors have to contribute resources to the regimes. These resources can be financial and managerial, but also 'political' and relational. The more resources are invested in a regime, the higher the quality of such a regime. A first variable relevant to the quality of regimes is the presence of leader firms. Such firms have incentives and resources to invest in improving various regimes, and can play a leading role in the development of coalitions. Therefore, they are important for increasing the quality of a collective action regime (Olson, 1971).

Second, the participation and activities of public organisations influence the quality of a regime. Public organisations frequently contribute financially to collective action regimes (Porter, 1990). Third, the presence of an organisational infrastructure for collective action, which enables cooperation and thus serves as a means of gathering the required resources, is relevant. The infrastructure for collective action consists of associations, public–private organisations, and the internal network structure of clusters. These do not develop automatically, as various types of trust are required (Nootboom, 2002) to reduce the transaction costs of co-operation, and to overcome static arguments against getting involved in any type of co-ordination beyond market price transactions between firms. Once developed, organisational infrastructure for collective action provides a basis for creating and developing effective regimes.

The fourth variable adding to the quality of a regime is the presence of a community argument (Bennett, 1998). A stronger willingness of the 'port community' to develop effective regimes leads to better coalitions. Finally, the voice (cf. Hirschmann, 1970) of individual firms contributes to the quality of a regime. The voice of private firms increases the pressure on associations, public and public–private organisations (that face no
'market selection pressure') to be effective. This pressure enhances the performance of these organisations.

4. Case study: the Lower Mississippi port cluster

In this section, we present the results of a case study of the Lower Mississippi port cluster (LMPC). A similar case study was made for the port cluster in Rotterdam. Rotterdam and the LMPC are the largest ports of their continents in terms of throughput volume. Both have a diversified traffic base, and a relatively large number of activities related to cargo handling. Therefore, Rotterdam is used here as a ‘benchmark’ for the LMPC. Table 1 shows some basic features of the two seaports.

A central activity in the context of each case study was to conduct a survey among a significant number of industry experts. Next, relevant reports and studies were collected and analysed. The survey has been undertaken in a face-to-face setting, so that all questions could be explained, and respondents could (be asked to) explain their answers. The industry experts were selected on the basis of three criteria:

- Job position: senior positions with important firms, port specific associations and the (public) port authority.
- Experience in the industry: the majority of industry experts spent a long time working in the industry (see Table 2).
- Involvement in cluster governance: the majority of the experts either was involved in governance (for instance as a member of one or more boards of associations) at the moment of the survey, or before.

Before the start of a case study, an ‘initial expert list’ of some 20–30 industry experts was drafted, on the basis of Internet sources (to select board members of associations, CEOs of leader firms in the cluster, etc.) and suggestions from an ‘embedded academic’ (in Rotterdam Prof. Drs. H.W.H. Welters and in the LMPC Dr. J. Renner). This list was adjusted and expanded during the case study by asking industry experts to mention and add to the list new experts, if they felt the list was incomplete. Individuals that were suggested by two or more experts were added to the list.

For the case study of the LMPC interviews with 31 port experts were conducted, and a survey was filled out, in September 2002. Results of the case study are discussed as follows: first, the geography and composition of the Lower Mississippi port cluster is discussed. Second, the institutional structure of the cluster is discussed. Third, we analyse the survey results on the quality of collective action regimes in the cluster.

4.1. Geography and composition

The Mississippi river is a major transport corridor in the United States. The river is accessible by relatively large seagoing vessels (up to 40.000 tons ‘deadweight’) up to 233.5 nautical miles inland. Fig. 1 shows the Lower Mississippi area.

This whole stretch of the river is one integrated port complex (see for instance Steamship Association of New Orleans, 2002). Cargo is handled on the riverbanks and midstream. More than 162 cargo-handling facilities are located in the LMPC. Precise statistics on cargo volumes for specific commodities in the LMPC are not available, especially related to domestic transport. Table 3 shows the volumes of foreign trade for five commodities.

