Kjell Harvold

Sustainable urban water management in Tønsberg



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Abstract: One of the main experiences in the development of the medieval

town centre of Tønsberg so far, is that a successful planning process must include broad participation. At the same time somebody has to be responsible for the progress of the project. The organisation model, that the town of Tønsberg has chosen, with an own development enterprise -"Tønsberg utvikling" ("Tønsberg Development") - seems to have worked quite well, when it comes to the work with the reconstruction of main

square of the town.

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Preface

The European Water Framework Directive (WFD) and Floods Directive (FD) have clear goals about improving water quality and regulating water quantity in the EU. When coupled with climate change and urbanization these create increasing pressure on water management, especially in urban areas. The Interreg IVB *project North Sea Skills Integration and New Technologies* (SKINT) aims to facilitate the implementation of sustainable urban land and water management by improving the integration of water management in spatial planning processes. The project deals with both ground water and surface water and integrates water quality as well as water quantity. The SKINT project focuses on cases in the UK (both in Scotland and England), Germany, The Netherlands and Norway – with partners from all these countries.

The Norwegian part of the project is lead by the Norwegian Institute for Water Research (NIVA) with the Directorate for Cultural Heritage (Riksantikvaren), The Geological Survey of Norway (NGU) and the Norwegian Institute for Urban and Regional Research (NIBR) as sub-partners.

In Norway three cases have been in focus: Bryggen in Bergen, the urban area of Oslo and the historical centre of Tønsberg. As a sub-partner, NIBR has primarily been involved in the Tønsberg-case. An important question in Tønsberg has been how to integrate and coordinate issues related to drainage and ground water with other planning issues - in essence: how can communication between water planners and other stakeholders be attended in an urban setting?

The Tønsberg study has been carried out by Kjell Harvold (NIBR), with contribution and comments from the other Norwegian partners. Kjell Harvold has also written this paper.

Oslo, July 2012

Knut Onsager Research Director

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Summary

Kjell Harvold

Sustainable urban water management in Tønsberg

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One of the main experiences in the development of the medieval town centre of Tønsberg so far, is that a successful planning process must include broad participation. At the same time somebody has to be responsible for the progress of the project. The organisation model, that the town of Tønsberg has chosen, with an own development enterprise -"Tønsberg utvikling" ("Tønsberg Development") - seems to have worked quite well, when it comes to the work with the reconstruction of main square of the town.

The main lessons learned from the planning process in Tønsberg historical centre, can be summarized in six points (see also chapter 5):

- 1) From the start different stakeholders have been involved in the project. Water managers have participated in the project group from the start and therefore important considerations when it comes to water and archaeological deposits have been included in the project.
- 2) When it comes to the *organisational model*, the Tønsberg approach seems to have many advantages. First of all, the strategic organisational model has given the project a firm foundation: Leading actors both in the public and the private sector are linked to the project. This means that challenges in the development process can be dealt with in a direct way with little bureaucracy.
- 3) Thanks to the cooperation within the project group, the damage to the deposits in and around the town square has been minimized. However, the redevelopment of the historic centre has taken much longer time than first anticipated: *Archaeological excavation takes* time, and this must be reflected in work schedule.
- 4) To development in the town square of Tønsberg illustrates that the prioritization of archaeological deposits, can mean that one has to give less priority to other environmental considerations. Some of the larger trees in the historic centre have to be cut down, because their root system can damage the archaeological deposits.
- 5) Within the project group it is easy for representatives from the culture heritage to take direct contact with actors that are implementing the new developments in the historic centre, for instance representatives from the water and drainage department in the municipality. This means that problems concerning water/drainage issues can be identified and solved directly in these meetings. The project group has also been a forum for dialogue between (cultural heritage) protecting interests and development interests.

6) Tønsberg Utvikling has formed a model for dialogue with the public and with the involved property owners. *An open information and dialogue strategy towards the public is probably of vital importance for a project like this.* In Tønsberg the strategy seems to have resulted in a positive public interest for new development of the historic centre.

