

Relevance of leased land in land consolidation

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Key words: Land consolidation, land fragmentation, leased land, food security

SUMMARY

Land consolidation is based on solid administration of land rights. Land consolidation contributes to food security. The de-facto use of the land for food production is based on a combination of real rights and personal rights. Therewith, farmers that de-facto use the land are important stakeholders in processes to minimize land fragmentation in order to create more favourable circumstances for farming, and consequently increase food security. Both real rights and personal rights regarding the use of land should be taken into account considering sustainable land management in rural areas.

As land consolidation is a powerful instrument to counteract land fragmentation, the focus of this paper is on the role of personal and real rights in land consolidation processes. Land lease comes in many forms, from (informal) tenancy arrangements to formal contracts. The majority can be categorised as personal rights, but some constitute real rights, e.g. long lease. Depending on the country and context in which land consolidation takes place, the role of leased land in land consolidation and its contribution to the de-facto use of land varies. In this paper we will exemplify the role of leased land in land consolidation in three different countries. Based on this elaboration we suggest ways to incorporate de-facto land use in land consolidation and in relation to food production.

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1. LAND CONSOLIDATION – LAND FRAGMENTATION – FOOD SECURITY

1.1 Land consolidation and food security

A solid administration of land rights contributes directly and indirectly to food security. In this paper we subdivide land rights into (i) real rights, such as ownership, usufruct or long lease, (ii) formalised personal rights, such as land lease or (iii) informal personal rights, such as oral agreements about the use of land within a family. Together these three types of land rights, entitled to a combination of land owners and land users, encompass the de-facto use of agricultural land.

Administration of land rights contributes directly to food security, because recognized land ownership encourages good stewardship by their proprietors. The interest of land owners lies in a profitable yield over the long term therewith contributing to food security. Unsustainable land management leads to loss of capital, because a well cared for parcel generally is regarded more valuable than a deteriorated parcel. As Verdery (2003) has shown, this value not only refers to the economic value, but may also include social and cultural capital such as status and knowledgeability of the land worker.

Besides this direct effect, a good administration of land rights also indirectly contributes to food security because it allows for the implementation of spatial policies and the application of specific land management tools. One of these instruments is land consolidation that can be applied in combination with, if needed, voluntary land transactions. Land consolidation is defined as the planned readjustment of the pattern of ownership of land parcels with the aim of forming larger and more rational land holdings (Pasakarnis and Vileine, 2010). Various forms of land consolidation exist depending on how countries have implemented this instrument in their institutional context. Some countries for example know a voluntary and mandatory form of land consolidation, whereas others solely rely on voluntary participation. Also the aim of land consolidation may vary. Some projects focus on a sustainable development of agriculture, while others adopt a broader multipurpose scope combining socio-economic and spatial aims from different fields, such as agriculture, water management, nature conservation, landscape features, or improved rural livelihood. FAO (2003, p. 26) defines such comprehensive land consolidation as the re-allocation of parcels together with a broad range of other measures to promote rural development. Demetriou (2014) recognises different types of land consolidation based on their field of application, namely (1) rural land consolidation, (2) urban land consolidation, also referred to as land readjustment (Müller-Jökel, 2004) (3) regional land consolidation, (4) environmental land consolidation and (5) forestry land consolidation. Regardless of variations in the applied procedure and the field of application, the essence of reallocating land rights in purpose of improving the situation for involved stakeholders remains the same.