In throughput volume the LMPC is the largest port complex in the world. The cluster region consists of 12 counties (called ‘parishes’ in Louisiana), located along the river, where port related activities are ‘overrepresented’ compared to the national average.

<table>
<thead>
<tr>
<th>Port</th>
<th>Total throughput 2002</th>
<th>Container throughput 2002</th>
<th>Estimate of inhabitants in the metropolitan region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotterdam</td>
<td>About 320 million tons</td>
<td>About 6 million TEU</td>
<td>About 1.2 million inhabitants</td>
</tr>
<tr>
<td>Lower Mississippi</td>
<td>About 420 million tons</td>
<td>About 0.3 million TEU</td>
<td>About 1.4 million inhabitants</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Case</th>
<th>Number of initial experts</th>
<th>Additional experts</th>
<th>Sample size and response rate</th>
<th>Percentage experts involved in cluster governance</th>
<th>Average number of years working in the port cluster</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotterdam</td>
<td>41</td>
<td>8</td>
<td>( N = 43, 88% )</td>
<td>90%</td>
<td>20</td>
</tr>
<tr>
<td>LMPC</td>
<td>26</td>
<td>12</td>
<td>( N = 31, 80% )</td>
<td>71%</td>
<td>19</td>
</tr>
</tbody>
</table>
Table 4 shows the 'specialisation index' of the counties: a measure of the relative specialization of a local economy in a certain activity. An index of two means that the number of port related firms in the county is twice the national average (of 1.4%).

Table 4 also shows the total number of firms in the port cluster, based on data from the Economic Census.

Table 4 shows that the region is specialised in port activities and the LMPC is an important cluster in the state of Louisiana (Ryan, 2001). Table 5 shows in which type of port-related activities the LMPC is specialised.

### 4.2. Institutional structure

Five public port authorities administer the LMPC. These are all 'political subdivisions' of the state of Louisiana. Each has jurisdiction over a part of the river system and port cluster. The port authorities charge vessels for anchorage and berthing in their jurisdiction. This charge is relatively small, because the port authorities do not charge dredging costs or maintenance costs of port infrastructure. The port authorities invest in facilities, such as warehouses and cranes, leasing them to the private sector. Since the port authorities are able to attract capital at low interest rates through public bonds, these leasing arrangements can be attractive for private firms.

The port authorities have the right to expropriate land for port development, but they do not own vast areas along the river. In general, the bulk facilities along the river are located on privately owned land. Most general cargo facilities are owned by the port authorities, and leased to the private sector (Table 6).

The port of New Orleans is the largest general cargo port. Hence, its port authority is the largest in terms of staff, turnover and involvement in port planning. Plaquemines is the smallest port authority, with almost all of its facilities in private hands. The most important private sector institutions, various organizations and

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**Table 3**

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Throughput 2000</th>
<th>Forecast 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Container cargo</td>
<td>8.7</td>
<td>18.5</td>
</tr>
<tr>
<td>Break bulk</td>
<td>34.1</td>
<td>76</td>
</tr>
<tr>
<td>Dry bulk</td>
<td>68.4</td>
<td>134</td>
</tr>
<tr>
<td>Liquid bulk</td>
<td>71</td>
<td>133</td>
</tr>
<tr>
<td>Neo-bulk</td>
<td>2.5</td>
<td>5.4</td>
</tr>
<tr>
<td>Total foreign cargo</td>
<td>196.8</td>
<td>336.9</td>
</tr>
</tbody>
</table>

associations that play a role in the LMPC are listed in Table 7.

4.3. The performance of the LMPC

The only performance indicator available is the volume of throughput. This indicator shows the LMPC lost market share between 1990 and 2001, falling from 18% to 17.2% of total USA throughput. In the same period, Houston managed to increase its market share from 5.8% to 7.6%; other Gulf Ports, such as Mobile and Tampa, did not gain market share (see Table 8).

