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Joint properties with need of changes – without incentives? The Swedish case

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Key words: Commons, joint property, Sweden, efficiency, change, land tenure

SUMMARY

Joint property units and joint facilities are an integral part of the Swedish cadastral system. They are a result of the 19th century land reforms, where the units guaranteed a common resource system (roads, mills, drainage systems etc.) for externalities of the individual property.

Today, several of these joint property units are unused and constitute land of low value. Joint facilities exist with old statutes and participatory shares. The appropriators face major transaction costs to make changes of their joint property unit or joint facility, despite a well developed legal framework. Some efforts have been made to reduce the number of idle joint properties and update joint facilities. One pilot study was carried out for joint property roads in Southern Sweden, with EU funding. However, public funding creates a disruption in the normal process to optimize land use and land tenure options.

Costs and benefits are changing over decades for a specific joint property unit or joint facility. Some examples illustrate changed conditions. Comparison is made with some commons with other land tenure situations. An analysis is made on changed land uses and land tenure in the cadastral process, the efficiency of the legal framework and the role of the cadastral officer.

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1. BACKGROUND

Commons is a general concept of land held in some kind of jointly held system of land tenure. They could be defined as all the forms of land tenure in between private ownership and public access to land. Joint property units (JPU) are the areas defined in the cadastre system as unique units, but held in common by a specific group. The Swedish concept of JPU is a legal framework for a cadastral area, owned by a formally defined group of properties. It is a commons with property units as members.

The JPUs are in some way the remaining areas that have not been privatised. The historic development of production schemes has implied a high degree of individualisation of land, as well as water and other natural resources. However, jointly used land is sometimes more convenient, in particular when there are special facilities or land uses that can serve several properties. In parallel to the JPUs there are also joint facilities (JF). They do not include ownership to the land as they legally are provided through servitude on another property, i.e., as a joint dominant property unit.

A detailed observation of the commons, embracing some practical examples, indicates that several JPUs and JFs are managed besides the legal framework, including idle cases – JPU or JF without any current use, but still remaining as a formal cadastral unit. There are plenty of examples of associations with one formal structure and one real, parallel management. The incentives are not sufficient to proceed with changes in the legal framework, mainly due to the administrative costs. In a previous paper (Ernald Borges 2006) I analyze the principles of cost-benefit assessments according to the requirements in the Swedish laws. These assessments are made at the initial formation of the JF, but I also apply the principles of assessment in a reviewed analysis after several decades.

The reluctance to take action in cases of idle or outdated cadastral situations is focussed in this paper. It is also stated in a governmental report (SOU 2001). The key question is how we deal with the transaction costs as threshold effects, in particular if the estimated value of the asset is low or difficult to assess. The value is also changing over decades, depending on the land use of the participating properties. The analysis will describe the apparently efficient system and put it into other perspectives on efficiency.

The analysis might be of interest for any other system of commons, well developed, badly developed or without any organised structure.

2. THE SWEDISH COMMONS

The system of commons is a product of a historic development, and it works according to the rules that prevail in the society. The existing system of JPUs and JFs is well established in the Swedish cadastral system. These commons are a necessary complement to the individual land ownership and public land in infrastructure and other public services. The statistics indicate a considerable number of JPUs and JFs, embracing 12 respectively 30 % of the property units as members of these commons. The total number of shares in JPUs and JFs (6.3 M) is about twice the number of properties (3.1 M), which means that many properties are members of several JPUs or JFs. The JPUs and JFs are essential for the smoothness of the cadastral system.

The JPUs and JFs in Sweden are administered by independent private management associations, formed in a cadastral process. The registered number of associations is about 36,000, thus a considerable number of associations. The associations have a legal authority and they are supposed to work independently according to the legally created framework. They could be considered as very well defined commons. The cadastral authority has handed over the entire responsibility for the commons to the associations. The system is supposed to provide the best management tools without a need of governmental actions, but still within the system of a commons.

We could describe the system as highly operational and sustainable. The efficiency is supposed to be guaranteed by the management association, supported by the legal framework of the Joint Facilities Act, dating back to 1973, substituting a previous act on private roads.

The Swedish society is relying on the efficiency of the legal system. We believe that justice and efficiency is working complementary and smoothly. As providers of the cadastral system, we also rely on private management within a JPU or JF management association. The landowners are supposed to be capable to administer the JPU or JF in an efficient way at low costs.

Many landowners are familiar with the JPUs or JFs. The JPUs are frequent at the countryside, embracing e.g. roads, drainage schemes, and grazing areas. The JFs exist in urban as well as rural areas, providing e.g. residential services (waste disposal, car park, and community places), roads, and bridges. Hunting grounds and fishing areas are managed through special acts.

