

**From a commercial peasant economy towards a commercial economy: landscape and society in coastal Flanders (13<sup>th</sup>-16<sup>th</sup> centuries)**

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***0. Introduction: social agro-systems and the landscape in the Flemish coastal area.***

Strolling through the Flemish coastal ‘polders’ at the beginning of the 21<sup>st</sup> century, visitors capable of mentally eliminating the wall of high-rise blocks along the coastline, the motorways criss-crossing the countryside, and the often chaotic development of residential areas, are still impressed by the emptiness of the land, the wide views, the - for Flanders - large and scattered farms, the heavy clay soils, the large plots of land. As such the present-day rural landscape perfectly fits a large scale commercial agriculture with a high labour-productivity. This however, has not always been the case. At the end of the thirteenth century, rural society in the coastal area in many ways resembled the situation in other parts of Flanders, with a predominance of small and very small holdings, combining arable farming and animal husbandry with proto-industrial activities in order to make a living for themselves and their families. However, from that period on rural society in the Flemish coastal plain would make a gradual shift towards large scale market-oriented agriculture, introducing a structural transformation of both economy and society.

In this paper, we will argue that this transformation of rural economy was reflected in a transformation of the rural landscape. Both the core-elements of the rural landscape, such as field systems, settlement patterns, infrastructure but also secondary characteristics such as the energy-management, the food production and the environmental sustainability were affected by radical changes in the structures of rural economy and society. This of course is not a completely new idea: for instance, the interrelation of agricultural commercialisation and the enclosure of the English rural landscape has always been one of the main themes in British agrarian history. In most cases however, the main focus is either on the landscape or on the agriculture. The connection between both variables is often based on intuition and theoretically and methodologically less solid. Furthermore, for coastal societies in the North Sea Area it's still quite new to interrelate rural transformation and landscape, as the transformation on both fields has been so radical that it has long time been difficult to study the former situation, which in case of the landscape, has been sometimes literally erased by impressive amounts of more recent sedimentation.

This paper can be seen as a ‘sequel’ to the paper of Thoen and Lachaert about inland Flanders. In this paper as well, we will start from the concept of ‘social agro-system’ - a rural production system based on region-specific social relations involved in the economic reproduction of a given geographical area. By contrast to inland Flanders however, the social agro-system of coastal Flanders underwent far more structural changes in the course of the late middle ages. From a *Commercial Survival Economy (CSE)*, not unlike inland Flanders, it was transformed into a *Commercial Business Economy (CBE)*. (Thoen, 2004; Thoen and Soens, 2001 and forthcoming). Discussing the impact of this transformation on the cultural and natural landscape of the coastal plain, we will try to demonstrate how

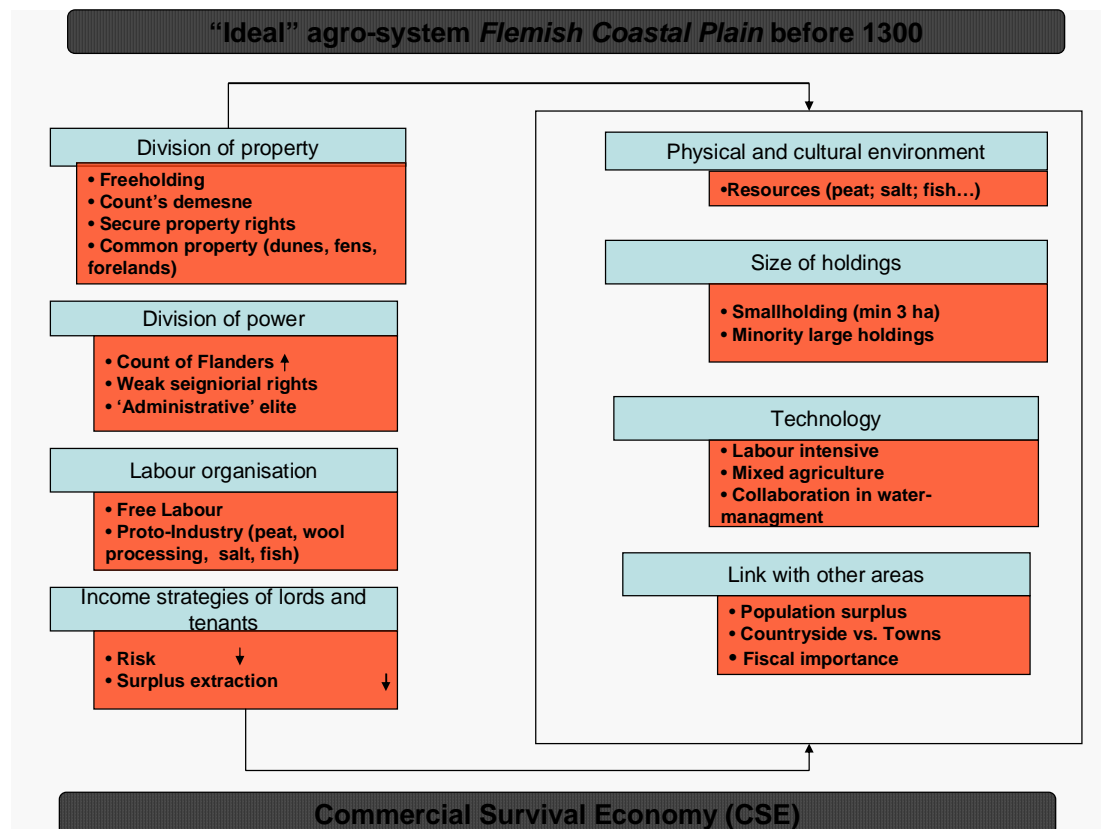
A. Specific social-agro-systems correspond to specific landscapes.

B. Changes in the structural characteristics of social agro-systems were reflected by changes in the cultural landscape.

Our particular attention will be drawn to the fact that changes in agro-system and rural landscape were interrelated, but nevertheless did not always occur simultaneously. In many cases there was a certain '*time-lag*' between the socio-economic changes and the corresponding changes in the landscape. Landscape historians know that the rural landscape is often slowly and gradually adapted to new situations, and is almost always retaining 'relics' of the past. These relics can be parts of field systems, settlement patterns or infrastructure. Sometimes they got a new functionality in the changed situation, sometimes they became 'archaic' – without functionality – or even 'fossil' – no longer part of the spatial organization in a later stage of their development (e.g. Van Eetvelde and Antrop 2005). Economic and agrarian historians can explain this, by adding that these 'relics', as far as they are 'cultural' and not 'natural', are actually often traces of previous agro-systems. Elements of field systems, infrastructure and settlement conceived for a previous and abandoned social agro-system, survived the very existence of the agro-system itself. In the dynamic landscape of the coastal area, many of these 'relic' landscape elements are no longer directly visible in the landscape. Even in that case, interdisciplinary research and the application of present-day techniques - combining a variety of disciplines such as archaeology, historical geography and social economic history, geography and geomorphology - can generate reconstructions and interpretations about this 'lost' cultural landscape.