Considering the fast growing container traffic, the picture becomes more dramatic. Table 9 shows that in the period between 1980 and 2001, total container traffic through US ports almost quadrupled, while container flows through US Gulf ports nearly tripled. During the
same period, the number of containers passing the LMPC remained stable, and even decreased during the 1990s. Between 1980 and 2001, the number of containers handled in the LMPC, as a percentage of the total
number of containers handled in USA seaports decreased from 3.6% to 0.8%. Over the same time period, the LMPC’s market share in the Gulf tumbled from 48.2% to 15.0%.

Another indication of the performance of the LMPC can be obtained by comparing the specialization pattern of the LMPC with that of other port clusters. This indicator shows the extent to which the presence of cargo handling has attracted other economic activities. Table 10 shows the specialization pattern of five ports: four ports in the Gulf and one on the Pacific coast.

These figures show that ‘support activities for water transportation’, the core function of a port, concentrate in the LMPC. Firms involved in these activities simply have to be located at deepwater facilities. Activities that may locate in a seaport, but which may also locate elsewhere, such as logistics consultants and transportation arrangement businesses, are not so much concentrated in the LMPC. This indicates that the relatively large LMPC does not exploit its size advantage, attracting a relatively large share of the more footloose, possibly more knowledge intensive, port-related activities. Considering the above evidence altogether, we conclude that the LMPC performed poorly over the last decades.

4.4. Quality of collective action regimes in the LMPC

The interviewed experts in the LMPC were asked to indicate whether collective action would be desirable in five areas, listed in Table 11. These five issues were identified as areas where collective action could be beneficial, on the basis of cluster literature (de Langen, 2004). All five, innovation, education, marketing, internationalisation and hinterland access are considered as relevant collective action problems (CAPs) for the LMPC. Furthermore, these CAPs are regarded to be important for the performance of the port cluster. Hinterland access is regarded to be especially important (see Table 11). Each regime will be discussed below.
4.4.1. The innovation regime

In the LMPC, no cooperative or collective investments in innovation have been or are being undertaken. No organisation provides incentives for innovation in the LMPC. Individual firms are thus not stimulated or enabled to innovate. The firms in the cluster are not innovative, mainly because most firms are branch affiliations with limited decision-making power, of mother firms located elsewhere. Data on experts’ opinions in Rotterdam and the LMPC regarding the quality of the ‘innovation regime’ in their port cluster are summarized in Table 12.

The innovation regime in the LMPC is relatively poor. The lack of leader firms is the largest problem: due to the absence of leader firms there is no basis for innovation projects. The lack of a community argument prevents the development of coalitions with large numbers of involved actors. Voice is exerted, but this is insufficient to improve the regime quality.

4.4.2. The hinterland access regime

The quality of the hinterland access is elementary for the competitiveness of the LMPC, since the vast majority of cargo is transit cargo. However, no collective investments to improve the accessibility of the hinterland are made. The port of New Orleans has a (strategic) partnership with the inland port of Memphis, but this partnership has not resulted in joint initiatives to improve the corridor between Memphis and the LMPC.

Collective action to improve road accessibility is not necessary, as the road accessibility is relatively good. The same is true for barge shipping. An efficient system with barges has been in operation for decades. However, this system only accommodates bulk flows. In the LMPC, collective efforts to improve the hinterland access are required in two cases: containers on barge, and the rail accessibility of the port. The transport of containers by barge has to date not been successful, at least partially because cooperation to create sufficient cargo and investment funds has been absent.

Even though six ‘class A’ railroads serve the port, these railroads do not invest in improving the accessibility of the Lower Mississippi, because container volumes are limited, given the modest market position of the LMPC in the container market. Consequently the railroads do not develop services tailored for the LMPC market. More cooperation and coordination in the rail market is widely regarded as necessary. The experts regard the hinterland access regime as a weakly developed regime (Table 13).

Two conclusions can be drawn on the basis of these data. First, the lack of leader firms hampers the development of a good hinterland access regime. Second, the role of public actors is weak and ineffective, compared to Rotterdam. Public actors have an important role to play in the hinterland access regime, but have insufficient impact in the LMPC.