Roads are the most common purpose of JFs, providing access to the property as a complement to the public road system. The private roads amount to 284,000 km, representing two thirds of all roads. Municipal roads amount to 37,000 km and governmental public roads 98,000 km. There is also a partial public funding of construction and maintenance of the common roads, covering 40-85 % of the costs, though in practise not reaching the officially stated values. These public subsidies are paid for about 25 % of the private road network, while the remaining part is entirely financed by the landowners. The main criterion for qualification to subsidies is traffic intensity, being a daily average of 125 vehicles, but reduced to 50 vehicles as a rural policy in sparsely populated regions. In return of the subsidies, the roads must be open for public access. It is found

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to be more cost effective to guarantee public subsidies to a privately managed road system through JPU and JF associations. It has been estimated that the costs of private associations are about 50 % of the costs of public agencies, mainly due to local participation and adjustment to the real needs at local level.

Thus, there are levels at the rural road system: public roads, private roads with partial public funding and private roads without public funding. The governmental report (SOU 2001) suggested that 16,000 km of the public roads could be transferred to private roads, and 5,000 km of the private roads transferred to public roads. The proposal means a decrease of about 12 % of the public road network, to be transferred to private roads, and 7 % of the private roads with subsidies to be transferred to public roads. The changes are mostly explained by changed conditions in traffic intensity.

Roads are a logic area of commons for property units. There is an evident need to analyse the best management unit of an asset, which explains the changes between the public and private domain. There are also commons with other land uses that might be managed in private associations.

The efficiency of the private JPU and JF associations is by and large an internal issue of each association, as they are independent legal bodies. It is difficult to make an assessment of the efficiency, as it requires detailed information from the associations. In many cases, the need of the commons is obvious, and the shareholders have to collaborate within the stipulated rules of the association. Sometimes we can find a trouble JPU/JF case, with or without a formal management association, but most commons exist and fulfil their purposes without much public attention. However, this does not mean that they function properly. The official participatory shares, the statutes and the law of JPUs Management Act are the framework for their activity. A limited number of trouble cases might indicate a good efficiency, but we understand that we only see the tip of the iceberg.

There are several signs of the functioning of the JPU and JF. The JPU/JF Management Act is a useful and necessary complement to the Joint Facilities Act and Real Property Formation Act.

The need of subsidies for revision of old JPUs and JFs was already stated in the 2001 governmental report on private roads (SOU 2001). A survey of private road associations indicated that about 1,000 of 1,505 old associations for urban road associations would need a revision of the statutes and participatory shares, i.e., two thirds of all associations. The old Private Road Act used the taxation value of the property as basis for the share, while the Joint Facility Act requires an analysis of the estimated benefits for each property, mainly based on the estimated individual traffic load and distance. Thus, the changed basis for calculation of the share created a need for an official revision. The survey also indicated that about 400 of these associations were totally inactive, considered dead associations, partly due to informal solutions with local governments in charge of the road maintenance. About 700 of the associations had in a previous national campaign proceeded with an application and revision of statutes and shares.

The need was further developed in a EU program for development of rural infrastructure, covering half of the consultancy cost for the cadastral procedure. The first EU financed project

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phase was run 2004-2006, and it has been transferred to a second phase during 2007-2013, with a yearly budget of 693 M SEK (about 100 M US\$; Skogsstyrelsen, Lantmäteriet & REV 2007). However, many associations or small JPUs or JFs without an association have not taken any initiative to review their conditions, despite evident needs. These rural road associations are the majority of all JF and JPU associations, sometimes also with some other specific facilities, e.g. bridges or jetties. A rough estimation indicates that more than half, maybe two thirds of the 36,000 associations deal with the rural road network. It is also assumed from practical experience at some cadastral offices that at least half of these associations, maybe more, would require a revision of the statutes and participatory shares. The main policy for calculating the shares, individual traffic intensity and distance, was defined at the initial formation, but many of these rural road associations have changed in reality, but without a formal updating. The estimated accumulation of changes is an indication of a negative pattern of the legal system.

The 2001 governmental report states that the average cost for cadastral revision of the 1,505 urban JF and JPU road associations was 321 SEK/property unit (about 45 US\$), which seems quite low. The cadastral process for revision embraced an average number of 258 property units, which indicates the complexity of the process. However, the idea of the JPU or JF is to join the interests of several properties, as the alternative of privatisation appears to be unrealistic. The National Land Survey is providing information on the advantage to join several JPU or JF into one major JF, with one unified management association.

The EU program with support to revision of old JPUs and JFs is a sign of an area that requires subsidies in order to proceed. The threshold effect is lowered, but at the expenses of public funding. The JF/JPU associations are quite anonymous in the Swedish society. But being a fundamental kit between the individual properties, many JFs and JPUs have to be active in their management. The interesting issue is the magnitude of some kind of trouble cases, or even idle cases.