Sammendrag

Kjell Harvold

Bærekraftig vannhåndtering i Tønsberg

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En av de viktigste erfaringene med byutviklingen i Tønsberg historiske sentrum, er at en vellykket planprosess er helt avhengig av bred deltakelse. Samtidig må noen ha ansvaret for framdriften i planleggingen. Den modell Tønsberg har valgt, med "Tønsberg utvikling" som en egen enhet, synes å ha fungert bra. Hovedlærdommene fra planprosessene i Tønsberg historiske senter, kan oppsummeres i seks hovedpunkt (jamfør også kapittel 5):

- 1) Allerede fra begynnelsen ble ulike grupper involvert i prosjektet og ansatte fra vann- og avløpsetaten har deltatt i prosjektgruppen fra starten av. Ikke minst derfor har viktige hensyn, som har med vann i de arkeologiske lagene blitt ivaretatt.
- 2) Tønsbergs organisasjonsmodell har vært viktig: En strategisk ledergruppe, med sentrale personer fra både offentlig og privat sektor, har gitt prosjektet en god forankring.
- 3) Til tross for et godt samarbeid, har utviklingen av Tønsberg historiske senter tatt lenger tid enn antatt. Prosjektet har vist at arkeologiske utgravinger tar tid, og dette bør reflekteres i den arbeidsplan som utvikles i denne typen prosjekt.
- 4) Utviklingen i Tønsberg viser også at det kan bli nødvendig å prioritere arkeologiske hensyn opp mot andre hensyn; trær i sentrum måtte for eksempel hugges ned for at rotsystemene ikke skulle ødelegge de arkeologiske lagene.
- 5) Innenfor prosjektgruppen har det vært enkelt for representanter for kulturminnevern å ta direkte kontakt med andre relevante byutviklingsaktører. Aktuelle problem har kunnet blitt løst direkte over bordet. Prosjektgruppen har også fungert som et forum for dialog mellom verne- og utviklingsinteresser.
- 6) Tønsberg Utvikling har dessuten utviklet en modell for dialog med befolkningen og de involverte gårdeierne. En åpen informasjons- og dialogstrategi er sannsynligvis svært viktig for denne typen prosesser. I Tønsberg ser denne strategien ut til å ha resultert i en positiv interesse blant befolkningen, som kan gi positive effekter for den videre utviklingen av byens historiske senter.

1 Introduction

1.1 Problem for discussion

Over the past decades, regulations concerning improved water quality, coupled with climate change and increasing urbanization, created increasing pressure on water management, especially in urban areas. This lead to a more integrated approach related to ground and surface water in urban areas, compared to conventional drainage of surface water. Currently innovative water solutions are available, but implementation is hindered by barriers to multidisciplinary working. Especially since many innovative water solutions have a much higher surface demand than conventional drainage systems, the integration of water management in spatial planning processes is important.

The urban development and planning process involves different stakeholders that often represent different disciplines. Usually the stakeholders' perspective is limited to their own discipline. Technical experts (water managers, urban drainage engineers, road engineers etc) often speak a different "language" compared to spatial planners, city architects and project developers. Their perception of the problem and their expectations can be very different. With changing conditions and new challenges it will be important that different stakeholders understand each other's positions and are capable to communicate in the right way in order to come to the most sustainable solutions. Especially when they are working together in a multidisciplinary urban development and planning process it's important that they are able to understand and speak each other langue.

Urban archaeological deposits are among the more challenging phenomena confronting heritage management authorities, town planners, property owners and town developers alike, particularly in relation to building and infrastructure projects (RA/NIKU's Monitoring manual). Norwegian authorities have stated that it is an aim to "preserve the "underground archives" and at the same time establish conditions for continued use of the pertinent areas and the development of the vital inner cities (Parliamentary Report no 16: 2004-2005).

In the municipality of Tønsberg, local authorities have decided to revitalize the town centre. In this revitalizing process the authorities face a lot of challenges – not at least when it comes to water management, drainage and preserving the archaeological deposits: As a medieval town most of the urban centre has such deposits. In this paper we focus on the planning process in Tønsberg: How do the authorities and other planning actors solve the challenges connected with the development of an

urban area, where drainage, water management and cultural heritage management are key factors?

1.2 Content of the paper

In the second section of this paper, we give a short presentation of the city of Tønsberg. In part 3, we describe the historical centre and the archaeological investigations that already have been carried out (in the second part of the 20th Century).

In part 4 we present the challenges when it comes to the redevelopment of the town centre. Our emphasis is on the organisational approaches Tønsberg has chosen to deal with the planning process of the city's main square: what are the lessons learned from this process? We have summarized the most important lessons in the last section (part 5) of the paper.