4.4.3. The marketing and promotion regime

Three shortcomings of the marketing regime are widely acknowledged. Firstly, the five port authorities have individual marketing efforts. This is a serious shortcoming of the marketing regime, since the indi-
Individual port authorities do not have the size to invest in a professional marketing department and they are not in a position to do the marketing for the cluster as a whole. The five Lower Mississippi port authorities acknowledged this point; in September 2002, they signed an official agreement stating that they will combine efforts to jointly market the Lower Mississippi, e.g. through joint representation at national and international exhibitions. The agreement provides a good starting point to step up co-operation. On the other hand, however, so far no funds have been made available for the joint marketing program.

Secondly, there is (still) no structural involvement of private firms, or associations, in the ‘marketing and promotion regime’. The private firms have limited marketing budgets and hardly cooperate to jointly attract new customers. The port of New Orleans has the most substantial funds dedicated to marketing. They are in the process of involving the business community, but so far could not create an effective marketing regime.

Thirdly, market intelligence is (still) lacking. The five port authorities have taken the first step to improve the market intelligence. Table 14 shows expert judgements of the marketing regime in the LMPC and Rotterdam.

Three conclusions can be drawn from these results. First, a lack of leader firms hampers the development of an effective regime. Second, organisational infrastructure for joint marketing is required, especially given the absence of leader firms, but is still insufficient in the LMPC. Third, the role of public actors, especially the port authority of New Orleans is judged positive; in fact, they are the only ones involved in marketing.

### 4.4.4. The internationalisation regime

The LMPC depends to a large extent on the development of the trade with Latin America (LATTs, 2003). Trade networks are evolving rapidly, as many of these countries are in a process of opening up their economies. For this reason, an internationalisation program aimed to improve the acquaintance with and image of the Lower Mississippi and to enhance network relations is widely regarded as of strategic importance for the LMPC.

Metrovision organised trade missions. However, the willingness of the business community to participate was limited. Thus, these activities were discontinued and Metrovision reduced efforts to support the internationalisation of firms. The World Trade Center organises international events but does not focus on the LMPC, or on Latin and South America. The assessment of the quality of the ‘internationalisation regime’ is given in Table 15. Again, the lack of leader firms is striking.

### 4.4.5. The training and education regime

The ‘education infrastructure’ for port-related jobs, such as terminal operations, barge fleeting, and logistics management is not up-to-standard keeping in mind the fact that the LMPC is a large port cluster. Schools do not offer specific training and education courses. Training is done ‘on the job’ by individual firms. Furthermore, a large number of the employees have irregular job contracts that prevent investment in education. The port community is not actively involved in improving the education and training infrastructure.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Rotterdam</th>
<th>LMPC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leader firms</td>
<td>2* **</td>
<td>0.2</td>
</tr>
<tr>
<td>Public actors</td>
<td>2* **</td>
<td>0.8</td>
</tr>
<tr>
<td>Organisational infrastructure</td>
<td>0.7</td>
<td>0.3</td>
</tr>
<tr>
<td>Community argument</td>
<td>0.9</td>
<td>0.1</td>
</tr>
<tr>
<td>Voice</td>
<td>1.0</td>
<td>0.4</td>
</tr>
<tr>
<td>Overall score</td>
<td>1.1*</td>
<td>0.3</td>
</tr>
</tbody>
</table>

Notes: rated on a scale from −5 (very poor) to +5 (very good); * = significantly higher score than in the LMPC; ** = significantly higher score than average of all factors in same port cluster; *** = significantly lower average judgment of all factors in the same port cluster.
Over the last 20 years, a large number of the port-related ‘brain-jobs’ have left New Orleans. These jobs have moved to other locations, such as Houston and St. Louis. As a result, an inland shipping periodical is published in St. Louis, while consultants working for the port or related industries in the LMPC usually come from elsewhere, outside the cluster area. A good higher education program for freight logistics is an important element of a strategy to attract ‘brain’ activities. In 2000, an effort was made to start a Masters program, but this failed because of lack of interest from the business community. The assessment of the quality of the training and education regime is given in Table 16.