It could be noticed some tendencies to privatise municipal roads by transferring them to a JF with a management association. Some local governments encourage such transfer, sometimes as a part of the policy of the ruling political party. Other local governments prefer to collaborate with JPU/JF associations or to keep a considerable municipal road network, as a way to show the concern for the rural population. A MSc thesis (Micha 2007) has identified considerable differences in municipal policies for private roads in urban areas in Southern Sweden.

3. APPROACHES TO ANALYSIS

An analysis of the Swedish system of commons requires some criteria on how to assess the efficiency of the existing system. The general impression is that the system is working well, and that the institutional framework adequately supports it. This impression is partly based on a general assumption of a well functioning cadastral system in Sweden. An analysis is necessary if we search to optimise the use of land resources. There is a major challenge to procure alternative or complementary views on the process.

The interest for a study was caused by two different factors: case studies on JFs and JPUs of final year MSc students and a short article on EU funding for updating and regularization of the legal framework of existing old JFs and JPUs. The case studies showed a general pattern of old and outdated participatory shares, and that the associations of landowners handled the management of the JF or JPU on their own, disregarding the conditions defined in the cadastral process. The EU funding to assist associations in regulating old shares is a sign of a call for change, but without external funding it seems to be unrealistic. The situation is confirmed by the information and program for EU funding. The National Association of Private Roads (REV) describes the precarious situation of old JPF/JF road associations as problematic and in need of formal revision through a cadastral process (REV 2006). The EU funding for improved rural infrastructure is jointly developed by The Swedish Forest Agency, the National Land Survey and REV (Skogsstyrelsen et al 2007).

The famous Hardin tragedy of the commons is far away from the Swedish reality, as we have defined the right of access to the commons. However, a critical perspective is useful in order to understand how the current system has developed and how it is managed in reality by the landowners and their associations.

Several basic questions could be raised, as a way to analyse the situation:

- What kind of commons is used elsewhere in the society?
- What distribution exists between commons, public and private land? Is there a good balance between them?
- How is the land tenure defined in detail for different land uses?
- How could we understand the associations as management units?
- How could we understand transaction costs?
- How do we identify a need of change – in individual cases and for the system of commons?
- How do different stakeholders collaborate (e.g., the authorities, the private associations, and individual landowners)

We are not able to answer all of these questions in this paper. However, the continued analysis will develop some of these aspects.

4. THEORETICAL FRAMEWORK

The essential objective of the land market is that changes in land tenure have to be done in order to optimize the land value. Changes are done over time to reach higher valued uses. Such objective is independent of the type of land tenure, i.e. private, public and jointly held land (Holderness 2003). In a market economy we would expect that the property units are optimized. However, the real estate market is surrounded and supported by a legal framework, including the planning and regulatory requirements that we understand to be necessary. The commons is not an exception, and they are integrated in the cadastral system. The great number of participatory shares, commons (JFs and JPUs) and associations, referred above, indicates that it is not a marginal phenomenon. However, the commons do exist and they are supposed to complement the land market.

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New priorities in land policies may cause a marked trend of changes in land tenure. The Mexican communitarian 'ejidos' are described by Jones and Ward (1998) as threatened by the search of urban land in legal and illegal settlements, by changing the legal framework (article 27 of Agrarian Law). The huge part (55 %) of Mexican land held in commons by 30,000 ejido associations has been a logic asset for illegal settlements, providing 10-15 (of 66) millions with individual urban plots.

Another example is how urban development threatens the existing land tenure system in China. Zhu (2004) describes how state-owned-enterprises (SOEs) have played a key role in transforming rural villages and state land to private urban settlements. The city of Beijing reached 71 % of private housing of the total housing stock in 2001, which is a major challenge to the previous state control of the land tenure system. Zhu describes the gap between the central planning tradition and market mechanisms.

A historical perspective on the changes from commons to private holdings is developed by Ford Runge and Defrancesco (2006). They use the historic enclosure of land, in particular in Great Britain, as a useful example on how the previous common use was transferred to individual tenure, using the two key concepts of exclusion and inclusion, and further used in their analysis of intellectual property rights. They noticed that the exclusion of land was not exclusive, as there was differentiation of the property rights between stakeholders, as well as seasonal differences in access to land. They also use the common property regimes in the Swiss and Italian Alps as an example on how a land tenure institution has survived due to their capacity to identify the need of different uses in combination of individual and common ownership. They consider the institution of the commons as a kind of management firm, with capacity of fine-tuning the land tenure arrangement. They conclude that a thorough analysis has to be made on how to proceed with the exclusion of rights, in order to create a mixture of property rights, enabling the assets to be used in an optimal way.