2 Tønsberg

Tønsberg is the oldest urban settlement in Norway, founded as a town during the Viking Age, in the year 871. Many famous Norwegian archaeological founds – such as the Oseberg ship – have been found not far from the centre of the town. Tønsberg remained an important centre for the Oslo fjord region throughout the Middle Ages: from the 13th to the 16th Century, it was one of three Norwegian Hanseatic towns, with its own Hanseatic trade office. In the 17th and the 18th century, Tønsberg became an important shipping town – and later (in the 19th and the first part of the 20th Century) whaling made businessmen from Tønsberg very rich (see also http://www.vistittonsberg.com).

Today the municipality of Tønsberg has around 40.000 inhabitants¹. The total area of the municipality is 106 square kilometers. As far as employment is concerned, the tertiary activities are dominating; more than 80 per cent of the work force is linked to the service industries (Statistics Norway, http://www.ssb.no). Tønsberg is located at the western side of the Oslo fjord (in the south eastern part of Norway). The town is the administrative centre for the county of Vestfold, see also map below.

¹ 39.758 persons resided in Tønsberg, the 1th of January 2011, according to Statistics Norway. NIBR working paper 2012:109

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Figure 2.1 Map of the county of Vestfold, and the town/municipality of Tønsberg²

 $^{^2}$ Norway is divided into 430 municipalities and 19 counties. NIBR working paper 2012:109

3 Tønsberg historical centre

As one of eight Norwegian medieval tows, Tønsberg faces special challenges when it comes to the preservation and management of urban archaeological deposits. These deposits - which lay under the centre of the modern city - are automatically protected by law. In the last municipality master plan, the town council has stated that it will implement a revitalization of the town's historic centre³. This desire for revitalization leads to obvious challenges when the municipality at the same time must take the preservation of archaeological deposits under consideration.

3.1 The size of the historical centre

The remains of the medieval town of Tønsberg are situated in the central part of the modern town that faces the sea. Officially delimited in 1974, the scheduled area of the medieval town covers about 560.000 square meters, and in addition to the secular settlement comprises a castle and "Castle Mountain" (Slottsfjellet), the *Thing* area of Haugar, and the Episcopal estate at Teie (at the other side of the fjord that divides the town). The map below illustrates the size of scheduled area. It also shows that the thickness of the cultural deposits varies considerably⁴.

³ Kommuneplan 2008-2020 (see point 2.3.3 ("Hovedprinsipper – Bysenteret")

⁴ Both the map and the information about cultural deposits are based on RA/NIKUs "Monitoring Manual".

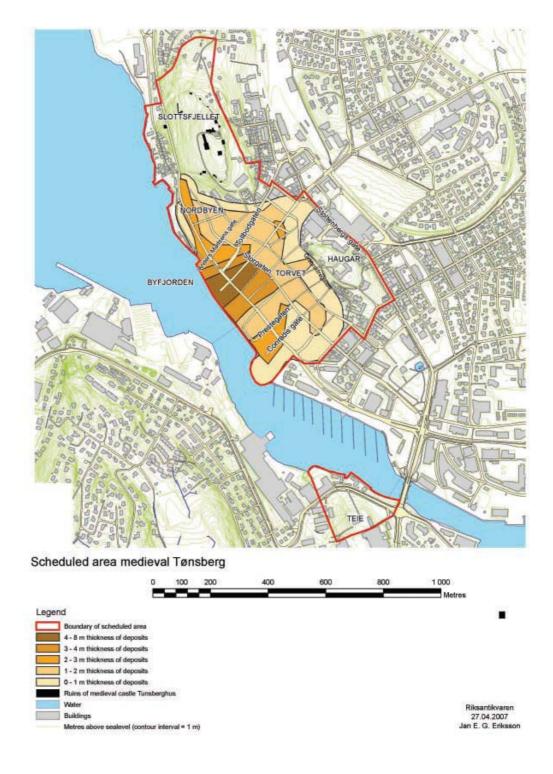


Figure 3.1 Map of medieval Tonsberg. Red lines indicates boundary of scheduled area⁵

 5 Map from ''The Monitoring Manual'' (RA/NIKU) NIBR working paper 2012:109

3.2 Archaeological investigation

Systematic archaeological investigations of the medieval town have been carried out more or less annually from 1971 to 1991. After 1991 only smaller excavations were carried out, with the exception of one major excavation in 1999. The latter was followed up with a monitoring program to record possible detrimental effects of new building constructions on the archaeological deposits left intact around and under the buildings. In 1978 a local standard for archaeological documentation was devised. The standard's main purpose was to provide an introduction to the local principles of documentation and treatment of findings, and includes standards for site drawing, photography, surveying and written documentation (see also RA/NIKU Monitoring Manual).