This regime is the worst of the five regimes. The lack of leader firms and organisational infrastructure are serious shortcomings, while public actors are not enough concerned with the quality of training and education. As a result, the LMPC is not an attractive location for port-related firms with (knowledge-intensive) labour as their main asset. Column 5 summarises the analysis of the five collective action regimes. The general conclusion is that the regimes are not effective.

A final survey question made cluster experts compare the LMPC and Houston on a few aspects of governance and the quality of collective regimes. In all these respects, the LMPC got relatively low grades. The absence of leader firms in the LMPC is noteworthy, next to the relatively poor quality of collection action regimes in the LMPC (Table 18).

5. Initiatives to improve the collective action regimes

The survey data show that the collective action regimes in the LMPC are not effective. Strategic partnerships have hardly developed, and no funds are available for investments with benefits for the whole cluster. The level of trust is low, compared to Houston, and there is hardly any leader firm involvement in the port cluster. The general perception among the consulted cluster experts is that the LMPC is declining, and that the lack of strategic co-operation is one of the main reasons for the decline. Various initiatives to remedy the situation and to improve the collective action regimes in the LMPC will be discussed below.

5.1. Co-operation between the port authorities

The five deepsea ports in the LMPC compete in three ways. First, they compete for investments in their jurisdictions. Second, the port authorities compete for cargo; they support firms in their jurisdiction, e.g. through attractive lease contracts, with the goal to attract more cargo to the port. Third, port authorities compete for state investment funds. The state provides about US $24 million for port investment annually for

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4 The experts were all working in the LMPC, but the majority of them also had a branch in Houston. Experts were asked whether they were sufficiently informed to evaluate Houston. Whenever they were not sufficiently informed, they did not answer the question.
all Louisiana ports (including the shallow draft ones).
The lack of coordination between the port authorities
and the resulting competition has the following dis-
advantages:

- Underinvestment in activities with benefits that spill
over to other port jurisdictions. The port of Plaquemines
provides a good example: the port hardly invests be-
cause the advantages (in terms of competitiveness, ad-
ded value and employment) of such investments are to a
large extent ‘external’ to Plaquemines. Since the local
community consisting of nearly 25,000 inhabitants indi-
directly governs the port authority, these external benefits
have not been taken into account in investment deci-
sions. Other examples include the lack of joint efforts to
solve the five collective action problems discussed in the
preceding section.
- Spatial misallocation of investments. Since port
authorities try to attract business, they invest in facilities
in their jurisdiction, even when alternative locations
make more sense from a business point of view. The
investments of the port of New Orleans in container
facilities are an example. Two sites were developed, both
at questionable locations, relatively far upstream and
moderate landside access. The locations were developed
because the port owns only a limited amount of land
and did not have better alternative locations. Firms as
well as governments still consider investing in a con-
tainer facility more downstream, in Plaquemines terri-
tory, but the investments of the port of New Orleans
have a negative effect on the viability of such a project.
This is a weakness for the LMPC, since such invest-
ments would be a step forward for the LMPC.
- Over investment in similar port facilities. Compe-
tition between port authorities leads to a high will-
ingness to invest in facilities within their jurisdiction,
even if these investments merely duplicate existing
facilities elsewhere in the LMPC, and thus create over-
capacity.

Considering the above, it is not surprising that more
co-operation between the authorities is widely regarded
as an important step towards a more effective gover-
nance of the LMPC. Steps towards co-operation include
the formal agreement for joint marketing and the
‘maritime cluster initiative’, in which all port authorities
participate. Funding, however, is not structural; an
arrangement with annual and fixed financial contribu-
tions tagged to the turnover of the port authorities
would be a major step forward.