A further approach on the need of analysis is well known within the area of commons, departing from the famous Hardin Tragedy of the Commons, to game theory and anti-commons. Parisi, Schulz and Depoorter (2004) express the concern on how common regimes are sub-estimating the potential of land use, due to the effect of preventing other stakeholders to act, despite a still positive total output of the commons. The right to exclude has to be agreed within the board in charge of the commons. They argue that the two concepts of right to exclude and right to use have to be understood and coordinated in an optimal way that the individual stakeholder rarely might grasp. This results in welfare losses. They conclude that there is a tendency of underutilization of joint properties, and that it sometimes becomes easier to fragment commons. The opposite direction, to reconvene fragmented property occurs very seldom.

Ingerson (1997) advocates that common property has a potential in urban areas, despite the tendency of privatization in urban settlements. She states that commons is not only a rural issue, but it could contribute to feasible solutions in urban areas. The polarisation between private and public areas has to be moderated, as there are several uses and land tenure solutions where common property regimes have advantages. She emphasizes the need of structures for common property, using the two key requirements stated by Ostrom (1990) that the systems must be able

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to face significant environmental uncertainty and that the group of owners/users must have a social stability.

5. THE DEVELOPMENT OF JPUs AND JFs IN THE SWEDISH LAND TENURE SYSTEM

The JPUs and JFs are defined as cadastral units. During the transfer process to a digital cadastral system, the key data of each property unit was identified in the land books. These books date back to the beginning of the 20th century (1908 for rural land and 1917 for urban land), being improvements from previous land books. The process of conversion of data was not streamlined, as the land books contained old and frequently outdated situations. Cadastral data in the land books could remain with the previous formal data, not including changes in land use and land tenure. Thus, uncertainties in cadastral data might increase if updating is neglected. The conversion to a digital land data bank system during the period 1974-1995 brought all property units to a renewed analysis. The JPUs and JFs were also included in the conversion process. However, sometimes the cadastral data in the land books were too complicated to clarify, which forced the cadastral authorities to summarise the data in a general way, leaving some details to a future opportunity. It was only stated in the cadastral record that the presented data might be incomplete.

The JPUs and JFs have a key function at the property market. Still, they are not given proper attention due to the limited role, as supplement to the property unit. The value of the JPU or JF is integrated in the individual value of the property unit. An access road has an axiomatic function – the individual property could not exist without the road, but the practical obligation is reduced to a yearly fee and eventual participation in the management association. There are also other valuable commons, e. g., bridges, jetties, water provision and sewage systems. Usually, there is a common understanding of the need of the common asset, but there are also diverging ideas of maintenance of an asset, or on investment/dismantling of the asset.

The process of individualisation of land tenure has similar characteristics in Sweden as in other parts of Western Europe. The joint production schemes in agriculture and forestry have successively become outdated, due to the technical improvements. However, the governmental administration had a leading role in supporting the individualisation, through three agrarian reforms, in 1749, 1803 and 1827, being implemented during the 18th, 19th and 20th centuries. The need of commons has decreased, but there are still areas where joint ownership of properties is the logical solution. Agro-forestry practices dominated the passed centuries, but today many of the commons are more linked to residential uses, permanent as well as seasonal housing. There has been a successive change from rural JPUs to urban JFs. The commitments in joint facilities are based on groups with a higher degree of mobility. It is not based on the community of the farming village, but on people with different professional activities and geographical mobility in life.

We have defined the formal link of the JPU or JF by means of the property unit, without the individual person as a member. The person is a member of different communities, being the JF or JPU management association one community – as landowner - without high priority in relation to

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other activities. Still we require the landowner to participate in the association as the management unit for the estimated benefit of the commons. A person has to participate actively in these different groups of economic interest. The management associations of JPU or JF are based on the historic traditions of landowners with the same economic activity in agroforestry. Today, a person has much more diversified activities with different management units, e. g. in residential housing, leisure housing, different employment activities and many others. A JPU or JF management association for a local road embraces resident farmers, resident commuters, leisure house owners and forest companies. The situation of the association is more complex than during the past pre- and initial industrial era.

6. COMMONS IN OTHER LAND TENURE SCHEMES

JPU or JF management associations could be compared with other commons related to land resources that people might face today. Tenant-ownership, allotment gardens and the right of public access in rural areas will be used for this comparison.

Tenant-ownership is developed for residential housing, and managed through tenant-owner associations. 16.0 % of the Swedish adult population is living in tenant-ownership, situated mainly in the medium and large cities (15-30 %) compared to other areas (3-10 %). The value in 1980 was 11.6 %, thus a marked increase during 25 years (SCB 2007). The associations have a residential purpose, but might include commercial and office areas at the bottom floors. The residents have individual tenancy, i.e., a right of use and right of transfer of a specific apartment. The tenant-ownership contains the membership in the legal person – the tenant-owner association, which is the owner of the property unit. The Tenant Ownership Act provides the legal framework for the administration of the association, comprising financial management.