### ***1. The 13<sup>th</sup> century Flemish coastal plain as a Commercial Survival Economy (CSE)***

Before the end of the 13<sup>th</sup> century, rural society in the Flemish coastal plain can still be labelled a *Commercial Survival Economy* (CSE): an economy where rural production was in the first place intended to ensure the survival of a peasant family, although to achieve this goal, some part of the production had to be commercialised. In other words: peasant' survival strategies were integrated into a commercial network (see paper Thoen and Lachaert). A (theoretical) overview of the main characteristics of the *CSE* in the Flemish coastal plain, with relevance for the evolution of the landscape, is given in this scheme:



**Figure 1: "Ideal" social-agro-system of the Flemish coastal plain before 1300**

*Environment and natural resources:*

The foremost important environmental feature distinguishing the coastal social agro-system is the influence of the sea. Directly or indirectly the sea generated a number of natural resources, like fish, but also peat and salt, and grasslands outside the dikes which formed an important element in the CSE agro-system of the Flemish coastal plain from the High Middle Ages on. Both the water, the peat areas, the mud flats and the salt marches, can be regarded as 'commons' in the original commercial survival economy of the coastal plain.

*Property and power structures:*

About 1250/1300, the differences in social structures between inland and coastal Flanders were probably less outspoken than in later centuries (see paper of E. Thoen and P.J. Lachaert). At the eve of the late Middle Ages, peasant small holders were dominant, or at least very common as well in inland as in coastal Flanders. However, in the coastal area there probably must have been in the 11th-13th centuries more large holdings (including some giant ones) than in inland Flanders since flocks of sheep (especially until the 12th century often on salt marshes) and stockbreeding (especially since the 12th century?) were common. A social relation between smaller peasants and larger landowners must have been common too, just as it was the case in inland Flanders. Although concrete data about the size of the small holdings are scarce, many of the small peasants (as in inland Flanders) needed an additional income via proto-industrial activities such as wool processing, fishing and especially peat digging and salt making, activities which were practiced on a very large scale in this area (see Augustyn, 1987; Soens 2002, Tys 2003). Peat became an essential basic product for the increasing town economies.

Most of these small peasants predominant in this period were freeholders, or held their land against a restrained customary rent. The 'old seigniorial power' of lay lords was restrained. As a consequence, most of the peasants enjoyed a completely free juridical status. The count of Flanders as an overlord had (and kept) much more judicial power here from the beginning of the emergence of the county in the 10<sup>th</sup> century. In coastal Flanders the count was able to keep intact the early medieval system of officials representing his power on a local level ('schout') (see Tys D. 2004). As functions became hereditary, these local representatives of the count could turn into an administrative elite, providing the local aldermen (*scabini*) and owning (as *allodium* or in *fief*) large holdings annex residences. As landlord, the count of Flanders had the core of his 'domain' situated in this coastal area. As Dries Tys (2003) has shown, the count had appropriated the mud flats and salt marshes closest to the tidal channels, still open in the high middle ages. By the 12<sup>th</sup> and the 13<sup>th</sup> centuries, these massive domains of the count had been split up, and were populated and cultivated by peasant smallholders as well, paying a customary rent to the count.

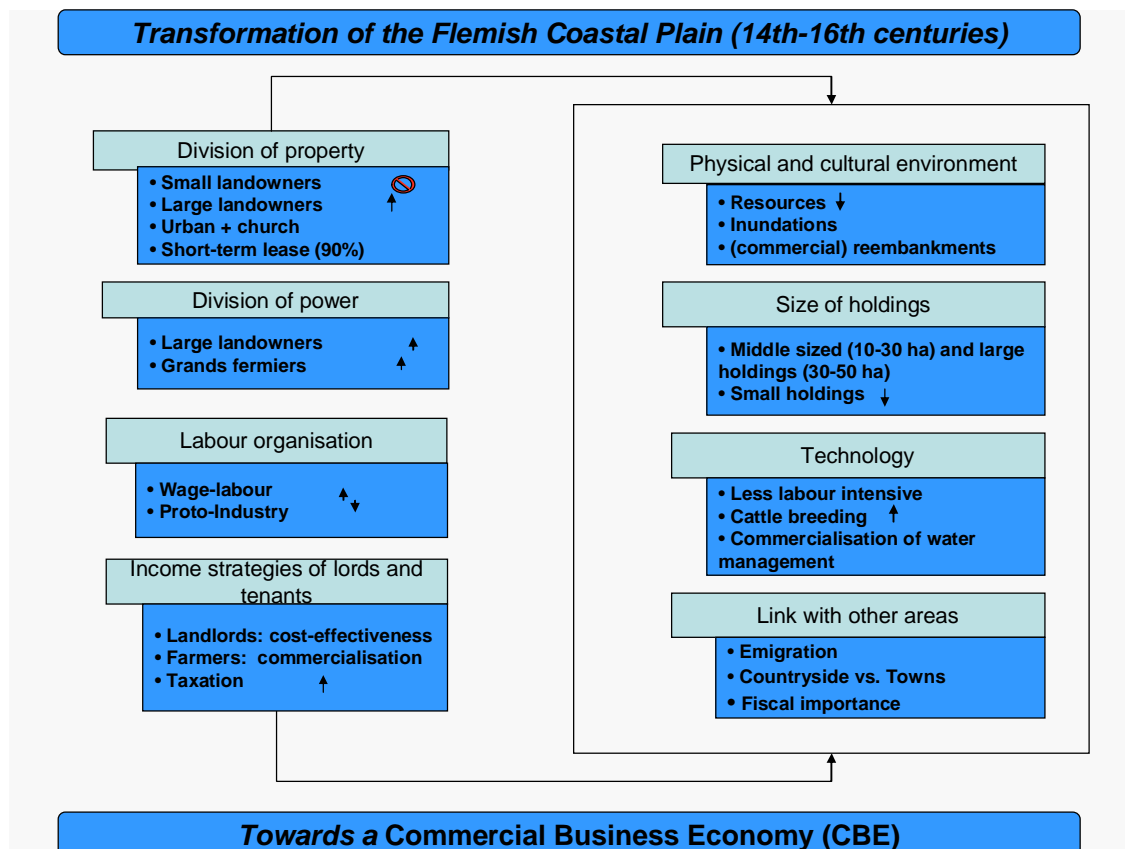
### *Labour organisation and technology*

Free labour was predominant everywhere. Forms of solidarity between peasants can be best found in the water management: the maintenance and repair works of dikes and drainage system was based on customary obligations, with individual landowners working together in organisations that often surpassed the boundaries of individual parishes. The labour organisation of these water works was based on labour duties rather than monetary payments, and thus perfectly suited a peasant society with lots of spare time but little cash money (Soens 2006).