For the long term, the business community recom-
mends a further integration of the activities of the five
port authorities. A new model has been proposed in
which the five authorities are managed by five inde-
dependent executives, but are governed by one overarching
board of directors with representation of the parishes
involved, the business community and the state of
Louisiana. In any case, it is clear to all stakeholders that
more cooperation is desirable, on top of what has been
accomplished so far.
5.2. A more effective ‘organisational infrastructure’ of firms in the LMPC

The existing associations in the LMPC are hardly involved in strategic decision making on issues such as training, education, and innovation. They serve the interests of their members but do not have the financial nor institutional backing to improve the collective action regimes. Consolidation of the associations would be an improvement. The cluster experts indicate that some consolidation is required, but that leadership to enforce consolidation is missing.

A coalition has been set up to improve the market intelligence in the cluster: the maritime cluster initiative. This coalition includes the state of Louisiana, the five port authorities, the Millennium Port Authority, Metrovision, the University of New Orleans, the Public Belt Railroad, the pilot associations, the board of trade, the Mississippi River Maritime Association and the steamship association. It was initiated by Metrovision, and is chaired by two industry leaders in the New Orleans region—a good example of the importance of leader firms. This coalition, where four associations cooperate, is the first step towards a more effective institutional structure of the private sector, which could develop into the following structure (see Fig. 2).

In Fig. 2, one port cluster association deals with strategic issues, while the various associations linked to the overarching cluster association continue to promote specific interests of their members. Specialised associations representing interests of the offshore, shipbuilding or petrochemical industry, could join the cluster association. A similar structure was recently created in Rotterdam, and considerably improved the ‘organisational infrastructure’. The key challenge of the cluster association is to generate resources for investments with cluster benefits, such as training, education, and innovation. These resources can also be attracted by forming coalitions with organisations outside the cluster, such as the US Coastguard, the US Customs, the State of Louisiana, and even federal departments. These organisations can provide means for investments in the cluster, if a cluster-wide coalition is able to ‘get things done’.

5.3. Improved rail accessibility to the LMPC

All six ‘class A railroads’ (with a national network) offer train services to or from New Orleans. However, due to the limited size of market, the port is not a priority for these railroads. Thus, even though the railroads serve the LMPC, the quality of the rail accessibility from the port to the hinterland is bad. The rail access is especially relevant in the container market. About 35% of all containers are put on rail.

The New Orleans Public Belt Railroad plays a leading role in improving the quality of the rail services to and from the LMPC. This organisation carries out local interterminal traffic between the rail terminals. The Public Belt Railroad aims to improve the rail accessibility by offering a ‘one stop shop service’ for the railroads. The Public Belt recently started to manage the rail terminal of two of the six railroads and aims to take over the yard activities from the other railroads. The railroads encourage this initiative, since their competence is operating long distance trains, not local operations. When the Public Belt Railroad develops into a regional communication and dispatch centre, that provides information to the railroads, creates complete trains for the railroads and manages the train movements in the region, the rail accessibility of the LMPC improves.

5.4. A competitive container terminal

The market with the best growth prospects for the LMPC is the container market. Even though the Lower Mississippi is the largest port complex of the USA in

![Fig. 2. Improved organisational structure of firms in the LMPC.](image-url)
terms of throughput volumes, the port is losing market share in containers, especially to Houston, even the absolute number of containers has been declining. This is a weakness of the port cluster, and a threat for the future. More goods, such as fruit, coffee, perishables and even cars and some liquid bulk commodities are containerised. The port complex could thus lose more traffic, because of its weak position as a container port. The following factors explain the weak position of the port complex:

- The east–west structure of container shipping networks. The major trades are between USA and Europe and between USA and Asia. The former call at ports on the Atlantic coast, such as New York and Hampton Roads. The latter call at ports on the Pacific coast such as Seattle and Los Angeles/Long Beach. Ports in the Gulf are not served by the main services and play a role in niche markets only. The most promising niche market is the trade between USA and Latin and South America.

- The ‘captive’ cargo base of the LMPC is very limited. Houston, located 450 miles away from New Orleans, has a local cargo base of about 700,000 TEU. For this reason, most shipping lines call at Houston in the first place and do not consider the Lower Mississippi as an alternative, at best as a second Gulf port.