The association is based on democratic rules. Every tenancy has the same weight, independently of the size or value of the apartment, i.e., a uniform system: one tenancy – one vote. This is considered to be simple and efficient. From the cadastral perspective, all joint facilities within the association are internal issues that are supposed to be efficient. The choice of tenancy-ownership could be understood as one solution of efficiency. Liedholm (1988) identifies problems in efficiency and equity of the associations, in particular the participatory process. However, proper attention is paid to the development of the tenant-ownership as commons with residential purposes.

Another, less famous joint management unit of land is the *allotment gardens*, dating back to the early period of urbanisation in Europe, in parallel to the emigration movement to America. The leading principle was to offer garden plots with leasehold to new urban dwellers, but within an association for management of the allotment area. Bergquist (1996) describes the early development of the allotment garden movement as a conscious policy of organising the new urban dwellers, aiming at the utopia of the urban society at end of 19th and beginning of the 20th century. The strong emphasis on education of the urban citizen was understood as a key issue in the growing urban areas.

The leasehold agreement includes a compulsory membership in the allotment association of the area. There are about 25,000 members in 260 associations in Sweden. The role of the associations has changed from ideological ideas of training in participatory membership in the allotment association to a reduced function as a leisure housing area with a special leasehold agreement.

The current allotment associations cannot continue their activities using the early concepts of the movement. However, there is still an allotment association with a key function for management of the area. The alternative to privatize the plots would demand another coordination of the landowner, predominantly the local governments in Sweden. The associations might face a decreased interest in members' participation, which could be understood from an economic perspective of limited benefit for the individual lessee to gain from participating. The development in other European countries might be similar. However, the allotment garden movement embraces about 3 million gardeners in 16 countries – a significant number of lessees.

The right of public access is a specially developed right of use of private rural land, based on the tradition in Sweden and Finland. The internalisation of common rights to the individual properties and JPUs did not embrace the rights to a limited use of the land of everybody. It is a traditionally developed usufructuary right, which has been defined through scattered articles in the Land Code and some other acts. The idea is to keep private property open for public use for recreational use of forests, meadows and lakes, e.g., hiking, allowing picking of wild berries, twigs and dead tree branches, swimming and short-term camping. The leading principle is that the marginal costs for the landowner are almost none and that the public access to the rural areas creates a determined benefit for the public – the individual users and the society in general. The transaction cost to regulate and supervise this kind of limited use would not be feasible, compared to the estimated benefits of the users and landowners.

Mortazavi (1997) identifies some cases of overuse or abuse of the right of public access, with some landowners suffering a big number of users or users without the traditional Swedish awareness of mutual respect. Such cases cause a challenge to the entire system, with opinions of restricted access, fees and/or licences. He concludes that the usufructory rights might be of interest in a broader European context, though facing problems with a lack of social responsibility that has developed in Sweden as a general awareness in parallel to the urbanisation of the society. Sydsvenskan (2007a) describes a dispute caused by a landowner's fencing of a forest area, claiming detrimental effects due to increased land use, in particular riding and cross-country cycling, but also illegal motorbike driving. Some closed gates with a stile beside exist, but they are not easily passed by people with disabilities or other physical difficulties. The reduced public access is causing an intensive debate on principle of public access. Ostrom (1990) argues that commons must be able to face significant environmental uncertainty and that the group of owners/users must have a social stability. This principle could be understood in the referred case. Changed patterns of public use of rural areas require a flexibility of the system. Even though the right of common access is a traditional right, the legal framework must be able to face changed patterns.

7. EXAMPLES OF JPUs AND JFs IN A BROADER CONTEXT

The Swedish JFs and JPUs have a well-defined legal framework. The cadastral authority forms the JF based on an analysis of costs and benefits, and delimits the group of property units to be included. The Joint Facilities Act defines the requirements for formation of a JF, including a specific determination of the purpose of the JF. Many JPUs were formed or defined during the period of agrarian changes, but there are also cases with JPUs for specific facilities, such as joint access roads. In these cases, the land was transferred to the group of landowners, and defined as a joint property unit.

Some examples referred above indicate that management associations of commons exist in different shapes and with different uses. The 30,000 ejidos covering a huge part of the Mexican territory face different problems than the Swedish reality with 36,000 JPU and JF associations, 260 allotment garden associations and 0.65 Mio tenant apartments. The number of people, as landowners or lessees amount to several millions. The dynamics of the associations change over decades and centuries. The right of public access is another example of a specific land use that faces changed circumstances, though without associations. In all these situations we understand that commons have a variety of situations and might increase or decrease its activity, due to the actual role that the associations might play. The tendencies of tragedy of the commons or anticommons, with or without associations, still call for a thorough analysis of the rationale of the commons and the associations.