1.2 Land fragmentation

For agriculture, land consolidation is a powerful instrument to counteract land fragmentation and the associated negative impact on the productivity and costs of farming. The most common interpretation of land fragmentation relates to physical aspects of fragmentation, i.e. holdings with a large number of small parcels scattered over a considerable area. Sabates-Wheeler (2002) employs a broader interpretation of land fragmentation. She posits that local consolidation initiatives in Eastern Europe reflect a response to multiple dimensions of fragmentation, among which physical fragmentation, activity fragmentation, social fragmentation, and ownership fragmentation. Some of these dimensions are physically related to land, whereas others relate to socio-economic dimensions of fragmentation such as the (mis)match between size of machinery and size of holding. Because of the character of land consolidation the instrument is regarded to be more powerful to address physically related dimensions of land fragmentation than socio-economic dimensions. Van Dijk (2003a) distinguishes four types of land fragmentation that relate to the physical, immovable characteristic of land. These are (1) the number of land owners, (2) the number of land users, (3) the number of parcels per holding – sometimes referred to as internal fragmentation – and (4) the discrepancy between ownership and use. A large number of owners in a given area, or a large number of users, denote to land fragmentation in a sense that the available arable land has to be divided over many people which results in relatively small holdings. Internal fragmentation refers to parcel size, parcel shape and parcel distance. A low internal fragmentation indicates a concentration of parcels close to the farmstead. In this paper we will focus on the fourth type of land fragmentation, namely the discrepancy between ownership and use, and how we can deal with this in land consolidation processes. A small overlap of use rights and ownership rights means that land lease plays an important role, whereas a large overlap indicates that land lease is hardly present. The degree of discrepancy may influence how different types of land rights are treated in land consolidation.

2. REAL RIGHTS AND PERSONAL RIGHTS IN LAND CONSOLIDATION

2.1 Why real rights and personal rights are important

For our analysis it is important to notice that fragmentation of land ownership is a different concept than fragmentation of land use rights, as is explained before. Negative effects of land ownership fragmentation can be less severe when land users lease several parcels from different owners and manage them in one holding or even as one production unit (Van Dijk, 2003b). The de-facto use of the land for food production is normally based on a combination of land owners and land users. These are interrelated as Figure 1 shows. Land owners can use their own land (b) or they can lease it to tenants (a), whereas tenants lease land from land owners (c). The ratio between leased land and land owners using their own land varies from country to country and may even vary from region to region within a country. Land lease arrangements might be based on formal personal rights or informal personal rights. The spatial distribution of ownership and use rights, therewith, can be regarded as three different layers (Figure 2); (a) real rights, often registered in a land administration system, (b) formal personal rights and (c) informal personal rights.

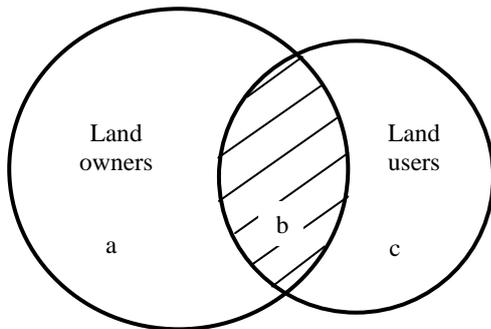


Figure 1 Combinations of land users and land ownership; (a) land owners not using their own land, (b) land owners using their own land, (c) land users who do not own the used land (after Van Dijk, 2003b)

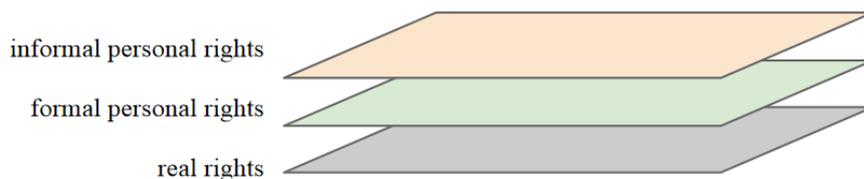


Figure 2 Spatial distribution of ownership and use rights

Farmers that de-facto use the land are important stakeholders in processes to minimize land fragmentation in order to create more favourable circumstances for farming, and consequently increase food security. Hence we argue that both real rights, describing land ownership, and personal rights describing land users should be taken into account considering sustainable land management in rural areas. Personal rights emerge in formal or informal arrangements with land owners, ranging from formalised land lease contracts to informal tenancy agreements (for example within the family). To make it more complex, personal rights described in formal land lease contracts may to a certain extent appear to have the character of a real right, depending on the context. In some countries legislation determines that lease contracts can be inherited when lessor or tenant decease.

2.2 Contextual framework

A large number of countries have a land administration system that captures land rights. How land rights are registered varies in terms of tenure, form (analogue or digital), structure and institutional aspects. Contemporary land administration systems have often evolved over a long period of time as a result of culture and socio-economic developments. North (2005) refers to this phenomenon with path dependency. The performance of land administration systems evolved in a certain way due to events in the past and the reaction hereon in society that shaped the course of development. This results in land administration systems that are embedded in their cultural, historical and socio-economical context. It is evident that this comes along with different land administration systems in various nations (Williamson et al., 2010).