4 The Developing project for Tønsberg historical centre

4.1 Revitalizing the historic centre

The municipality has now decided to revitalize the centre of the town. This is considered to be a key element for creating a new framework for the development of the urban centre, as it's formulated in a new plan ("Helhetsplan og designhåndbok for Tønsberg historiske sentrum"). In the introduction to this new plan it is emphasized that the town centre has - like very few other Norwegian towns - still part of the street structure from the Middle Ages. Tønsberg has a central town square - and this square, with its surrounding streets, has a potential for revitalization. However, to reach the goals for revitalization, the town has to organize traffic in new ways – and try to connect different parts of the city closer to each other, for instance by connecting the harbour with the town streets and the town square.

The process of revitalizing the historic centre of Tønsberg brings about a lot of challenges - not least when it comes to preservation of the urban archaeological deposits – and how this should be coordinated with other considerations like drainage and water management. However, since systematic investigations already have been implemented, there is a good baseline for a redevelopment of the historic centre. The overall aim for the authorities responsible for protecting the cultural heritage is of course not to stop all new development. The Directorate for Cultural Heritage has itself stated that the goal is to protect the medieval towns – and "find ways of fulfilling this goal at the same time as allowing the modern town to develop."

4.2 Organising the development project⁸

Strategic organisation

The revitalization of Tønsberg historic centre is ambitious, and one of the first challenges that the main actors in the project realized, was that the organisation of

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⁶ See page 4 ("Innledning")

⁷ Se section 4:"Conclusions and principal challenges" in The Monitoring Manual.

⁸ The description of the organization of the process is based on interviews with three central actors in the project, participant observation in one of the meetings in the project group, and in addition discussions with a representative for The Directorate for Cultural Heritage.

the process should be taken into close consideration. As one informant in the project stated:

"Dialogue with all actors is a cornerstone in the revitalization process of Tønsberg. This project would be impossible without cooperation and coordination with a lot of different people. This includes - among others things - involving actors for different public sectors, private enterprises and property owners and - not least - the ordinary people of Tønsberg."

To deal with the different challenges -like drainage and water management - in the project, different organization approaches have been put into action. First of all a strategic organisational model was devised, see Figure 4.1.

Figure 4.1 Strategic organisational model for the development of Tonsberg historical centre

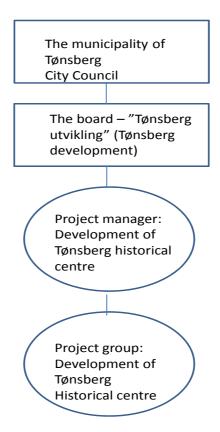


Figure 4.1 illustrates that the overall responsibility for the project is linked to the City Council (the highest elected body in the municipality). A special enterprise "Tønsberg Development" (Tønsberg Utvikling) has been established by the municipality to deal with challenges that involve cooperation with the private sector in Tønsberg historic centre. Tønsberg Utvikling (TU) is lead by a board with eight members. The board consists of leading politicians (from the City Council) and representative from the private sector.

The town mayor is leader of the board. In addition four other politicians participate in the board (representing different political parties). Two board members come from private enterprises, and finally the chief administrative officer of the municipality (Rådmannen) is member of the board. Key-figures in the community are thus members of the TU-board. For the development project for the historic centre, this is considered to be very important. One of our informants stated that:

"The TU-board is very "action-oriented": They want things to happen. And because they are leading politicians and represent important private enterprises they know what is possible to do, and what's not possible to do. This may have lead to a faster decision making process, compared to process where everything had to be given clearance through a formal political process."

Operative organisation; the project group

The project manager for the historic centre-project reports to the board. It has also established a special *project group* to solve ongoing challenges in the project. This project group consists of one representative from The Directorate for Cultural heritage, one representative from the archaeological research institute that perform the actual excavations (NIKU – Norwegian Institute for Cultural Heritage Research), one representative from a private consultant (hired by the municipality to take care of the planning process)⁹ and one representative from the municipality's water and sewerage department. The group is led by the project manager from Tønsberg Utvikling.