A detailed analysis on nine cases of joint facilities in Southern Sweden was done in 2005, as student reports in the MSc course Common Property at Lund University. Three of the reports dealt with hunting grounds, with an association according the special hunting act and the act on game preservation. The other six reports dealt with formal joint facilities, including roads, drainage and parking lots. Most JFs date back to the middle of the 20th century, thus ageing half a century.

The case studies indicate that landowners act within the associations. As decades pass, the needs change, while the associations might continue with the same statutes and participatory shares. An amendment in 2001 of the Joint Facilities Act admits the Cadastral Authority to assign to the association to decide itself on changes of the participatory shares, in case of changed uses of properties. Such change becomes effective through the formal registration at the Cadastral Authority.

The institutions of JPU and JF, managed by the associations, or without an association in case of few participating properties, need to be analysed in a perspective of efficiency. The changes over decades illustrate how the associations act according to the formal conditions, or arrange non-formal solutions. Even though the JPU management act has been adjusted to new circumstances, the individual associations are not always acting according to the changes. The legal responsibility of the JPU and JF was handed over to the associations (or few landowners group), without any remaining responsibility of the cadastral authority. The management is following several of the ‘golden’ design principles of common property resources, as proposed by Ostrom (1990):

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- Clearly defined boundaries
- Congruence between appropriation and provision rules and local conditions
- Collective-choice arrangements
- Monitoring
- Graduated sanctions
- Conflict-resolution mechanisms
- Minimal recognition of rights to organize
- Nested enterprises (part of larger systems)

However, the reality of the JPU associations sometimes reveals a lack of congruence. They start to practise their own rules, and the cadastral record gradually becomes more peripheral. The case studies provide an extract of diverging management, and that the associations do not find it feasible to formally regulate the changed situations. The threshold cost, or transaction cost according to the Coase theorem, might be too high for the association.

An interesting evidence of the high threshold cost could be identified in the EU project referred above for support to infrastructure development at the countryside. Some cadastral officers confirm that there are many complicated situations, due to accumulation of informal agreements and a reduced activity in the management situations. Two cadastral offices in Southern Sweden have participated in revision of about 50 JPU and JF associations during the first phase (2004-2006) of the EU project for rural road associations. These 50 cases are the tip of the iceberg. Many of the 100,000 JPUs and 70,000 JFs would need a review. The 36,000 associations are the key actors, while small JPUs and JFs without a formal association function with internal ad hoc agreements.

The crucial question is whether the JFs and JPUs have an adequate management framework. Many of these JPUs and JFs have an access road as the main purpose of activity. The benefit is evident, but it is not easy for the landowners to assess the individual value of the access road. It is an integrated part of the property unit, which is the very meaning of the Swedish JPU and JF models.

The public subsidies make the individual management costs less evident, which might withhold the association from taking action for a review. Some associations have a yearly fee of 10-100 US\$ for maintenance, which easily minimizes the need of a dedicated management of the association. The EU funding for reviewed statutes and participatory shares is also a way to reduce the need to optimize the management.

One of the revised cases is the JF called Aneby Haurida-Bohult GA:1, formed in 1948 according to the previous Private Road Act and cancelled through a revision process in 2006. A new JF was formed as Aneby Brohult GA:2, with 47 participating properties. A cadastral map is enclosed in Appendix 1, with the roads clearly indicated. The new JF is also a dominant facility on four JPUs. About half of the shareholders of GA:2 are also shareholders in the four JPUs, as servient property units to the dominant facility (GA:2). The matrix is complex, as each of the JF and JPUs has different groups of landowners. The investment costs of the roads are writed-off, but the roads still have a marked value for the individual landowners. Significant changes in the cadastral

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structure and land uses since 1948 called for the review that finally was made in 2006 – after 58 years. The cadastral officer estimated that a revision of the original statutes and participatory shares would lead to a complicated scheme of compensation between the current landholdings. He found it more feasible to extinct the 1948 JF and form a new JF. This choice was based on some special legal requirements. The cadastral officer advocated the solution as easier and cheaper, but still requiring a formal cadastral work, with the EU funding covering 50 % of the cadastral consultancy fee.

Sometimes there are cases with major increased land values at commons. A special case is areas in Northern Sweden, where geological land elevation has created reclaimed land areas belonging to a joint property water area. During the agrarian reforms, the nearby sea area was mostly excluded from the individualization, and kept as joint property of the village. The immense land elevation has turned the former joint property sea into land. The adjacent properties that once were directly situated next to the sea are nowadays bordering the joint property land. Both the borders and the appropriation conditions of the reclaimed joint property land are vague.