In the previous section we explained why both real rights and personal rights are important to integrate in land consolidation to counteract land fragmentation. Contextual differences, such as governance, legislation and land administration systems, influence the implementation of land consolidation and its contribution to food security. We will exemplify the role of leased

land in land consolidation within different national contexts in types of land tenure, land administration system, and registration of land lease.

3. THE ROLE OF LEASED LAND IN LAND CONSOLIDATION

3.1 Netherlands

3.1.1 Historical and legislative context

The Netherlands know a long history of land consolidation. After WWII food security was an important drive for large scale consolidation projects to improve conditions for (mechanised) food production. At the end of the previous century, when this need was met, comprehensive land consolidation became increasingly popular. Besides agricultural requirements also landscaping, nature conservation and water management aims were included. This changed mindset is noticeable in consecutive legislation on land consolidation. The first law on land consolidation was established in 1924, and thoroughly revised in 1954, 1985 and 2007. In the past land consolidation was started after voting of the land owners and users. Only after agreement of half of the number of land owners and users in the designated area, and/or land owners and users representing half of the surface, the project could start. However, this regulation required a fair amount of preparation because no national registration of leased land is at hand even though roughly 40% of the agricultural land is leased out (CBS, 2008). A separate inventory was needed to acquire this data and combine this information with ownership data, which can be retrieved from the cadastre. In 2007 this statutory prescription with a highly democratic character was taken out of legislation, due to redistribution of power. Since land consolidation became more comprehensive with several public aims to be realised instead of solely agricultural purposes, logically the power to decide on the start of land consolidation shifted from land owners and users to the government as the responsible governing authority (Mojet, 2010, p.45). Support for land consolidation among involved stakeholders is considered to be reflected in the decision by the responsible government. Nevertheless, the inventory of leased land and its users continued to take place, albeit once instead of twice: registration of leased land is nowadays only needed for the purpose of the consolidation process and not for the voting.

3.1.2 Procedure

The rights of land users are taken into consideration in the consolidation procedure, because the de facto land users contribute to food production and ought to benefit equally from consolidation as land owners do. The stakes of both land users and land owners are thus taken into account in the reallocation process. This implies in practice that the allocation rights of land users prevail over land owners with the condition that land owners should receive a comparable allocation, of equal quality and value, than they had prior to reallocation. This legislative prescription is included to ensure the legal certainty of land owners' real rights. Since the Netherlands lack a sound digital registration of land lease contracts, the implementation procedure of a land consolidation project starts with a registration of land lease contracts (Figure 3). The responsible government reviews all submitted contracts based on type of land lease, remaining duration of the contract and parties involved. Although

variations occur in practice, the review is based on the expected duration of the land lease contract including formal rules regarding extension of existing lease contracts. These rules differ depending on the type of contract. Typically, formal long-term land lease is contracted for a period of six years and is tacitly extended for another six years. For formal short-term lease contracts this rule does not apply. Because of all these variables, the review of submitted land lease contracts requires an individual approach.

