CHAPTER THREE

LAND AND LAND USE

The middle Euphrates valley

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THE ENVIRONMENT

Unlike Mesopotamia’s lower alluvial plain where, if suitably irrigated and managed, the land allows for the exploitation of substantial rural areas, a large part of the middle Euphrates valley winds though an arid plateau, where the potential for settlement and agriculture is dependent on the waters of the river and its tributaries, the Balikh and Khabur (Sanlaville 1985: 20), the only perennial watercourses in the area alongside the Euphrates itself. The landscape is characterized by a clear distinction between the steppe plateau, with its limestone and especially marly and gypsum soils, unsuited to agriculture (Geyer 1985: 296), and the river valleys with their silty soils, fertile and productive if suitably irrigated and drained. These two contexts offer very diverse potential for the exploitation of natural resources.

The middle stretch of the Euphrates, from the Turkish–Syrian border in the north to the Iraqi towns of Hit and Ramad in the south, cuts into the arid plateau to a depth ranging from a few tens of metres to over a hundred metres. Its valley is relatively narrow, from five to eight kilometres, increasing in width to the south from Deir ez-Zor. Floodplains open up in some sections of the valley, forming a series of more or less independent ‘cells’ (Sanlaville 1985: 21–22). The main floodplains are found, from north to south, near Raqqa, at the confluence of the Euphrates and Balikh at Abu Leil, near the confluence with the Khabur, and then further downstream at Ashara and Hariri (Geyer 1990: 68). Alternating with these are narrower sections where the valley takes the form of a gorge (Qara Qozak, Tabqa, unsurprisingly selected in recent years for the construction of dams, and Halabiya) (Sanlaville 2000: 101).

A series of alluvial terraces make up the complex geomorphology of this area (Geyer and Monchambert 1987: 293; Margueron 1988: 49): in proximity to the plateau, Pleistocene terraces develop from eight to ten metres above the waters of the Euphrates. These are covered mainly by the grassy steppe also present on the plateau; cultivation is scarce, due on the one hand to the distance from the river and on the other to the presence of gypsum crusts covering large areas (Geyer and Monchambert 1987: 297). Descending towards the valley bottom are two levels of terracing dating to the early Holocene, bounding the lower alluvial terrace at a height of up to two metres. The
latter dates to historical times and closely follows the path taken by the river bed. These areas are generally suitable for agriculture, with the exception of the lowest-lying zones (such as water basins or niches near ancient meanders of the river), where water tends to stagnate and, due to evaporation, salinize the soil (Geyer and Monchambert 1987: 298). The terrace belonging to the historical period, however, is subject to flooding when the Euphrates is in spate, and is therefore a hazardous zone for both agriculture and settlement. The Holocene terrace, on the other hand, only marginally affected by river floods (Sanlaville 1985: 22), is the area most suited for settlement and agricultural exploitation as long as the problem of water supply is resolved; this area is, in fact, that with the highest concentration of ancient settlements (Geyer and Monchambert 1987: 304–305) (Figure 3.1).

Climate conditions are characterized by the arid continental climate of the plateau. As the distance from the Mediterranean increases, there is a transition from a Mediterranean climate to a continental desert climate (Wirth 1971: 104). This region is located south of the isohyet of 200 mm of annual rainfall, the minimum amount that allows for dry farming. The annual variability of precipitation, another important factor determining the potential for agriculture without irrigation (Wilkinson 1990: 88–89), is extremely high, and the number of rainy days per year is fairly low. All this entails the need in modern times – and in ancient times – to exploit the waters of the river using irrigation systems to cultivate the fertile valley lands. The river valley represented the main pole of attraction for the communities, both sedentary and semi-sedentary, who lived in the region; however, also the plateau areas, in the

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Figure 3.1 The middle Euphrates valley today, from the ruins of Doura Europos (photo: Lucia Mori).
past considered marginal in terms of their potential for settlement and agriculture, were used for complex long-term exploitation (Bernbeck 1993).

**THE EVIDENCE FROM THE ANCIENT TEXTS**

Direct evidence on the ancient territory of the middle Euphrates valley and its exploitation for agriculture comes from cuneiform documentary sources. Among these, the most important for their relevance, textual typology, wealth of information and number of documents are the tablets found in the archives of Zimri-Lim’s Royal Palace at Mari, dating to the eighteenth century BC. The ancient site, near the modern Tell Hariri, was an important urban centre already during the third millennium BC, as a commercial junction between Lower Mesopotamia and Western Syria. Mari became the ruling capital of the middle Euphrates region at the beginning of the second millennium BC, and was eventually defeated and destroyed by Hammurabi of Babylon.