Little is known about agricultural practices on small holdings in the coastal plain in the 13<sup>th</sup> and 14<sup>th</sup> century. Combining the data we dispose of for some giant holdings owned by urban hospices (Mertens, 1970) and data from confiscations in times of civil war, we can speak of a labour-intensive, mixed agriculture, combining arable farming, sheep and cattle breeding, with some industrial crops (especially flax and madder).

## ***2. Towards a Commercial Business Economy (CBE): 13<sup>th</sup>-16<sup>th</sup> centuries.***

From the late 13th century on, this social-agro-system would gradually transform into a *Commercial Business Economy* (CBE), where production for the market and the survival not of the family, but of the farm became primordial and engrossment, specialisation and commercialisation became dominant features:



**Figure 2: the transformation towards a Commercial Business Economy in the Flemish coastal plain (13<sup>th</sup>-16<sup>th</sup> centuries)**

Since about the 13<sup>th</sup> century structural changes took place in the rural economy of the Flemish coastal plain:

#### *Environment and natural resources:*

Salt marches and peat bogs were gradually replaced by heavy marine clays and sands. Probably this was caused by a combination of anthropogenic intervention and natural environmental problems, such as the settling down of peat bogs (partly caused by human drainage), the increased influence of storm surges and the overexploitation by humans of the natural dune barrier, giving the tidal outlets of the sea more possibilities for flooding and sedimentation. Apart from the mentioned ecological problems, also under-investment due to the short-term profit seeking mentality of the large landowners (who's influence was increasing in the classic Middle Ages) probably caused costs for maintaining vulnerable coastal infrastructure such as dikes. In particular from the 14th to the 16th century more land was lost to the sea than could be gained by embanking.

#### *Division of property and power*

From the late medieval period on, an impressive concentration movement of landed property originated, resulting in a structurally different rural society, dominated by middle-sized to large holdings, held in short-term lease (up to 90% of the land already in the 16<sup>th</sup> century!). The disappearance of peasant landownership in this period originated in the social property structure of the high Middle Ages (10-12<sup>th</sup> century). The unchallenged authority of the count of Flanders in this area, resulted in the smooth incorporation in the count's domain of the

large amount of (common) wastelands, silted up mud flats as well as peat lands. Part of these lands were subsequently sold to private institutions (monasteries, hospitals, alms houses and the like) and rich townspeople. With no 'traditional' local lords to oppose accumulation of land by these new elites, the latter could gradually reinforce their position, more and more at the expense of peasant landowners. Furthermore, due to the increased effects of storm surges and inundations, and due to changes in the funding of water management (infra), peasants found it increasingly difficult to afford repair works and the construction of new dikes. This ended in numerous evictions of impoverished peasants, whose property rights were transferred to people who could bear these costs, in many cases the larger bourgeois and other landowners.

#### *Size of holdings:*

The smallholding- still predominant at the end of the 13<sup>th</sup> century – would gradually disappear. In some areas this tendency accelerated during the later 14th century, as was the case in the area near Oostburg, an area which is particularly well documented (Vanslebrouck, Lehouck and Thoen 2005). Here many farmsteads went bankrupt and disappeared. Most of their land was taken over by larger holdings. The majority of farms became the larger mid-sized farms.

#### *Labour organisation and technology:*

The now larger farms concentrated more on cattle breeding than before, resulting in a larger consumption of dairy products and meat in this area (Dehaeck S. 2004: 332-364). Nevertheless, commercial grain production would also remain importance, and even boom in the 17<sup>th</sup> and 18<sup>th</sup> century (Van Cruyningen 2001).

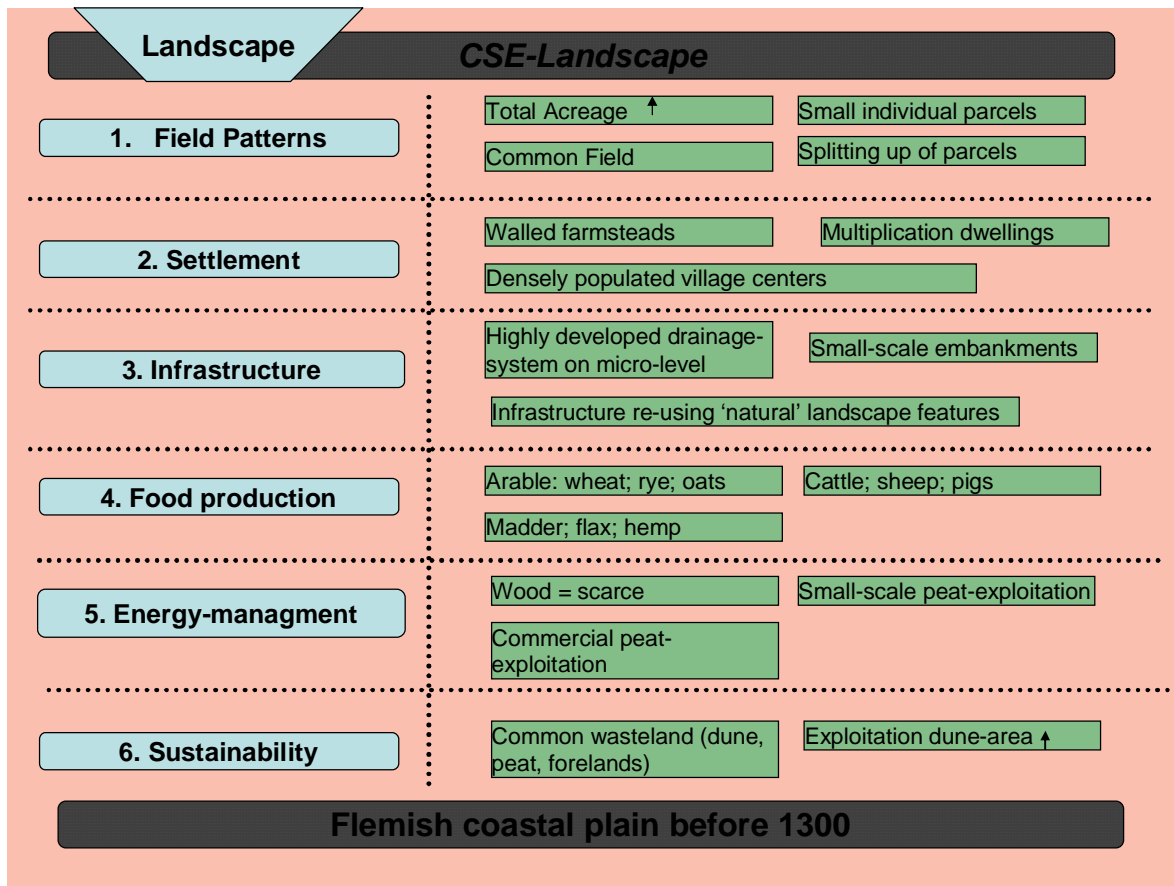
As to the water management, maintenance tasks were no longer performed by individual landowners, but by separate 'water boards' (*waterschappen*), who funded their activities by levying a land tax, and gradually replaced peasant (seasonal) labour by professional entrepreneurs. The water management organisation was increasingly adapted to the needs of large landowners (budgetary control) and wealthy villagers in charge of the day-by-day supervision of the water control system. Although average investments in infrastructure did not increase, they became increasingly hard to bear for peasant landowners (Soens 2006).