The project group has meetings at different intervals, depending on what kind of issues need to be solved. Typically, the group meets once every month. The group gathers to discuss practical challenges concerning the development of Tønsberg historical centre, such as how to solve problems when it comes to ground work, ground heating, terrain surface development, electrical (re)constructions etc. *One* instance usually has the responsibility for the specific field of work – but necessary coordination is taken care of by the project group - see also Figure 4.2.

The members of the project group seem to be satisfied with the internal cooperation; as one stated:

"I think that the group functions very well. We have an open dialogue – and we are focused on solving the problems as they come by. The representative from the Directorate for Cultural heritage is very open minded. As the rest of us he is interested in finding solutions that can bring the project forward."

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⁹ The private consultant is Asplan Viak A/S NIBR working paper 2012:109

Figure 4.2 Operative organisational model for the development of the main square of Tonsberg

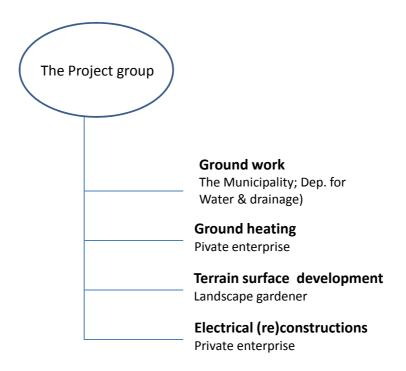


Figure 4.2 illustrates that the project group has a lot of different specific tasks to work with, as the development of the historic town progresses. To maintain a momentum in the development project, it is important that alignment of the different tasks is coordinated. The work so far has not been without problems, as the members of the project group pointed out during the interviews with us. The main problem has without doubt been new archaeological findings. The project leader stated that:

"When we started up this new development project in the historic centre, we had faith in the assessment from The Directorate for Cultural Heritage: Their valuation was that there would be little need for new excavating work now, since there had been systematic excavations in the town from 1971 to 1991. The assessment was also based on an archaeological research report from 1997¹⁰. However, on the second day of ground work in the main square, the workers hit unknown archaeological objects. The work had to be stopped, and archaeologists took over."

The new archaeological findings have significantly delayed the whole project. When work started (spring 2010) the plan was to finish construction the same year (fall 2010). However - mainly because of the new, not expected archaeological findings and required mitigation measures to preserve the archaeological heritage. A revised plan from Tønsberg Utvikling, made in 2011, indicates that the work would be delayed with a year (Tønsberg Utvikling 2011). In addition to the delay, the

¹⁰ Edvardsen og Gansum (1997)

municipality has to pay for the excavations, following the principle in Norway that developers have to pay for excavation costs.

Even though the development of the town lagging behind the original time schedule, the members of the project group seem to be relative patient. One of the members formulated it like this:

"When we are dealing with archaeological deposits, we have to be aware that things can take much longer time than first anticipated: Archaeological work takes time"

It should also be pointed out that the new findings had some positive effects: the local newspapers wrote articles about the archaeological findings. This led to a lot of interest from the inhabitants and created a new awareness among the citizens of Tønsbergs medieval history. Tønsberg utvikling has tried to build on this interest by publishing information leaflets and also placing information boards at the town square, where the archaeological excavation is taking place.

It's also important to emphasize that the within the project group was a high awareness and knowledge about how the constructions influenced the water balance and therefore the preservation conditions. During the whole process it has been a high willingness to change constructions plans in order to preserve archaeology.

The members of the project group emphasized that it was a significant advantage that the municipality itself - and not a private contractor - that had the responsibility for the ground work (as illustrated in Figure 2). Therefore, when the development had to stop because of the archaeological excavations, the municipality could reassign its workers elsewhere. If a private contractor had been hired, this would not have been possible, and the municipality would have been faced with high labour costs, even when the work was temporarily stagnating.

Organisation; involvement from groups outside the public sector

The project group (described above) is of key importance for the whole development project. However, for Tønsberg Utvikling it is also important to ensure participation and involvement from groups outside the project group. The TU project leader emphasized two main categories of groups outside the public sector:

"First of all it's of course important to have a close cooperation with the private property owners with properties around the town square. All in all there are 12 such owners. They were all invited to participate in the development project when we started up. Nine of the owners responded positively to the invitation – and have participated since the start. However, three owners have turned down the offer of participation, due to economical reasons."