The tablets found in the archives here, over 20,000, mainly consist of letters and correspondence between the city’s rulers and the governors of the districts into which the kingdom was divided, and other members of the royal family. These represent a substantial source of information on the environment of the middle Euphrates valley and on how the land was exploited by the mixed population that inhabited this area at the beginning of the second millennium BC.

Unlike Babylon, the cradle of the urban revolution in which the city with its temple and palace ‘organizations’ remained from the outset the main poles of the socio-political and territorial organization of Mesopotamia’s lower alluvial plains, settlement patterns in the Euphrates valley were characterized by the coexistence of different communities: an urban one, which detained political power only in some historical periods, and a tribal community. The latter settled in villages, exploited the land differently, had greater mobility linked to pastoralism and made more intense use of the steppes and, over the long term, proved to be better suited to life in an area with constraining geographical conditions, surviving far longer than the former.

The texts indicate a profound interrelationship between the semi-nomadic and sedentary populations which, together, formed the social system of the kingdom of Mari. These were defined according to the general categories of ‘beduins of the steppe’ (LÚ ba- na MEŠ ša na-ui-i-im) and ‘men of the towns’ (LÚ. MEŠ ša a-la-ni). The former closely linked geographically to the ‘high country’, in other words the steppeland plateau, whereas the latter related to the only region where stable settlement could be sustained, ‘the banks of the Euphrates’ (ab Purattim).

**THE RURAL LANDSCAPE**

The ab nārim, the river bank, is the area where settlement and the agricultural exploitation of land is made possible by irrigation. The nawûm is the plateau, and especially its areas of pasture, and is conceived as a territory external to the urban sphere, whose control is less stable, though essential for pastoralism, the paths followed by which are determined by the presence of wells.

The valley (hamqum) is the vital territory for the sedentary population and for the palace. This is the only area where planned agriculture is possible. The primary
interest in this area is reflected in the greater specificity of the terminology used to describe the various geographical contexts. The texts indicate that it was subdivided into different cultivated zones, defined terminologically according to the geographical context in which they were located (Figure 3.2). The historical terraces ('low' area, šupašum in Akkadian) along the river were exploited for pasture and, in suitable areas, for cultivation (usallum fields). These could be characterized by abandoned meanders of the river with their stagnant waters (balītum) that were sometimes used for fish farming, and arable areas could be cultivated in their vicinity.

The Holocene terraces were characterized by the presence of irrigation channels and most of the cultivated fields, organized into irrigation districts (eqlum ugarum). This was also the most densely populated zone, where, in the areas close to towns, there were fruit orchards and vegetable gardens, watered by hand (salhûm area).

Climbing towards the edge of the plateau, crops could be sown in the areas crossed by wadis (nibûm fields, watered intermittently by seasonal rivers), especially in those areas where the less salty groundwater allowed this to be exploited by digging wells (daluwašum lands) (Durand 1990).

THE IRRIGATION SYSTEM

The irrigation network played a vital role in making stable agricultural exploitation possible in the kingdom of Mari. This represented one of the main sources of care and concern for the rulers, whose agricultural production depended essentially on the ability to exploit as successfully as possible the low, and above all variable, availability of water in the area. In the middle Euphrates valley, periods of intense drought, especially in the summer, are followed by periods in which the rains (late autumn–winter and spring) and the melting of the snows in the Taurus mountains (spring), cause an increase in the amount of water in rivers and wadis in this area. These are sometimes sufficient to cause violent flash floods which, if not adequately controlled, damage crops on the lower terraces of the river valleys. This periodic flooding is unsuited to the farming cycle since water is needed at the beginning of autumn to prepare fields for cultivation, whereas at this time the rivers still suffer the effects of summer drought; in spring, by contrast, when the crops have germinated, flooding becomes dangerous.

Water management, therefore, involved designing and constructing hydraulic structures to make up for the shortage of rainfall (channels and collection basins through which to transport water to fields, or store it as much as possible), and which were able to contain, channel or mitigate the impact of spates and floods on these structures and on the fields (dykes, sluices, barrages).