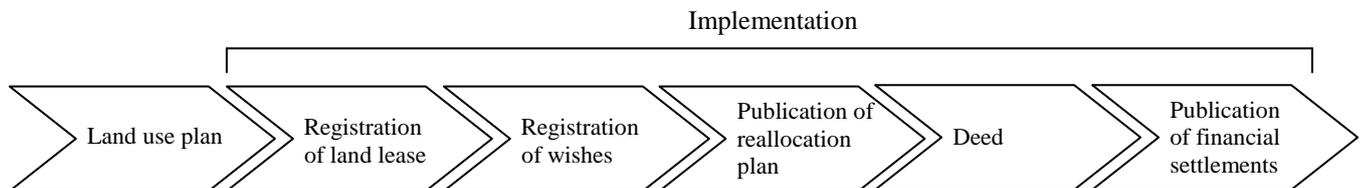


Figure 3 Land consolidation procedure in the Netherlands

3.1.3 Role of leased land and its users

As explained in the previous section, typically formal long-term land lease contracts are taken into consideration in the reallocation process. With a well functioning formal land market and a reasonably functioning formal land lease market¹, the demand for informal land lease arrangements is relatively low, although informal arrangements do exist. The demand for formal land lease increases on the other hand. For many holdings it is too expensive to run their holding solely on owned land due to increasing land prices. Another reason for an increasing need for leased land relates to the business model such as crop rotating systems. Formal land lease contracts provide certainty for holdings in terms of continuous availability and financing of land, and are therewith important for an economically viable sector. Land consolidation changes the distribution of land ownership in the designated area permanently, and the project takes typically a couple of years to complete. In this sense, it would be undesirable to take informal lease arrangements or short-term formal contracts, without the right to extend the contract, into account as uncertainty about prolonged land use by the same person is high. The period of land lease most likely will have terminated before the project is completed. Informal lease arrangements are mostly not taken into account due to their highly unpredictable character. In some regions for example, churches own a fair amount of land that they lease out on a yearly basis with a rotating scheme to give all interested parties a fair chance of acquiring leased land. Generally, the demand for productive agricultural land is higher than the supply as it is a scarce location-bound resource. Once land lease contracts are approved the use rights become part of the land consolidation administration. Based on the unique combination of real rights (e.g. ownership, usufruct, long lease) and personal rights (land lease contracts), a registry number is composed. This registry number forms the unique identifier throughout the project. As a consequence of this method, a holding may comprise of several registry numbers that together represent the complete holding. Figure 3 provides an example with a visualisation of leased lands in in the land consolidation project 'Blokzijl-Vollenhove'.

¹ Recently the functioning of the land lease market in relation to legislation has been evaluated (Bruil, 2014). Recommendations regarding legislation included changes in the types of lease contracts and their juridical impact. The political debate on a revision of legislation regarding land lease is in progress.

Land users have the same rights as land owners after their land lease contracts have been registered and approved. Land users may submit their wishes regarding the new allocation just like land owners do. Also, if they do not agree with the new allocation, the right to appeal to court applies just like it does for land owners. Despite generally having the same rights, at some moments in the consolidation process the administrative procedure may be slightly different for lessees than land owners. The land consolidation deed for example, is based on a description of land rights and excludes leased land. Instead, all lease contracts after land consolidation are sent to the land tenure control board. They will send a notification to involved parties so that their lease contracts can be adjusted and submitted for approval. At the end of the reallocation process an evaluation takes place to determine for each holding the profit of the new allocation, which incorporates leased and owned land. The bill is sent to the land owner, who in turn can pass this on to the tenant through the yearly set lease price. However, regulations may limit the degree to which this can be passed on.



Figure 4 Registered and approved land lease in the land consolidation project 'Blokzijl-Vollenhove' (Kadaster, 2015)

3.2 Romania

3.2.1 Historical and legislative context

Post socialist countries have a complex history regarding land tenure. In the 1990's land titles were redistributed to the land owners prior to socialist regime. Compared to other East European countries the redistribution of ownership titles affected a large number of people as 70% of the population in Romania was employed in agriculture in the late 1940's. Rather than distributing land into more sizable units, as was done in some other countries, restitution led to a tremendous degree of fragmentation (Verdery, 2003). With the redistribution of ownership rights relatively large parcels of state farms and collective farms were divided into a large number of small parcels. This physical land fragmentation led to less favourable circumstances for agricultural production.

Moreover, it was extremely difficult to re-establish ownership rights after an era of socialist property due to a number of reasons. These difficulties involved uncertainties about the ownership status of collective and state farm land, all the failures to write land transactions into the land register, and all the moving around of resources, the exchanges of parcels, and the erasure of field boundaries at the time of the socialist regime (Verdery, 2003). This led to a situation in which not all land owners or their heirs could be traced, whereas others accepted land titles, but were unable to physically use the land. Family members or other villagers often used the land of these absentee land owners instead.

Despite efforts to overcome these problems, land registration still shows signs of the complex history regarding land tenure. Land administration of ownership titles often is incomplete or inaccurate, and parcel boundaries can be fuzzy or irretraceable.

Of course these developments influenced agriculture. Land fragmentation in Romania is problematic for agriculture (Van Dijk, 2003; Sabates-Wheeler, 2002) and hampers among others a transition towards an economic viable sector. The majority of land owners are smallholders and a relatively small number of land owners run a middle-sized or large holding encompassing a large area in hectares (Table 1).