- All cargo-handling facilities are along the river and about 100 miles inland. This means that a call in the Lower Mississippi adds additional sailing time. This is only economical when the cargo volume is large, which is not the case in New Orleans, contrary to Houston.

- The natural advantage of the Mississippi port complex, its vast inland river system has not attracted much container traffic, because of the long duration of barge transport.

The current weakness of the LMPC in the container market is a ‘lock in’. In principle, containers could be attracted, but only if all parts of the intermodal chain are competitive. A terminal downstream and container barge services are lacking and rail services are not sufficiently developed. Since investments to address these weaknesses in isolation are not viable, coordination is required.

Container on barge and better rail services could be viable if more services would call at the port, and vice versa. Some developments to improve services take place in all three parts of the chain, but not in a sufficiently coordinated way. Baton Rouge has invested in the first inland container terminal in the Mississippi, with a substantial annual base volume from one shipper. However, the majority of the volume will be shipped to the port of Houston, even though inland shipping to New Orleans is per container about US $150 cheaper than to Houston. This can be explained by the fact that the port of New Orleans is not regularly called at by shipping services.

An initiative by the Federal Maritime Commission (FMC) to promote inland shipping, is an opportunity for the LMPC. The FMC acknowledges the substantial positive external effects of shifting cargo from road and train transport to barge transport. Such a modal shift reduces pollution and relieves congestion. The initiative would assess strengths, weaknesses and opportunities of container barge shipping. For the LMPC, participating in this project would be an effective way to attract resources for innovation, training and education, and the marketing of container barge shipping. So far, no strong coalition has been formed, but the opportunity is acknowledged. The ports and other stakeholders in the region, with a leading role for the port of New Orleans, acknowledge the necessity to invest in new container facilities in order to improve the competitive position of the LMPC. For this purpose, the Millennium Port Authority was created. This organisation is another independent port authority with a board of governors appointed by the five deepwater ports in the Lower Mississippi, one other Louisiana deepwater port and various state departments. The Millennium Port Authority is in charge of planning new container facilities in the LMPC. A promising plan is Sea Point, a private initiative of two New Orleans-based investors. Their concept is innovative: an artificial island Sea Point would be located towards the mouth of the river in the Jurisdiction of the port of Plaquemines to transship containers to barges and bring these further inland, both to the port of New Orleans and to inland destinations. This would save ship sailing time. Even though this project is innovative and has substantial positive externalities for other firms/port authorities in the cluster, it is still unclear whether a coalition between Sea Point, the Millennium Port Authority, and the other LMPC port authorities will develop.

6. Conclusions

In this paper, we analysed collective action regimes in the LMPC. A number of conclusions can be drawn on the basis of this case study. First, according to the experts, effective regimes are important for the performance of the LMPC. The validity of this expert opinion is confirmed by the description of the five collective action regimes. Second, the collective action regimes in the LMPC are not effective. This conclusion is based on the expert opinions, the description of the regimes and a comparison with the expert evaluation in Rotterdam. The LMPC has lost cargo as well as economic activities to other (port) regions. The experts judge the quality of five important regimes as relatively poor. In all five regimes resources are lacking. Furthermore, the regimes are less effective than the regimes in Rotterdam. Education is the worst of the five regimes. There is no cooperation and consequently no education infrastructure. The absence of leader firms is felt in all five
regimes. Third, actors take initiatives to improve the collective action regimes, but such improvements are hard to achieve. There is consensus among the experts with regard to the shortcomings of the present collective action regimes and shared ideas about solutions to address those shortcomings. The key issue is to generate resources. The port authorities have a relatively small turnover, because many terminals are on private land. As a consequence the port authorities have limited funds for investments. Leader firms with ‘deep pockets’ are lacking. As a consequence, the ability to build coalitions with actors ‘outside’ the cluster, such as the state of Louisiana, the US Army Corps of Engineers and federal government bodies is crucial.

References