The irrigation network documented in the Mari texts consisted of channels of different types. The first level consisted of the main channels running parallel to the Euphrates, into which part of the waters of the Euphrates and the Khabur were channelled. These were indicated by the Sumerogram ÍD = nārum, and by the Akkadian term rākidum, literally 'rider', probably referring to their physical aspect, raised with respect to the valley, with banks constructed by heaping up large quantities of earth, allowing water to flow to the agricultural districts by gravity (Durand 1998: 580–581). Secondary channels (PA5 atappum)3 led off the large channels, taking water directly to the fields.
Figure 3.2 A map of the middle Euphrates valley showing the different cultivated zones: along the river the dark grey region is the river meadow and pastureland area; the light grey region is the area of the irrigation districts, while, around the ancient town, orchards were cultivated (redrawn from an original published in Florilegium Marianum III: 538).
The water flow was controlled and managed, both to ensure that the correct amount of water reached the fields and to withstand any natural calamities that might undermine these structures. Seasonal floods caused breaches in the channels’ banks, and carried large amounts of sediment which might obstruct the channels. Constant maintenance was therefore needed, together with developed hydraulic technology. The pressure exerted by floods on the banks was lowered with a system of sluices (erretum) (Klengel 1980: 82, fn. 32; Durand 1990: 132), which allowed part of the water to drain away, lowering its level. The technical supervision of the irrigation network was carried out by a particular officer, named sikerum in the texts, lit. ‘he who closes’, a sort of specialized technician whose skills were sought after and prized (Kupper 1988: 98; Finet 1990: 147–150).

Among the most frequent maintenance operations is the seasonal clearance of the beds of the channels (described in the texts with the verb ḫaṭatum) to ensure that the water flowed properly. This could involve a large number of workers, and usually took place during the summer, after the winter crop had been harvested and transported to threshing grounds.

**AGRICULTURAL EXPLOITATION**

**Cereal cultivation**

The fields in irrigation districts, ugarum, were cereal cultivation lands par excellence; within the royal administration, the execution of agricultural labour was organized around the cereal cultivation cycle. Cereal production was fundamental for the subsistence of a centralized power based on an economy of redistributive type. The official calendar began in the month of urāhum, March–April, coinciding with the ripening of the harvest, but the most important farming cycle, that of barley, began with the preparation of the fields to be sown at the beginning of autumn.

The cultivation of royal lands was managed by farming teams designated with the term ‘ploughs’ (GIS.APIN); these were made up of individuals defined as ʾālik eqlim (lit. ‘he who goes to the field’), each of whom had a specific role,⁴ and of working animals. Each team had oxen to pull the plough; these animals were assigned food rations just like other members of the team. The farming teams carried out the more technical tasks, linked to the various types of ploughing and sowing with the seeder-plough. A catalogue of rations specifying the function of the members of a plough (ARM IX 26) lists four leaders of oxen (LÚ.MEŠ kullīnū); two waterers of oxen (LÚ muṣaqqū); five weeders (LÚ kāsimū); one overseer, lit. ‘carrier of the throne’ (LÚ GU.ZA.LÁ guzalūm); two millers (MÍ te’īnātum); the latter probably had the task of milling food rations for the farming team itself. These numbers correspond roughly to the indications given in a letter (ARM XXVII 1), which mentions fifteen workers as a suitable number for each ‘plough’, however, in this same text, and in a series of other letters, the lack of manpower is frequently lamented, and the number of individuals making up each farming team may therefore have been lower.

The palace administration assigned quantities of land to be sown and seed to the overseers of the ‘ploughs’ at the beginning of the sowing season (ARM XXVII 2); receipts dated the seventh, eighth and ninth month of the local calendar have been found, corresponding roughly to the period between mid-September and mid-
December.5 Alongside barley, these also document the cultivation of smaller amounts of different types of cereal, emmer-wheat and šablátum (ARM XXIII 123).

Particular circumstances, such as abundant rainfall, could allow for cultivation later than the normal sowing season (ARM XXVII 2). After germination, the crop had to be protected from potential threats until it could be harvested; these hazards mainly included river floods, forays by wild animals (ARM XXVII 6 and 44 mention the need to protect crops from wild donkeys, gazelles and buffalo) and, above all, locusts. The danger represented by locusts (defined in the texts with the terms erbum and šartar) is mentioned frequently in the letters, in particular for the Qattunan\(^6\) district on the Khabur, but also for Dur-Yahdun-Lim, Terqa and Der (the southern Der, south of Mari), basically along the entire course of the middle Euphrates.\(^7\) Among the expedients adopted in an attempt to stop their spread, the texts document the raising of water levels in secondary channels in the hope of creating a barrier, and the beating of the ground by the population and any available livestock to frighten them.