Table 1 Distribution of ownership and use rights – number of farms (National Institute for Statistics, 2005)

Farm type Farm size (in ha)	(Semi-) subsistence farms				Family farms				Commercial farms
	0.1-1	1-2	2-5	5-10	10-20	20-30	30-50	50-100	>100
ROMANIA									
În proprietate	1,794,300	845,856	995,195	285,435	64,799	9,776	5,602	4,284	5,915
În concesiune	3,980	1,266	1,886	632	524	227	191	241	484
Luat în arendă	15,769	15,410	23,612	8,792	3,899	1,635	1,543	1,806	3,720
Luat în parte	41,794	36,010	45,181	14,580	4,892	1,277	1,016	658	534
Utilizat cu titlu gratuit	35,437	22,115	29,909	8,724	2,393	363	230	166	112
Alte moduri de deținere	15,502	13,466	15,025	5,117	1,815	465	292	375	981
TOTAL (number)	1,906,782	934,123	1,110,808	323,280	78,322	13,743	8,874	7,530	11,746

The above described historical context largely explains the contemporary discrepancy between land ownership and de-facto land use (Figure 5). In this situation, land consolidation based on ownership titles alone would not be sufficient to improve farming conditions. Therefore, it is necessary to depart from the de-facto land use situation, taking into account the underlying distribution of ownership titles.

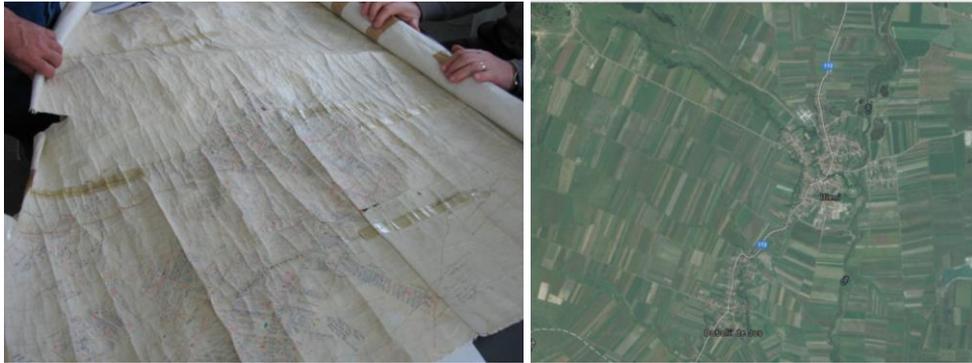


Figure 5 Discrepancy between ownership titles and de-facto use

3.2.2 Procedure

The ministry of agriculture holds responsibility for land consolidation in Romania. The necessary data for consolidation however, is kept by at least three different institutes (Jansen and Wubbe, 2012). ANCPI is in charge of the registration of land transactions and the cadastral and cartographic aspects of land administration (map and deeds). The municipality, often personified by the mayor, deals with land restitution, taxation, land-use monitoring and settles conflicts over land. The county land commission handles title issuance and changes in land-use designation. In sum, the cadastral map can be supplied by the cadastre, ownership titles can be retrieved from the municipality and county land commission, and use titles can be provided by the municipality. The majority of use titles presumably consist of informal personal rights in family associations for example, and a smaller number of formal personal rights such as land lease contracts.

Despite several attempts in the last decade no specific law on land consolidation has been approved yet. The consolidation procedure therefore can be variable, although certain elements are likely to recur in all projects because of technical reasons. It also implies that participation is on a voluntary basis.

A tentative procedure is presented in Figure 6 (Jansen and Wubbe, 2012). First, a registration of the current situation is needed. If a systematic registration has taken place, it might be sufficient to use this data for the land consolidation administration. Else, the data need to be collected with the help of the public or potential participants. In that situation an inventory of ownership rights and land use rights has to be made and put together on a cadastral map. A survey of the boundaries of the cadastral parcels or use parcels might be wise if issues appear. Second, interested right holders (ownership and use) are invited to participate in the consolidation process and to determine the ‘rules of the game’. Potential participants are asked to submit their wishes regarding the new allocation, based on which the reallocation plan is put together. Finally, the new allocation is designed, described in a deed and registered at the land administration office.