### ***3. Transforming agro-systems and changing landscapes.***

The late medieval transformation of the rural economy in the coastal plain had direct and indirect consequences for the landscape in the area. In the course of the previous centuries, the coastal landscape had acquired many characteristics of a 'typical' *CSE-Landscape*, both with respect to the field system (small individual parcels, the existence of 'common field', ...); settlement patterns (a multiplication of small peasant dwellings), the infrastructure (drainage and road system re-using natural landscape features), the food production (mixed cultivation); the energy supply (based on local resources like peat) and the general 'sustainability' of the landscape<sup>1</sup> (controlled use of dune- and peat area's)

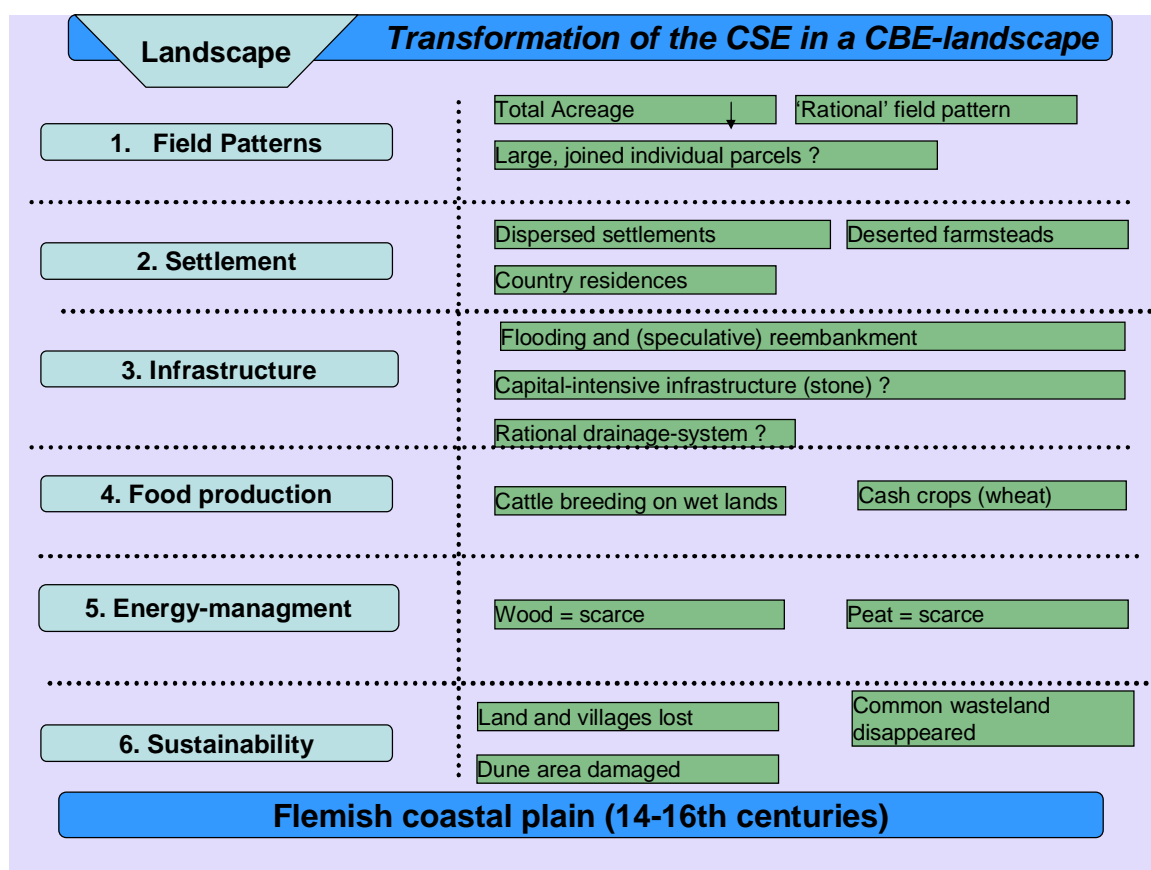
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<sup>1</sup> See Potschin and Haines-Young 2006: A sustainable landscape being one able to maintain the output of (ecosystem) goods and service that people (in present and future) value or need.



**Figure 3: The coastal plain before 1300 as a CSE-Landscape**

All of these characteristics would be directly or indirectly influenced by the transformation of the coastal agro-system, although not always in the same way and at the same time:



**Figure 4: the transformation of the landscape in the coastal plain (14<sup>th</sup>-16<sup>th</sup> century)**

In the following paragraphs, we will briefly discuss some of the most striking changes in the landscape, and the way they were related to the transformation of the social agro-system.

#### 4. Case 1: field patterns

The transformation of social property relations in the late medieval coastal plain provoked an impressive concentration movement of landed property, combined with an engrossment of farm sizes. Until recently, it was very difficult to measure the impact of this evolution. Thanks to the land surveys – the so-called ‘ommelopers’ – and other sources provided by the tax administration of water boards (*waterschappen*), we were able to reconstruct a significant sample of property structures in the coastal area. Whenever it was possible to analyse these property relations for one area and two different periods, the number of landowners had decreased between the two sample dates:

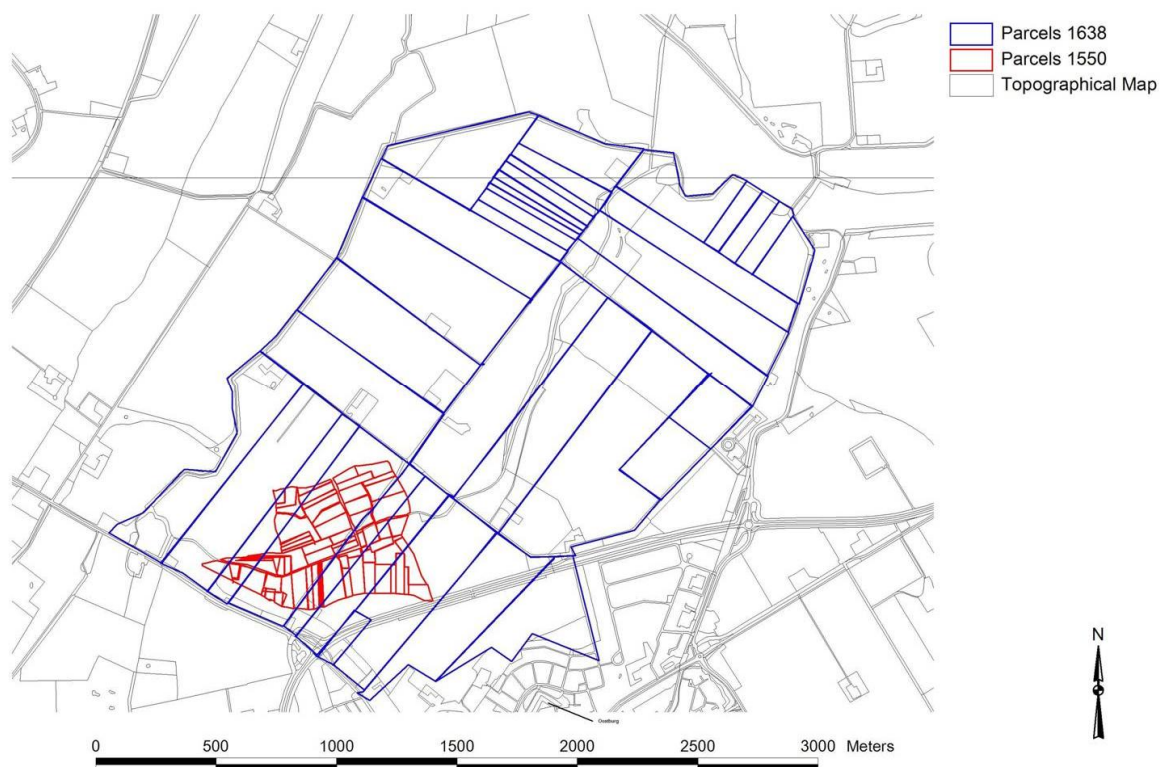
**Table 1: Landownership in the late medieval coastal plain**

Water Board	Area (hectares)	Year 1	Landowners / 100 ha	Year 2	Landowners / 100 ha
<i>Oude Yevene (Oostburg)</i>	3529.7	1388	41.4	1550	14.3
<i>Romboutswerve (near Damme)</i>	420.7	1456	35.9	1545	18.4
<i>Moerkerke Zuid-over-de-Lieve</i>	1731.3	1470	15.7	1530	10.7
<i>Blankenbergse (polder area)</i>	14746.2	1513	8.1	1560	7.1
<i>Blankenbergse (inland area)</i>	2267.6	1513	16.7	1560	15.5

Source: Soens 2005, table 1.

It is clear that between the fourteenth and the middle of the sixteenth century, a radical restructuring of the property relations in the coastal plain took place. In the area of the Oude Yevene- water board in present-day Zeeland Flanders (near Oostburg), the number of landowners decreased from more than 41 per hundred hectares in 1388 to only 14.3 in 1550. By the middle of the sixteenth century, 28 landowners owned 45% of the area, with an average of 49.9 hectares each. Whereas in 1388 the land area of 1289 persons did not exceed five hectares, in 1550 this remained true for only 303 people, which means that between the end of the fourteenth and the middle of the sixteenth century, 1000 small landowners had 'disappeared', or at least lost the property rights over their land.

Inevitably, this evolution had important consequences for the coastal landscape in general and for field patterns in particular. Reconstructing medieval field patterns in the coastal plain, however is far from easy: due to inundation and renewed sedimentation of many parts of the area, one cannot just fall back on current topographical and cadastral sources and combine them with medieval land registers. Therefore, in order to visualise the information about the size, shape and direction of parcels found in medieval land registers, an interdisciplinary approach was needed. Thanks to the topographical positioning of tracks gained by the multi-disciplinary study of old maps, aerial photographs, and the use of a 'digital elevation model' (DEM), it was possible to reconstruct parts of the medieval field patterns on the current topographical map. In a case study for part of the above mentioned *Oude Yevene* in Zeeland Flanders, we were able to compare the late medieval field pattern with the field pattern of 1638 - this is after the military inundation of the area in 1583 and the subsequent reembankment of this area in a new polder (de *Grote Hendrikuspolder*):



**Figure 5: Reconstruction of the medieval field pattern in the (seventeenth century) Grote Hendrikuspolder (Source: Vanslembrouck, Lehouck and Thoen 2005, fig 4 p. 58)**

The difference is remarkable: the 73 parcels in 1550 depicted on the map were re-embanked as only four or five parcels in 1638 ! For the whole area of the seventeenth century re-embankment, this meant a reduction from 647 parcels in 1550 to only 37 parcels in 1638 ! Furthermore, not only the size, but also the shape and the direction of the re-embanked parcels were completely different from the situation in 1550. The 1550 field pattern was still very chaotic and scattered, with many small, elongated lots, ranging in size from 0.04 to 1.61 hectares (50% smaller than 0.5 hectares). According to the 16<sup>th</sup> century land registers, many of these parcels were still further divided in several strips (*'stringen'*), limited by ditches, following a system that may be compared to "ridge and furrow". These are the strips that are also detected on aerial photographs of the area. On the contrary, the 17<sup>th</sup> century plots were 'rational' and 'systematic', with very large rectangular parcels, perfectly suited to the large-scale arable farming.

Based on this data, we can conclude that the field pattern in this part of Zeeland Flanders was indeed adapted to the transformation of rural society, but only with an important *time-lag*: whereas by 1550 the majority of peasant smallholders had already disappeared from the area, field patterns still reflected the previous situation. Only during the re-embankments of the 17<sup>th</sup> century, the old field system was erased and replaced by a completely new system, conceived to meet the needs of large scale commercial agriculture. In the 16<sup>th</sup> century the field system of the disappeared CSE-agro-system still prevailed although the agro-system itself had already to a large extent changed into a CBE. In the above described test-case, the 73 parcels of 1550 were owned by only 25 landowners, eight of them being (ecclesiastical) institutions, who leased out their lands, and most of the non-institutional landowners owning considerable

amounts of land in other places as well. Furthermore, according to the landregister of 1550, not a single actual farm was left in the area, but there were indications of at least five deserted farms<sup>2</sup>. Just like the scattered field pattern, the deserted farmsteads in 1550 were the ‘silent witnesses’ of the disappearance of peasant smallholding in the coastal plain. In other areas of that coastal plain, the conversion of the old ‘CSE’-field pattern to larger and more systematically structured parcels, was even more delayed: in the region between Ostend and Nieuwpoort *Dries Tys* deals with in his paper, many features of the 12<sup>th</sup> century field pattern remained almost intact until the 17<sup>th</sup> or even the early 19<sup>th</sup> century, and were only adapted to the CBE agro-system during large scale re-allotment and land-consolidation initiatives in the 19<sup>th</sup> and 20<sup>th</sup> centuries.

### 5. Case 2: deserted farmsteads.

Only seldom direct information about the exact number of farms in the 13<sup>th</sup> and 14<sup>th</sup> century is available. The general evolution however is clear: in the course of the late middle ages, the number of farms was significantly reduced. In the parish of Oostkerke near Bruges for instance, 75 farms are mentioned in 1570. Together they cultivated 1175 hectares of land in that parish<sup>3</sup>.