It should be emphasized that the bulk of the development cost is financed through public funding (from the municipality). The estate owner¹¹ portion of the financing was clarified from the beginning of the project. In other words; when the total

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¹¹ The estate around the town square is mainly department stores, shops and other commercial businesses.

project cost increased (as a result of the archaeological excavations), this had no effect on the estate owner's financial contribution to the project.

All the three interviewed members of the project group underlined the significance of a good dialogue with estate owners. One of them formulated it like this:

"A very important part of the project is to maintain a good relationship with the estate owners: They have to know what is happening when, so that they can plan their own businesses."

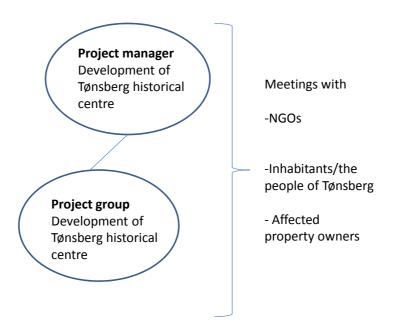
The property owners are invited to meetings where they are informed and have a possibility to discuss the project with representatives from Tønsberg utvikling and the project group, see also Figure 3.

As Figure 4.3 indicates, NGOs and the inhabitants of Tønsberg are also important groups for the development project. Some information is given out through brochures, pamphlets etc. In addition, Tønsberg utvikling has put up banners and information boards in and around the town square itself. The citizens have been invited to public meetings where the project has been presented and it has been possible to discuss the development of the historic centre.

The project has also been discussed with local NGOs in especial meetings. Like the meetings with the property owners, the meetings with the NGOs are partly focused on information - but it is also possible to discuss the future development of the town. The project leader underlined the importance of reaching out to the public:

"The remains of The Maria Church were uncovered during the archaeological works last year (2010). This created a tremendous interest among the inhabitants of Tønsberg. People became really interested in the medieval settlements. I think it is very important that we build on this positive interest in the project: It can create a positive attitude towards the whole development project of historic town."

Figure 4.3 Involvement of groups outside the public sector



5 Lessons learned from Tønsberg

The main lessons learned from the planning process in Tønsberg historical centre, can be summarized in six points:

- a) Putting water early in the planning/development process
 From the start different stakeholders have been involved in the project. Water
 managers have participated in the project group from the start (see Figure 4.2) and
 therefore important considerations when it comes to water and archaeological
 deposits have been included in the project.
- b) Organisational model: Important to involve leading actors
 When it comes to the organisational model, the Tønsberg approach seems to have
 many advantages. First of all, the strategic organizational model (see Figure 4.1) has
 given the project a firm foundation: Leading actors both in the public and the
 private sector are linked to the project. This means that challenges in the
 development process can be dealt with in a direct way with little bureaucracy.
- c) Archaeological excavation may take time
 Thanks to the cooperation within the project group, the damage to the deposits in
 and around the town square has been minimized. However, the redevelopment of
 the historic centre has taken much longer time than first anticipated: Archaeological
 excavation takes time, and this must be reflected in work schedule. In Tønsberg, the
 authorities planned for the development project to be finished in the fall of 2010.
- d) Prioritization of archaeology may lead to lower priorities for other environmental considerations

However, the process continued well into 2011.

To development in the town square of Tønsberg illustrates that the prioritization of archaeological deposits, can mean that one has to give less priority to other environmental considerations. Some of the larger trees in the historic centre have to be cut down, because their root system can damage the archaeological deposits. They can be replaced, but only with trees that are physical separated from the deposits. This means that the trees have to be planted in separated "pots" or tanks, which again means that the trees will smaller and less rich. These trees will also need more care, and will have a shorter lifespan than trees living under ordinary conditions.

e) Forum for direct contact between representatives from water and drainage departments, representatives from cultural heritage and other developers can give good solutions

Within the he project group (see Figure 4.2) it is easy for representatives from the culture heritage to take direct contact with actors that are implementing the new

developments in the historic centre, for instance representatives from the water and drainage department in the municipality. This means that problems concerning water/drainage issues can be identified and solved directly in these meetings. The project group has also been a forum for dialogue between (cultural heritage) protecting interests and development interests.

f) Open dialogue can create positive involvement

Tønsberg Utvikling has formed a model for dialogue with the public and with the involved property owners (Figure 4.3). An open information and dialogue strategy towards the public is probably of vital importance for a project like this. In Tønsberg the strategy seems to have resulted in a positive public interest for new development of the historic centre.

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