The task of harvesting was heavy, and had to be carried out fairly promptly in order to avoid the problems described above. The manpower employed was of varying origins, depending on availability and requirements. Certainly, alongside palace staff, the population contributed to harvesting the royal fields. The amount of land to be reaped by each individual labourer depended on the ratio of land worked by the ‘ploughs’ to available manpower. However, according to evidence from ARM XXVII 37, the surface area of one ikû seems to represent a conventional reference point for the administration. Taking as a reference point the figure calculated for Iraq in the first half of the past century, according to which a labourer reaping with the help of a sickle could harvest an area equivalent to 0.05 ha (200 m\(^2\)) per day (Charles 1990: 54), and assuming the ikû to be equivalent to the Babylonian ikû of 3,600 m\(^2\), each labourer would have needed about eighteen days to complete his part of the harvest in the palace land. To this we should add the time needed for the subsequent tasks of transporting the harvest to threshing floors, and for threshing.

Once the harvest had been accumulated on the threshing floors, the debts contracted in previous months were settled. The cultivation of sesame began at the same time as threshing.\(^8\)

**The cultivation of sesame**

Although winter cereals represented the agricultural staple for the palace administration, the cultivation of sesame (ŠE.GIŠ.I = šamasšammi) was also extremely important. This took place in the hot season, since the plant requires a soil temperature of at least 20°C in order to germinate (Powell 1991: 162). Sesame was grown to produce a stable vegetable oil, suitable for storage and redistribution, as the middle Euphrates valley, like lower Mesopotamia, is unsuitable for the cultivation of olive trees, in contrast to the Mediterranean area where this cultivation is well attested.\(^9\) We do not know when sesame was introduced to Mari, but its cultivation was certainly well-established and documented in the texts by the eighteenth century BC. However, the cultivation of valley lands during the summer months interfered with the opportunity of semi-nomadic populations to use these lands for pasture and ad hoc cultivation.
For the populations of villages in the middle Euphrates, dependent on a mixed agricultural and pastoral economy, the possibility of using these fields filled with the stubble of winter cereals, as summer pasture had an economic importance. The establishment of this type of cultivation by a centralized power involved the occupation of the valley lands even during the summer, and thus came into conflict with the transhumance of the flocks.10

The cultivation of sesame ended with its harvest, by uprooting the plant (nasahum) in autumn, before the fields were prepared for the sowing of barley, thus marking the beginning of a new agricultural cycle.

Vegetable gardens, vineyards, fruit orchards and woods

The areas around larger settlements, defined as salhûm in the texts, were in part destined for growing vegetables; the areas devoted to arboriculture were described with the term kirûm (GIS.KIRI6) (Durand 1990: 128). The technical tasks relating to the plants grown in these plots were carried out by ‘gardeners’ (NU.GIS.KIRI6 nukaribbum). These did not belong to the palace farming team responsible for cereal cultivation, and were counted independently of the members of farming teams and included in the generic category of ‘specialists’ LÚ.MEŠ ummênu (ARM IX 27). The areas destined for horticulture were separate from cereal growing areas, and located near settlements, in a similar way to that documented in later texts from Emar, the current Meskene (Guichard 1997: 181, for Emar: Mori 2003: 134–146). We have information on the vegetables grown in gardens principally from the lists of foods arriving at the palace, and which were accounted for as ‘the king’s meal’. Various species of legumes are present: GÚ.GAL (hallûrum), GÚ.TUR (kakku¯) and appânu, which can probably be identified with broad beans, lentils and chick-peas (Stol 1987b).