Size (hectare)	Number holdings	%	Total acreage	% acreage
min 1	3	4,0	2,0	0,2
1 tot 2	5	6,7	7,5	0,6
2 to 3	5	6,7	11,1	0,9
3 to 4	4	5,3	14,5	1,2
4 to 5	1	1,3	4,4	0,4
5 to 10	20	26,7	145,3	12,4
10 to 20	11	14,7	140,1	11,9
20+	26	34,7	850,4	72,4
total	75	100,0	1175,2	100,0

**Table 2: Size of holdings in the parish of Oostkerke (1570). Source: Soens, 2006, table 4.27.**

With 26 farms cultivating more than 70 % of the land in the parish – 32,7 hectares each on average – and a limited number of farms smaller than 5 hectares, rural society in Oostkerke in 1570 no longer was the *Commercial Survival Economy* it has once been. Not surprisingly, traces of deserted medieval farmsteads are clearly visible on aerial photographs for every part of the coastal plain. However, in most cases only traces of the largest farmsteads – often *moated sites* – which formed only a minority of the farms in the *Commercial Survival Economy* of the coastal plain before 1300 are visible on aerial photographs or mentioned as ‘deserted’ farmsteads in land registers. Evidence of the majority of small to very small peasant holdings that had already disappeared is much harder to find. Probably, these small farms were almost entirely made up of wood and left little visible marks in the landscape few decades after they had been abandoned.

Nevertheless the number of farms around 1300 must have been significantly higher than it was at the end of the 16<sup>th</sup> century. For a small parish in Western Zealand Flanders,

<sup>2</sup> Based on notes and toponyms in the land register: ‘een vervallen hofstede’; ‘daer den hooghen wal inne ligghet’; ‘met een hooghe wal’ (2x); ‘een stic ghenempt Stevin Tands hofstede’.

<sup>3</sup> In total the parish Oostkerke measured 1509,3 hectares in 1570, but 122,8 hectares were permanent grasslands used by citizens of Bruges to fat oxen and the remnant was cultivated by farms outside the parish.

*Oosemanskerke*, a partial comparison between the end of the 13<sup>th</sup> century and the second half of the 16<sup>th</sup> century is possible. Between those two dates, the village was flooded and the largest part of its territory was re-embanked in a new ‘polder’ in the second quarter of the 16<sup>th</sup> century. The village centre itself however, was rebuilt just outside the border of the new ‘polder’:

	1269-1307	1550-82
<b>Area (hectares)</b>	57,58	314,0
<b>Farms</b>	3	5
<b>Houses</b>	2	
<b>Disappeared farms</b>	7	
<b>Farm toponyms</b>	6	
<b>Neighbouring farms</b>	9	9
<b>Total (farms+houses)</b>	27	14
<b>Farms+houses per hectare</b>	0,47	0,04

**Table 3: houses and farms in Oosemanskerke. A comparison between 1269-1307 (limited to lands of the Bruges’ hospice of Saint-John) and 1550-82 (source: Vanslembrouck N., unpublished data)**

The first sample is limited to the landed property of one institution: the important hospice of Saint-John in Bruges. The hospice owned 57,58 hectares of land in this area (either held in short-term lease or against a customary rent by its tenants). On the hospice’s land 3 farms, 2 ‘houses’, 7 disappeared farms and another 6 farm toponyms are mentioned. Furthermore, another 9 farms were situated on neighbouring plots with different owners. In the second half of the 16<sup>th</sup> century however, in the land register of the newly embanked polder in the same area, only five farms are mentioned. Furthermore, another 9 farms were situated in the rebuilt village centre just outside the polder. Although the land dealt with in the 13<sup>th</sup> century data is much smaller than the surface of the 16<sup>th</sup> century polder, the general tendency is clear: the number of houses and farms significantly decreased from about 0,47 per hectare to only 0,04 per hectare. Furthermore, already at the end of the 13<sup>th</sup> century, several deserted farmsteads were visible in the landscape.

Not only the number of farmsteads had significantly decreased by the middle of the 16<sup>th</sup> century, there are strong indications that habitation in the village centres as well was shrinking, although here, the comparison with the 13<sup>th</sup> century situation is still more difficult. In the above mentioned village of Oosemanskerke, only 9 farms in the village centre are recorded in the land register of 1550. In neighbouring village centres as well, the number of houses and farms is rather low by that time:

- *Nieuwerkerke*: 14 farms, 1 parcel with several farms, 3 parcels with houses and the vicarage
- *Schoondijke*: 11 farms, 1 parcel with several farms, 8 parcels with houses (and 1 deserted farm)

Following the transformation of rural economy in the area, the evolution towards a dispersed settlement structure, typical for the present-day coastal plain had clearly begun.

## 6. Case 3: the disappearance of salt-marshes and peat lands

For survival the many peasant smallholders in the 13<sup>th</sup> and 14<sup>th</sup> century coastal plain could not rely on the production of their private farm grounds alone. With many holdings smaller than two hectares an additional income was necessary, in particular to enable their (forced) participation in the market economy in order to obtain the money necessary to pay taxes and perhaps also to buy extra food supplies. This need for additional income typical for a CSE, was reflected in the landscape as well. *Before* the Late Middle Ages, the coastal plain offered plenty of opportunities for such an additional income, first of all because of the availability of vast ‘wastelands’ including dunes, salt-marshes, peat bogs and also water. With the development of the power of the counts of Flanders from the tenth century on, the counts progressively usurped the property-rights over both dunes, salt-marshes and peat bogs, and even, to a certain extent over the water<sup>4</sup> (see the studies of Dries Tys, in particular Tys 2004). The use of dunes and salt-marshes for pasture became regulated and restricted. With the progressive embankments of the salt-marshes and their conversion into arable, most of the former common pasture grounds disappeared. What remained had to be leased from the count or third persons to whom the count temporarily or permanently handed over his property rights. That pasture on salt marshes remained important for peasant smallholders, can be illustrated by the following example for Verrebroek in the seignior of Beveren situated in the eastern part of the Flemish coastal plain at the end of the fourteenth century. At that moment, smallholdership was still predominant in Verrebroek, with 59.8 % of holdings smaller than 3 hectares (Augustyn 1999: 123). In 1394, almost half of the people who leased – mostly small - plots of land in a ‘polder’ owned by the count of Flanders - also leased an additional plot of salt marsh:

<b>Hectare</b>	<b>0-0,5 ha</b>	<b>0,5-1 ha</b>	<b>1-2 ha</b>	<b>2-3 ha</b>	<b>3-5 ha</b>	<b>Totaal</b>
<b>Leaseholders polder (N)</b>	7	22	19	5	6	59
<b>Also leasing salt marsh (N)</b>	3	11	10	2	2	28
<b>Average lease of salt marsh (hectares)</b>	1,0	1,1	1,6	2,0	3,2	3,2

**Table 4: leases of land and salt marsh in Verrebroek 1394 (Source: Beck 2003-2004).**

Near Sluis as well salt marshes were still used for pasture in the late Middle Ages: in 1498, the count’s steward of Sluis tried to penalise sixty inhabitants of neighbouring villages for pasturing their sheep on the salt-marshes without permission<sup>5</sup>. The timing of his initiative was significant: some months before, count Philip the Fair had issued a patent for the embankment of the remaining salt-marshes in that area to two of his own councillors, members of a noble

<sup>4</sup> In particular the right to fish, both at sea and in the (tidal) channels and waters in the coastal plain. In comparison for Holland: Van Dam 2001.