Figure 6 Tentative land consolidation procedure in Romania

3.2.3 Role of leased land and its users

The complex history regarding property rights is in many areas still noticeable in the discrepancy between the registration of ownership rights in the land administration and the de-facto use rights in the field. In case the land owner is not the user (see also Figure 1) multiple persons have a different relation to the same piece of land. Land consolidation has the ability to reduce the complexity of these relations. Figure 7 shows a situation where two cadastral parcels (black boundaries) are subdivided into several use parcels with different users (green boundaries). Each colour of the use parcels represents a specific user. By merging several use parcels of the same user on one cadastral parcel, it is possible to achieve a situation in which the user needs to negotiate with one owner instead of two (blue and green user). The same principle can also be applied to the ownership situation. By concentrating cadastral parcels based on ownership, the relations between land owner and tenant become less complex in the area.

A consequence of consolidating both ownership and use rights is that both have to be registered either in a deed or in other documents. Besides changes in the use rights and ownership rights in relation to the land, the relation between owners and tenants may change as well as a consequence of the exchange process. In that case both land owner and land user have to agree with the new relationship; the tenant has to accept another land owner and the land owner has to accept a new tenant on his cadastral parcel.

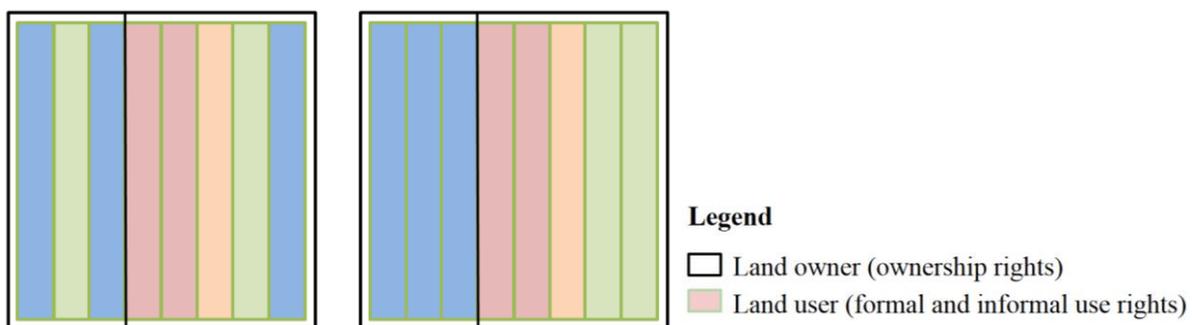


Figure 7 Leased land in relation to ownership before (left) and after (right) land consolidation

3.3 Turkey

3.3.1 Historical and legislative context

A main objective of the Turkish government is a decrease in socio-economic differences in specific areas in the country. Most farmers have insufficient agricultural land, divided over a number of small plots. The population growth in rural areas is high and opportunities outside the agricultural sector are scarce. As a result people want to leave the rural areas. Under those circumstances investments in the rural areas are not easily made. Non-economic considerations may resist the transfer of land from one land owner to another. Emotional bonds to land, or farming as a profession, may play a role and so may the lack of alternative income. However, there is considerable potential and commitment in Turkey to improve the livelihoods in the rural areas and to improve agricultural production.

3.3.2 Procedure

In Turkey, law applicable to land consolidation changed over time and with it the institutional setting. Previously, land consolidation projects were implemented by the General Directorate

of Agricultural Reform (TRGM) of the Ministry of Agriculture and Rural Affairs (MARA). Since the new law 'On Soil Conservation and Land Use' was implemented in 2007, the General Directorate of State Hydraulic Works (DSI) of the Ministry of Environment and Forestry also gained legal rights to implement land consolidation projects. Currently two main sets of law apply (Rheenen and Jansen, 2012):

- Law 3083 on agrarian reform due to land re-allotment in irrigation fields. This is the law under which TRGM executes land consolidation in the whole of Turkey.
- Law 5403 on soil protection and land use: MARA prepared this law which became operational in 2008. Under this law all governmental institutions and private sector can apply for a land consolidation project. However, it is required that any aspirant institution applies for a project to MARA. The latter has the decision power whether a proposed project of an aspirant institution can be executed.