We also have evidence for the cultivation of garlic (hûzannum) in different texts which mention sowing and harvesting by uprooting and drying (ARM XXVI 446; ARM X 16 (= DEPM 1158). Onions (SUM.KI.SIKIL šamaškillum) were also grown, and these two plants are often listed together (ARM IX 238; XII 241, 729, 731, 733, 734, 728; XXI 103, 104; XXIII 367, 368, 465 and 370) (Stol 1987a). Leeks (karšum) are mentioned alongside a series of typical herbs used at the palace, including saffron (azupı¯rum), white cumin (kamu ¯ num) and black cumin (zi ¯ bum), coriander (SˇE.LÚ.SAR = kisibirrum) and thyme (satarum) (ARM XXIII 368 and 371). A letter from the time of Zimri-Lim lists the vegetables, herbs and spices to be sent to him, and gives an idea of what was used for cooking: ‘15 litres of garlic with their skins [?], 7 litres of leeks, 120 litres of onions, 120 litres of mustard (kasū), 60 litres of coriander, 60 litres of “beer bread” (happirum), 10 litres of white cumin, 3 litres of black cumin, 7 litres of samidum plant, 5 litres of ninûm plant, 5 litres of juniper seeds (kikkirēnu) and ballukkum plant’ (FM II 4).

‘Desert truffles’ (kam’atum) were not cultivated, but collected in the steppe in the Saggaratum11 and Qattunan district (ARM XXVII 54 and FM II 62), following the Euphrates and Khabur upstream; these are a sort of whitish tubers, still found in the area, often presented to the ruler as gifts.

As far as fruit trees are concerned, fruit orchards are differentiated in the texts from the small groves of trees, especially poplars, further away from towns near the irrigation
districts (Durand 1990: 128). In the woods (GIŠ.TIR.RA gištum), trees could be planted for building timber (Postgate 1987: 115), whereas fruit trees were grown by the palace administration in genuine ‘nurseries’, probably located near the banks of the river (Lafont 1997: 266–267). In a sort of inventory mainly concerning fruit trees under the care of single individuals, probably palace ‘gardeners’ (ARM XXII 329), areas of land used as fruit orchards are listed, naming the number and types of trees present. The most common plant is the fig (GIŠ.PĒŠ tittum), planted together with other fruit trees, especially apple trees (GIŠ.HAŠUR) (Postgate 1987: 117–118); the association between fig and apple trees is also documented in Lower Mesopotamia at the time of Ur III (Postgate 1987: 122 fn. 31). Also documented are pear trees (kamašarum) (Postgate 1987: 138 fn. 4), pomegranates (GIŠ.NU.ÚR.MA nurmûm), poplars (GIŠ.A.AM adāruniildakkum) (Postgate 1992: 179), tamarisks (GIŠ.SÍNIG bı ¯num) and an unidentified type of tree, the baštum, whose wood was used to make furniture (Soubeyran ARM XXIII: 442).

Vines (GIŠ.GĔŠTIN karānum) are accounted for separately, and planted in special plots; sensibly, these are accounted for according to the surface area of land cultivated, and not the number of plants. The only plant mentioned alongside the vine is the poplar. The cultivation of vines in the middle Euphrates valley was a recent introduction at the time of the kingdom of Mari; vines and the production of wine are typical of Mediterranean Syria (Yamkhad), the upper Euphrates (Carchemish) and the southern slopes of the Jebel Sinjar (Finet 1974–77: 122), and Mari imported the alcoholic drink from these areas. However, one text (ARM XXI 99) mentions jars of wine from various kirûm at Hishamta, in the Terqa district, for a total of 212 jars produced by local vineyards, and a letter provides information on the working of vineyards in that district (Lion 1992).

The tamarisk, mentioned in the context of fruit orchards in ARM XXII 329, is present in the Zurubban area, south of the Terqa floodplain, according to (ARM XIII 122 = DEPM 153). The presence of cornel trees is documented on the banks of the Khabur; turpentine trees or pistachios, on the other hand, are frequently mentioned as coming from the north-eastern area and mount Murdi, probably the western part of the Jebel Sinjar where these nuts are still produced today.