<sup>5</sup> Account of the castellany of Bruges 1497-1498, f°61v: “Meester Joos Arends van dat hij tsondaechs den XXVie dach vande voornoemde maend bij ordonnantie vander wet trac te Brueselle ende te Ghend omme aldaer te consulteerne metten practisienen diversche materyen ende onder andere stic vande LX vrylaten uut Oostburchambocht ghedaen vanghen bij Jeronimus Lauweryn ontfanghere vande demainen vander Sluus ter cause van dat huere scapen gheweedt hadden up zekere scorren aldaer ghelegghen....: 30 lb. Parisiis”; f°44r: ‘Woutre vanden Hecke van dat hij sondaechs den letsten dach vander selver maent bij ordonnantie vander wet trac te Ghend omme de provisie te vercrighene van mijnen heeren vanden Rade in Vlaenden (sic) dat de inwonenden van Sinte Mariepoldre, Oostpoldre, Gokelaere, den Benthille poldre Sinte Janspoldre ende meer andere gheslaect mochten worden vanden vanghen up hemlieden ghedaen doen bi Jeronimus Lauweryn ontfanghere vander Sluus voor zekere boeten die hij hemleden hiesch van dat huerlieden beesten ghegaen hadden up de scorren”.

family originating from the coastal area. The patent stipulated that before the achievement of the embankment, the *concessionnaires* could use the area for (extensive) sheep-herding themselves, with permission to build sheep-pens on the salt-marshes<sup>6</sup>. As a consequence, the salt-marshes in this area were withdrawn from the local peasant economy, and gradually integrated in the new commercial economy. As the landscape continued to be used at least during the first decades for pasture, we see once again that the transformation of the landscape responded with a certain delay to changing social relations.

In the peat areas as well an appropriation by the counts of Flanders, and alternation of use took place. Especially in the thirteenth and fourteenth centuries, impressive amounts of peat must have been dug off in order to meet the growing demands for fuel by especially urban industries, at the same time satisfying the increasing need for money of the Flemish counts (for the 13<sup>th</sup> century, see Luyckx, 1961). The boom in the peat-industry is clearly reflected in this overview of the number of transactions (sales, exchanges, ...) involving peat lands:

<i>Century</i>	<b>12th</b>	<b>13th</b>	<b>14th</b>	<b>15th</b>	<b>16th</b>	<b>Indefinite</b>	<b>Total</b>
<b>Number of transactions involving peatland</b>	22	375	185	7	1	17	<b>607</b>
<b>Total size of peatland involved (hectares)</b>	436,3	6934,1	754,2	101,3	119,0	571,8	<b>8916,6</b>

**Table 5: transactions of peat land in the Flemish coastal plain (12<sup>th</sup>-16<sup>th</sup> century)**  
(minimal estimations, source: Soens, 2001)

Of course, due to flaws in the documentary evidence, the actual size of the peat lands in the coastal plain must have been much higher. The general evolution however is clear: peat exploitation reached its peak in the 13<sup>th</sup> century. From the 14<sup>th</sup> century on, activities were decreasing, and came almost to an end in the course of the 15<sup>th</sup> and 16<sup>th</sup> centuries. There was also a geographical shift: the last sale recorded for the moor (*Moëres*) near Furnes on the French-Belgian border dates back to 1265, whereas in the moor of Aardenburg this was only 1388 and along the Western Scheldt near the present-day Belgian Dutch border (Hulst-Beveren), 1521.

The introduction of large-scale peat exploitation for commercial use in the 13<sup>th</sup> and perhaps already in the 12<sup>th</sup> century, can be seen as an element in the transformation of the coastal economy towards a commercial economy. However at that time, the predominant peasant-economy in the area, was still viable enough to adapt itself to the new situation. As labour organisation in the peat districts was to large extent based on seasonal labour supply by small peasant farmers, commercial peat exploitation even reinforced the peasant economy and the further subdivision of holdings and property rights (see Augustyn 1987 and 1999).

In the landscape, peat exploitation left different marks. On the one hand the large scale exploitation of connected areas of surface peat lead to the creation of new villages (e.g. Kieldrecht and Verrebroek near Beveren along the Western Scheldt and several villages in the former *moor* of Aardenburg) and a very systematic field system with elongated parcels. In

<sup>6</sup> Patent of 30 September 1497, granted to Paul and Guy de Baenst: ed. L. Gilliodts-Van Severen, *Coutumes des Pays et Comté de Flandre. Quartier de Bruges. Coutumes des petites villes et seigneuries enclavées. Tome Cinquième* (Brussels, 1892), pp. 279-285 : « ... en faisant faire sur les schors de grandes motes qu'on appelle stellen, pour y mettre brebis et autres bestialz ; en y faisant faire maisons pour lesdiz brebis et autres bestialz retraire et y avoir l'eauwe douce pour leur buvraige ».

other parts of the coastal plain, where clay sediments had covered peat layers already before the 12<sup>th</sup> century, peat was uncovered and excavated on individual parcels, creating “pits” and low-lying, swampy, grounds as relics in the landscape. Within the territory of the above mentioned Oude Yevene water board near Oostburg, in some areas up to 40 % of the parcels were former peat excavations:



**Figure 6: Distribution of the former parcels that indicate peat digging activities in part of the Oude Yevene water board anno 1550 (Vanslebrouck, Lehouck and Thoen, 2005, fig 2 p. 56).**

Due to peat digging and drainage causing shrinking of remaining peat layers, former peat areas became extremely vulnerable for inundations. In the second half of the fourteenth century, large parts of the former *moor* near Aardenburg were turned into a large sea-inlet: the *Braakman*, gradually swallowing more and more villages (Gottschalk XXX). In the remainder of the former peat districts, in particular the *Meetjesland* near Eeklo and parts of the *Waasland* more to the east, a sandy and less fertile subsoil was uncovered once the peat layers had been dug off. With the elongated parcels testifying of former large scale peat-exploitation, another ‘relic’-landscape was created (see Augustyn and Thoen 1987). Here however, rural economy would not make the swift transformation towards commercialisation: instead, the area was incorporated in the CSE-economy of Inland Flanders, with its typical subdivision of parcels and holdings and even the multiplication of hedge rows bordering the elongated parcels (see paper Thoen and Lachaert).