Not only TRGM and DSI can execute land consolidation projects but also municipalities and province private administrations. Execution rights of the land consolidation project can be delegated to other state institutions, such as water boards, in case farmers' permission is obtained.

In Turkey, the design of the new situation is executed by private companies, always in accordance what land owners have expressed and under supervision of TRGM responsible for accommodation of expressed preferences or alternative choices.

Once the re-allotment design is made the public has the possibility to inspect the design and file objection. Objections can be filed on soil quality (i.e. a change in soil type of former and new parcels), the shape and size of the new parcel, or on its location. Filed objections are assessed in Turkey by TRGM in close co-operation with the village board.

In order to combine land consolidation with irrigation projects, both DSI and TRGM are in need of specific techniques and methods for optimising constraints in land re-allotment, i.e. the design of a new parcel allocation by either re-allotting or re-apportioning according to a plan. In Turkey, land consolidation activities have been executed since 1961, but the institutions are currently looking for a new integrated approach to multi-objective land consolidation. Use of computers in the land consolidation process is common.

3.3.3 Role of leased land and its users

One major question is whether land re-allotment is purely based on claims related to the re-allocation of ownership rights or on the claims of people who actually use the land and produce crops, i.e. the land users, thus including ownership and temporary land-use rights. During discussions in a knowledge exchange project between Turkish and Dutch experts (Jansen et al., 2010) it became clear that the land owner is decisive in this matter: in some cases the persons who lease land (the tenants) are allowed to formulate their claims, in other cases the land owner may not allow them to do so. Since 2002, tenancy is recorded in Turkey in so-called village books but there is no legal basis for the protection of tenancy and tenants, contrary to the Netherlands.

The above implies that for example the data model for land consolidation in Turkey should support temporary land rights as a basis for claims related to re-allocation of land rights. This can be done by the inclusion of those temporary rights in a coding list for land rights, thus including an indication whether or not the land right is a real right.

Another issue in Turkey (as in many other countries) is that the cadastral data are not always up-to-date: many cases of inheritance or marriage have not yet been included in the registers, and owners are mentioned that live abroad or deceased. The situation can go as far back as four generations, resulting in registered ownership by persons who are deceased and with large groups of inheritors holding a portion in the original right. As a result complex trees of family relations need to be kept in the data model. Apparently there is little incentive to update the registry in order that it represents the actual situation. This could be examined for future land consolidation projects in advance - as the administrative burden to sort out relationships is considerable (many owners of portions of land and only a few actual users) and should preferably be avoided in a land consolidation project. The possibility that just a single family representative is included in the land administration would be worth considering. The people (family) - land relationships are complex. There can be huge numbers of persons holding a portion in a right within one family. There is a tradition in Turkey to define a 'FamilyPerson' or 'GroupPerson' as a participant in land consolidation. Each 'GroupPerson' consists of a large number of persons holding portions in the related right. The right itself concerns basically ownership, but temporary land rights or mortgage may be included.

4. DISCUSSION AND CONCLUSION

We argue that for land consolidation it is necessary to depart from the de-facto land use situation, taking into account the underlying distribution of ownership titles. The de-facto land use situation represents the functional parcelling of the land used for farming. The inclusion of land lease in land consolidation, therewith, contributes to a better allocation and consequently to improved circumstances for food production. A parallel can be drawn with EU-subsidies for agriculture. The use parcels are the basis for the application for subsidy, not the cadastral parcels. This means that the de-facto land user applies for subsidy and not the land owner. Another example is the property tax in the Netherlands. This tax system requires owners and users of the property to pay tax.

We have explained that land consolidation in all three countries includes real rights and personal rights, although variations in (legal) status of personal rights in land consolidation occur. In general the needs of land users, i.e. de-facto land use, are the basis for reallocation. Like land owners, land users have the right to receive a comparable amount of land of similar soil quality. In this respect it might be surprising that in the Netherlands the land owner has to pay for the benefits that come with land consolidation, whereas the allocation is in principle based on the needs of the land user. It would be more consistent to charge the land user for received benefits.

Information on existing tenure (ownership, formal use, informal use) should be accessible and retrievable as it is needed for an appropriate application of land consolidation. If this information is not available, it will be difficult to execute land consolidation in favour of agriculture and guaranteeing legal certainty.