SHAPE AND SIZE OF FIELDS

The absence of legal and administrative texts from Mari referring to the management of agricultural lands makes it impossible to describe the organization of farming zones in detail. However, some sporadic evidence allows us to assimilate the terminology used to describe the sides of fields – and thus the tendency of plots of cultivated land to adopt an identifiable shape and layout – to a middle-Euphrates tradition which continues in time, and is well documented in later texts from Terqa and especially Emar. The names given to the sides of fields inside the ugjrûm are basically identical, and presumably result from a way of organizing land dictated by the need to optimize access to water from the irrigation network. The terminology used for field sides, in texts from all three archives, characteristically makes a distinction between pairs of opposite sides, two long sides, upper and lower (itûm elûm, itûm saplûm) and two short sides (SAG 1 and SAG 2) (ARM VIII 3), indicating that the basic shape was
rectangular. The identification of these sides remains identical for ‘long’ sides, always
defined as ‘upper’ and ‘lower’ at Mari, Terqa and Emar; the short sides are identified
at Mari and Emar by a cardinal number (first side and second side), whereas at Terqa
they are specified as for long sides. The fact that the way of referring to the long
sides remains linked to a fixed terminology is evidence that, for these sides, geographical
orientation was of primary significance, since this was linked to the flow of the river.
The main directional concepts used, elûm and saplûm, indicate both the higher and
lower part of the valley, and the ideas of ‘upstream’ and ‘downstream’ with reference
to the Euphrates. The direction followed by the river was the fundamental factor in
the organization of farming areas. It is thus plausible to imagine an irrigation district
made up of plots of rectangular fields, adjacent to one another and with access to
water on one of the short sides, parallel to the irrigation channel and probably the
Euphrates, and with the long sides upstream and downstream with respect to the
flow of the river.

For the size of fields, too, given the small number of legal texts found, information
must mainly be extrapolated from letters. The state of the valley lands appears to be
fairly complex and difficult to determine (Durand 1998: 513–535); however, a large
portion of the agricultural land was managed – and probably owned – by the palace
(defined in the texts as A.SÂ e-kal-lim). In part, this land was exploited directly by
farming teams, and in part allocated on a usufructuary basis, usually in exchange for
services of administrative or military nature. Private property must have existed, as
is documented by sporadic deeds of sale or purchase for fields, but its precise impact
on the territory is impossible to determine. Alongside ‘individual’ property, property
of ‘collective’ type seems to persist (cfr. ARM VIII 11). The small number of legal
documents from Tell Hariri use formulaic expressions which imply that the purchaser
was acknowledged as a clan member, through ‘false’ adoptions (ahhûtû), aimed at
making the alienation of lands from the family ‘acceptable’ on a formal and ideological
level (Liverani 1983: 158–159). These legal formulas find counterparts in later texts
from Emar in the practice of describing an outside purchaser as a ‘brother’, and of
declaring formally alien a member of the family who acquires clan lands in order to
safeguard the purchase (Zaccagnini 1992: 36); these are evidence for the persistence
in the middle Euphrates valley of community institutions extraneous to the large
royal administration, and which play an important role in land management.

To return to the size of fields, some texts tell us of expanses of farming land
belonging to the palace, since they are assigned to his farming teams. Each ‘plough’
was assigned a ‘task’ (ÉŠ.GÂR/AŠ.GÂR GIŠ.APIN), quantified both in terms of the
amount of land to be worked and of the production quota of ‘finished products’ to
be delivered (Talon 1983: 48). The teams generally belong to ‘rural domains’ (bîtum)
destined to support the royal family and palace officials (Joannès 1984: 113–115).
This fact implies that royal lands were divided into plots managed by the latter.
However, the frequent mentions in the letters of problems relating to the allocation
of work quotas to the teams suggest a more complex situation, which was far from
being planned in a stable and lasting manner. Unexpected problems force governors
to diminish or increase the work quotas of the ‘ploughs’, and thus the actual surface
area of land cultivated directly by the palace administration.

Evidence for the amount of land allocated to each team provides different figures;
however, the surface area considered a reasonable amount of work for a farming team was between 70 and 100 ikû (ARM XXVI/1 76), between 25.2 and 36 ha if we consider one ikû equivalent to 3,600 m². Although this was the surface area corresponding to the rulers’ expectations, in practice the areas documented in the letters differ significantly. However, these generally refer to extreme cases which are reported precisely because there is an untenable situation to be resolved, either by excess or deficit.

Governors and high officials, like members of the royal family, could own great properties and large areas of land, probably exploited using farming teams provided by the palace administration. District governors received fields upon their nomination; though the size of the areas allotted may vary, these seem to coincide roughly with the work quota of a royal farming team, more or less numerous depending on the land to be worked (from 50 to 100 ikû). The allocation of fields by the palace administration was often problematic and a cause for complaints: there are frequent cases when a functionary is assigned a piece of land already given to a member of the royal family or a notable of the kingdom (cfr. ARM XIV 81 = DEPM 752). Alternatively the allocation conflicts with the needs of local governors to use palace farming teams; they therefore appeal to the king to stop these concessions (see, for example, ARM XIII 39 = DEPM 781). Nor should collaboration between royal farming teams and local populations be taken for granted.