## 7. Case 4: from a “labour-intensive” towards a “capital intensive” water control system

Recent research about coastal water management has stressed the importance of socio-economic change on the introduction of technological innovations and infrastructural changes (e.g. Van Dam 2002; Kaijser 2002). In the Flemish coastal, the transformation from a CSE to a CBE in the course of the late medieval period, implied an evolution from a situation where labour was relatively abundant and capital scarce, towards a situation where labour was scarce and capital (theoretically) available. This change was directly reflected in the water control system.

The thirteenth and fourteenth century water control system in the coastal plain was characterized by a massive mobilisation of locally available labour in order to build, maintain and repair infrastructure such as dikes, canals and outlet sluices. This is reflected in the next table, following the hiring of unskilled day-labourers by a large water board in the Flemish coastal plain - the *Blankenbergse watering* west of Bruges – from 1285 to 1568.

Financial Year	Average wage (denarii groten/day)	Man-days (total)	Financial Year	Average wage (denarii groten/day)	Man-days (total)
1285-86	0.6	12,908	1478-79	6	1,808
1293-94	0.75	2,274	1488-89	6	1,192
1304-05	0.45	1,184	1498-99	6	1,609
1343-44	1	9,831	1520-21	6	1,433
1354-55	1.5	23,788	1528-29	6	1,557
1364-65	3	9,742	1538-39	6	1,675
1374-75	4.75	3,207	1548-49	7	2,505
1383-84	4	763	1559-60	8	617
1407-08	4.75	2,777	1568-69	12	891
<i>Average</i>		7,386	<i>Average</i>		1,476

**Table 6: Unskilled day labourers employed by the ‘Blankenbergse watering’ (sample years, 1285-1408) (Soens, 2005, table 4).**

During the thirteenth and fourteenth centuries the ‘Blankenbergse watering’ remained an important employer of unskilled day-labourers. Because these day-labourers were no professionals, but smallholders who could carry out maintenance and repair works during months when activities in agriculture was limited (van Dam 2001: 222-224), the water board had to pay only low wages. In the late 15<sup>th</sup> and the 16<sup>th</sup> century employment of day labourers by the water board became significantly lower. Instead, more and more works were ‘outsourced’ to professional entrepreneurs, often involving a public procedure. From that moment on, an increasing part of dike works were realized by people who did not live in that particular area (Soens, 2005, figure 4).

As long as works required only labour and locally available resources (in particular earth), the CSE-society of the 13<sup>th</sup> century coastal plain was perfectly able to realise large scale water control projects, which is revealed by the fact that the majority of embankments and drainage works in the Flemish coastal plain took place in the centuries before 1300. By contrast the CBE-society of the 16<sup>th</sup> century had its own specific technology and resource-use, which was different from the technology and resource-use of a CSE-society and resulted in a different

kind of infrastructure. With regard to the water control system, this is best reflected in the use of stone. With exception of locally produced bricks, the Flemish coastal plain did not have (natural) stone at its disposal. Stone had to be imported from other parts of the Low Countries – in the 16<sup>th</sup> century in particular from Brabant, where the town of *Vilvoorde* was the central market for stone. Whereas the Flemish cities used stone to construct locks on canals already in the 13<sup>th</sup> century, in rural water-management it was still rare in the 14<sup>th</sup> and 15<sup>th</sup> century. One of the first applications was the use of stone for the building of culverts underneath roads<sup>7</sup>. In the 16<sup>th</sup> century former wooden bridges as well were sometimes reconstructed in stone, but above all stone was used in combination with brushwood to construct groins and dike-reinforcements (see also de Kraker 1997: 94-95). In 1556-57 for instance, about 150 shiploads of stone were transported to the parish of *Gaternisse* in Western-Zealand Flanders to reinforce a threatened sea-wall with a length of about 3 kilometres. An expensive operation, with the transport costs almost equalling the purchase price<sup>8</sup>. Because this kind of investments needed to be paid in cash-money by the landowners in the area concerned, they suited a commercial society with wealthy landowners better than they did a peasant society.

However, here as well there was a certain delay between socio-economic transformation and infrastructural change: in part because large landowners had a short term interest in keeping investments low (Thoen and Soens 2001; Soens 2005), the transformation of rural society in the coastal plain did not go hand in hand with a rapid spread of capital-intensive infrastructure. In the 16<sup>th</sup> century, the use of stone remained confined to the most endangered parts of the sea-walls. The further application of stone for all kinds of sea-walls and discharge sluices would only took place in the 17<sup>th</sup> and 18<sup>th</sup> centuries (see De Kraker 2005).

## **8. Tentative conclusion: the delayed transition from a ‘CSE to a CBE’-landscape in the coastal plain.**

Based on four case-studies about field systems, settlement structures, natural resources and infrastructure in coastal Flanders, we tried to demonstrate how regionally specific ‘social agro-systems’ were reflected in the rural landscape and how changes in these social agro-systems provoked changes in the rural landscape as well. Like in inland Flanders, traces of former agro-systems remained often visible in younger systems. Sometimes these landscape ‘relics’ were really integrated in the newer agro-systems, but this was not necessary nor common. As changes in the social agro-system were more violent and structural than was the case in inland Flanders, landscape changes were more pronounced as well. For the late medieval and early modern period we discussed how a ‘chaotic’ and small-scale field system was eventually adapted to the needs of large scale commercial farming; how the number of farmsteads was decreasing; how marshlands and peat lands got a different use and almost disappeared during the commercialisation of the coastal economy; and how the infrastructure of the water control system was changed from labour-intensive to capital-intensive. Nevertheless, just like in inland Flanders, relics of the former situation survived for a long time, varying from the specific parcel system of former peat exploitations to dikes and

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<sup>7</sup> In most cases probably brick, see for instance the construction of a culvert in *Armbouts-Cappel* (France, former castellany of Bergues-Saint-Winnoc) around 1400: “*In de zelve woeke was ene nieuwe stenine gote ghemaect in Areboutscapelle boosten ande ste die Jans vanden Werve was vallende inden Rietvliet... Omme Vm quarele die ter grote bouf jecocht waren benorden Milnen te Zinte Cappelle ter steide Jan Moenins was, costen XXII s. de duust, beloopt 5 lb. 10 s.*”.

<sup>8</sup> Account of the Gaternisse water board 1556-57: transport: 16 shilling *Vlaams* versus purchase 16 shilling 8 pennies *Vlaams*

:drainage elements that continued to be used. Sometimes however, these 'relics' have been covered by layers of new sedimentation and can only be noticed using modern techniques.

Coastal lowlands are well known for their extreme dynamics, as they were subject to the direct and varying influence of the sea. Despite the numerous records of 'storm surges' causing disaster, land losses and renewed sedimentation, we can conclude that in this area, the evolution of human social relations, of power and property, probably was the major driving force for landscape change in historical times.

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