However, it is not a matter of course that reliable and complete information on ownership and use rights is (digitally) available to support data processing in land consolidation. The three cases of the Netherlands, Romania and Turkey showed that the information available and

sources from which to obtain the information vary. Table 2 gives a global overview, but does not intend to be complete as many variations of informal and, to a lesser extent, formal personal rights exist that make a comparison difficult. It should also be noted that all three countries have a good land administration system. Reliable land administration is not necessarily available in all countries.

Table 2 Registration of ownership and use rights per country

	Netherlands	Romania	Turkey
Real rights (ownership)	+++ Cadastre	+ Cadastre and Municipalities	+* Cadastre and XX
Formal personal rights	+ Land tenure control board	+ Local level	+ Village books since 2012
Informal personal rights	+ Wishing session**	0 Within families	0 Within families

* Inheritance issues not always included

** In the past part of wishing session, but nowadays not a matter of course

The relative importance of formal and informal personal rights compared to real rights also influences the land consolidation procedure. The principle of land reallocation remains in place, but the extent to which leased land is taken into account and how this is to be done varies from country to country depending on the institutional context. In countries with a well functioning formal land market, including formal land lease, it suffices to base the project administration on formal land rights. In places where the informal land market plays a considerable role or the formal land administration system fails to reflect the situation in the field insufficiently, it is essential to include informal use rights in the reallocation process. Without doing so, land consolidation will fail to counteract land fragmentation.

REFERENCES

- Bruil, 2014. Evaluatie pachtregelgeving. Instituut voor agrarisch recht, Wageningen, The Netherlands
- CBS, 2008. Oppervlakte landbouwgrond in pacht en eigendom. Heerlen, The Netherlands
- Demetriou, D., 2014. The development of an integrated planning and decision support system (IPDSS) for land consolidation. Leeds, Springer.
- FAO, 2003. The design of land consolidation pilot projects in Central and Eastern Europe. FAO land tenure studies (6). Rome, Italy
- FAO, 2012. Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the context of national food security. Rome, Italy
- Jansen, L.J.M., Karatas, M., Küsek, G., Lemmen, C. and R. Wouters, 2010. The computerised land re-allotment process in Turkey and the Netherlands in multi-purpose land consolidation projects (4574). FIG Congress 2010 Facing the Challenges – Building the Capacity Sydney, Australia, 11-16 April 2010
- Jansen, L.J.M., and M. Wubbe, 2012. Improvement of agricultural production in Romania by improvement of land administration, land consolidation and more efficient farms. Final Report of the Government to Government project G2G/11/RM/8/1.

- Mojet, H.W., 2010. Regelgeving inrichting landelijk gebied. Deventer, Kluwer, The Netherlands
- Müller-Jökel, R., 2004. Land Readjustment – A Win-Win-Strategy for Sustainable Urban Development, FIG Working Week 2004, Athens, Greece, May 22-27, 2004
- National Institute of Statistics, 2005. Romania.
- North, D.C., 2005. Understanding the process of economic change. Princeton university press.
- Pasakarnis, G., and V. Maliene, 2010. Towards sustainable rural development in Central and Eastern Europe: Applying land consolidation. *Land Use Policy* 27(2): 545-549.
- Rheenen, J. and L. Jansen, 2012. Strengthening the institutional capacity to implement a large multi-level land consolidation program. Final Report of the Government to Government project G2G09/TR/9/1 Turkey-The Netherlands
- Sabates-Wheeler, R., 2002. Consolidation initiatives after land reform: responses to multiple dimensions of land fragmentation in Eastern European agriculture. *Journal of International Development* (14): 1005-1018.
- Van Dijk, T., 2003a. Dealing with Central European land fragmentation – A critical assessment on the use of Western European instruments. Eburon, Delft, The Netherlands
- Van Dijk, T., 2003b. Scenarios of Central European land fragmentation. *Land Use Policy* 20: 149-158.
- Verdery, K., 2003. The vanishing hectare – Property and value in Postsocialist Transylvania. Cornell University Press, New York, US
- Williamson, I., Enemark, S., Wallace, J., Rajabifard, A., 2010. Land administration for sustainable development. Esri Press Academic

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