In addition to notables, some categories of palace ‘staff’ were also allotted fields for sustenance; these however were significantly smaller in area. A letter tells us that five ikû of land were allotted to some categories of soldiers, and three ikû to the ‘inhabitants of the village’ (ARM XXVII 107). The texts document the tendency of the rulers to allocate fields for growing food to those able to cultivate them, whereas those without the means to exploit the land (tools and working animals) are described as dependents to be allocated rations (ARM IV 86 = DEPM 772).

Little information is available on the size of fields not belonging to royal lands. Among the rare deeds of sale and purchase for fields between private individuals, the sizes documented generally concern small surface areas in the order of a few ikû, similar to the subsistence fields assigned by the rulers. These are plots bought and sold which do not provide information on the actual extent of the land actually owned by the rural families.

The text richest in information from the point of view of reconstructing individual field plots within agricultural areas (ARM XXII 328) lists small plots bought by a single individual, Warad-Sin, for a total of 16 ikû (ŠU.NIGIN 2 ĖŠE 4 GÁN A.ŠÀ). These were probably located along the Khabur, since the sellers are defined collectively as ‘sons of the Khabur’ (Villard 2001: 99–100). The total of 16 ikû is made up of smaller plots, generally measuring one ikû each, and mainly located in a single irrigation district, ‘the ngāram of Il-aba’. Within the irrigation district the size of individual plots seems to be more or less identical; presumably they also had the same orientation. It is significant that, whereas for plots of one ikû a single individual is named as the vendor, for the one larger plot of five ikû there are eight sellers (although also four sellers for a plot smaller than half an ikû). It therefore seems that the larger of the plots belonged to a ‘family group’ and was divided, and that the ikû represents a sort of basic unit, the ‘minimum’ cultivable plot.
NOTES

1 Cf. DEPM, 297.
2 In the political terminology, the Euphrates bank ab Purattim, represents the territory of the four main districts of the Mari reign: Mari, Terqa, Saggaratum and Qattunan, (Lafont 2001: 218–219).
3 ‘Aus dem atappum wird Wasser zur bewasserung der Felder (ana liqitum) abgeleitet’ (Stol 1980: 346).
4 Rations to ḫılıq aqlılim are listed in text ARM IX 25, and in a series of administrative texts referring to the same ‘rural domain’: ARM XXIII 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 117, 119, 120; ARM XXIV 14, 15, 16. In texts ARM XXII 28 and XXIV 20 quantities of grain defined as SE.BA Ė (‘barley rations for the rural domain’) list rations both for men and working animals.
5 ARM XXIII 121, 122, 123, 124, 460, 461, ARM XXIV 2.
6 Birot in ARM XXVII, pp. 10–11, comments on the six letters entirely devoted to the subject of a locust invasion in the district of Qattunan (ARM XXVII 26–31) and the shorter mentions (ARM XXVII 32–35, 38). See also Lion and Michelle 1997.
8 Cf. ARM XXVII 38.
9 For the cultivation of olive trees at Ebla, see Archi 1991; for the region of Alakhtum, probably Alalakh, see Durand 2002: 82–84 and texts FM VII 28, 35, 36.
11 ARM II 104 = DEPM 179, ARM XIV 35 = DEPM 181, ARM XIV 36 = DEPM 393, FM II 34
12 It was present also along the Khabur banks (Morandi Bonacossi 1996: 47).
13 A sporadic case is ARM XXII 328.
14 ARM VIII 6, similarly to what is attested in a text dating to the lakkanakku period, M.10556 (Durand 1982: 81).
15 100 ikû seems to be the surface of a ‘standard field’ given to a ‘farmer’ responsible for one ‘plough’ also in lower Mesopotamia in neo-Sumerian times (Liverani 1988–89: 299 and fn. 17; Liverani 1998: 47).
16 The following texts mention a surface of land assigned to the Mari ploughs: FM 11, 32, 5 ikû; ARM XIII 39, 50 ikû; ARM XXVI/I 76, 70–100 ikû; ARM XXIII 37, 80 ikû; ARM XXVII 36, 166.66 ikû (for six ploughs) or 142.85 ikû (for seven ploughs); ARM XXVIII 36.
17 See text DEPM 6 and ARM XXVI.

ABBREVIATIONS RELATED TO THE MAIN EDITIONS OF THE MARI TEXTS

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— Land and land use —

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