An urban example of a JF is a completely new residential housing area since 2001 in a central dockland area in Malmö in Southern Sweden. The current population of about 1,500 will be doubled during the next five years, and it is planned for another 1,500 inhabitants until 2020. The area is mixed with an equal number of commercial functions, office and university campus workplaces. Some technical solutions are developed for the housing area, using joint facilities as cadastral solution. These facilities embrace a great variety of functions. One property unit, Malmö Hytten 2, will be used as an example. The property is owned by a tenant-owner association, as explained above. The unit has shares in two JFs. One of them has only one purpose: waste disposal separation, with two participating properties.

The other JF has a more complex situation, with the following purposes: local roads, neighbourhood plantations, illumination, waste disposal pipes, and surface water drainage. This JF embraces 69 properties, covering a large part of the residential area. This means that the management of the joint facilities has to be professional, in parallel to the management of public space by the local government. Recently, the JF management association has called attention to the increasing public use and misuse of the joint facilities (Sydsvenskan 2007b).

The international custom of gated communities is not part of the Swedish urban policies, which means that there is a public access to the neighbourhood area. However, the case illustrates how we use JFs to cover more services that traditionally have been public responsibilities. It might be of interest in a changing role between the local government, the land developer and the final users in JFs. It creates new challenges and roles for the JF associations.

The administrative capacity in cadastral work is well developed in Sweden. It is well organized through the cadastral system. However, the cases referred above indicate that the cadastral situation is complex and requires efficiency in order that commons have adequate incentives to develop within its common regime.

The number of JPUs or JFs with need of revision is difficult to clarify, but senior cadastral officers' estimates based on practical experience indicate high values. The private management of the JPU and JF associations is an internal concern of the association. Some cases appear due to quarrels between neighbours. Another estimation of a cadastral office in Southern Sweden states that half or more than half of the revised cases with EU funding had quarrels as deciding reasons for acting. This is not surprising, but shows the importance to provide collective-choice arrangements to encourage the members of the JPU or JF to settle quarrels. Public subsidies, at any phase of the life of a JPU or JF, distort the economic incentives for a good management of the asset.

The public policy to financially support the JPUs and JFs has specific reasons. It has an effect on the decision process of the association. Three guiding cases could be identified:

- Evident cases (c/b-ratio far from =1), i.e., evident advantages – or disadvantages for a change of legal conditions;
- Marginal cases (c/b-ratio close to =1) – problems to identify pro or contra for a change. The transaction costs to initiate a change are high, as threshold cost;
- Changes over time, i.e., previous clear c/b-ratio, but changed preferences or land uses focus on the right timing of a change.

The previous paper referred above (Ernald Borges 2006) discussed the transaction cost of the JFs, with some principle values to understand the decision process at formation of the JF. Analyses on the efficiency and management schemes of the JF have to be done continuously. The nine case studies indicate that the initial cadastral decision was motivated, but the incentives to make changes of JF or JPU might become negative. The marginal positive value (of benefits) of a change is affected by the administrative process and the management capacity of the association. Each change does not justify a formal updating, but the need of updating could easily accumulate during decades. Examples of idle JPUs or JFs are easily available.

8. CONCLUDING ANALYSIS

The examples above indicate that commons exist in a variety of situations in Sweden, with a certain degree of efficiency in management. Detailed facts are limited, but I have used some few cases as an illustration of a phenomenon of a system of commons. The Swedish system could easily be presented with the legal framework and its implementation in the cadastral work. Many commons provide the expected services. But the efficiency of the system and the backlash is more difficult to quantify.

Some alternative ideas might be useful. The allotment gardens have survived the urbanization process of the society, but they still keep the original concept of associations as the central focus of the leasehold system. Tenant-ownership has increased in volume, with the two functions of housing and capitalization of assets. The common management scheme is accepted, though frequently analysed from the perspective of efficiency of joint ownership. The right of public access is accepted, but facing new tendencies of more intensive land use which requires detailed analyses of long-term effects.

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The JPU and JF are traditional forms of common management. The value of the 100,000 units and 70,000 facilities respectively is unknown and difficult to assess. It is easy to understand and accept costs of yearly technical maintenance, but the formal cadastral conditions are often left aside and substituted by informal agreements.

I do not present any specific proposal of changes, being a domestic task. Some analyses could be done in order to elucidate the effects of new conditions. The following aspects might be parameters in such analyses:

- exclude all public subsidies, in order to force the members to face the real costs of an asset, short-term as well as long-term costs;
- change the decision process, e.g., but attributing each member a higher or lower voting value, or introduce business firm management principles;
- procedures to permit a member to leave an JPU or JF, without a decisive power of the cadastral officer, and allowing new members to join;
- allowing private management teams to identify and proceed with formation and revision of commons;
- adapting the associative management to the diversified activities of the people of today;
- allowing the JPU or JF shares to become a marketable asset as a share on the capital market.

The aspects are only emerging ideas for further research, based on the previous analysis. Some of them might be unrealistic due to the special characteristics of real property. Land tenure is a very special asset. But as well as an analysis on intellectual property could search examples from the enclosure of land, commons of land resources could be analysed from other perspectives. JPUs and JFs are managed by associations, but cases of dubious congruence between the rules and local practices call for a review of the efficiency of the system.

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BIOGRAPHICAL NOTES

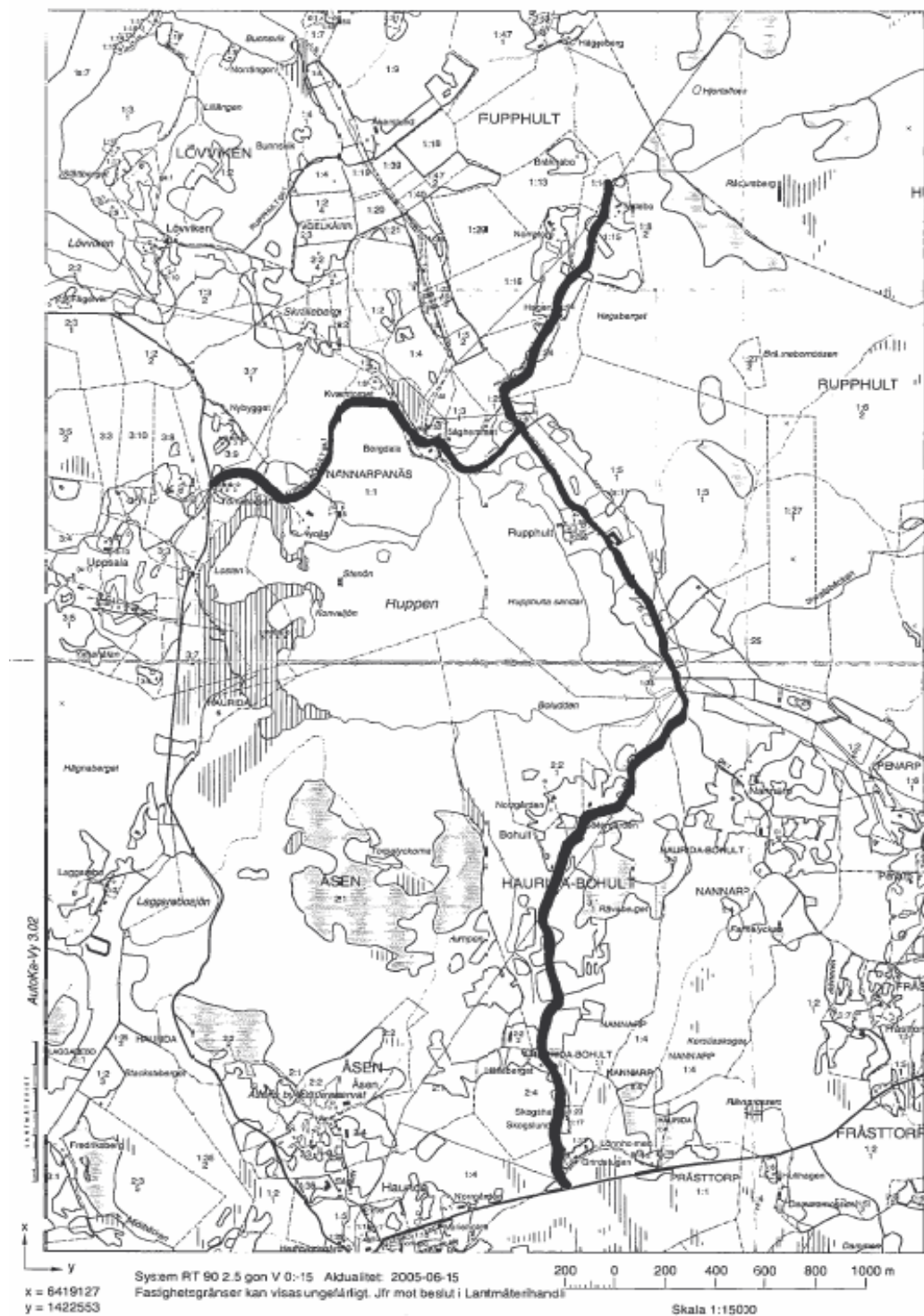
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Appendix

Figure 1: Joint facility road Aneby Haurida-Bohult GA:2, Southern Sweden



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