

Sixty years of the Virgin Lands Campaign in Russia and Kazakhstan: An assessment from an economic, ecological and political perspective

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Introduction

As the world's population quadrupled in the 20th century from 1.5 to 6 billion, so the area of agricultural land increased substantially (RAMANKUTTY et al., 2002; RAMANKUTTY and FOLEY, 1998). The expansion of agricultural production and land use poses a great threat to biodiversity and results in the loss of uncultivated natural habitats. These land-use processes consist not only of gradual, reversible changes, but also critical turning points (RADELOFF et al., 2013) at which fundamental decisions are made about the expansion or decommissioning of agricultural land. Although we know that such turning points – often irreversible – exist in land use, we cannot reliably predict when they will occur in the future (MÜLLER et al., 2014). What we can do, however, is analyse fundamental decisions relating to land use from the past and draw lessons from these.

One such critical turning point was the so-called Virgin Lands Campaign (VLC) in the former Soviet Union (FSU), when between 1954 and 1964 more than 43 million hectares of predominantly untouched grassland in the Eurasian

Steppe of Russia and Kazakhstan were turned over to cultivation. The goal was to increase wheat production to meet the pressing Soviet need for cereals after the Second World War (DURGIN, 1962; McCauley, 1976). As an alternative to this rapid expansion of farmland, so-called "broadening the cultivation", opponents of the VLC, which originated with Khrushchev, proposed a strategy of "deepening the cultivation". This envisaged a relatively small expansion of arable land, focusing instead on increasing wheat yields on existing farmland (DURGIN, 1962). Sixty years after the start of this most rapid large-scale land-use expansion, we can now analyse the effects of the land reclamation programme on agricultural production, as well as ecological and socio-political development in the study area.

The political economy of the Virgin Lands Campaign

1953 was a momentous year for the Soviet Union, and not only because of the death of Josef Stalin. The Soviet Union urgently needed to increase its agricultural production to meet the growing domestic demand and improve the food situation. Wheat yields in the



Endless steppe land in northern Kazakhstan

USSR, however, still lay far below the average yields of "enemy nations", including the USA. In the eyes of the Soviet government it would have been a sore defeat in the "battle of the systems" to even consider the idea of importing wheat from the supposedly inferior capitalist camp, thus turning the Soviet Union (Russia) from one of the world's largest wheat exporters under the Tsars into a wheat importer. In 1953 the Soviet state produced only 29.8 million tonnes of cereal, less than the 1940 pre-war level of 35.6 million tonnes (JOSEPHSON et al., 2013). During the Second World War the German army had occupied a third of the cereal growing area of the Soviet Union, leaving behind terrible devastation. Besides the 28 million people who died in the war and the drastic depopulation of rural areas that ensued, agricultural production also suffered from a lack of farm machinery and equipment. Another collectivisation campaign from 1946 to 1953 in the newly acquired areas of what today constitutes Belarus, Ukraine and the Baltic States, brought about no improvement in the wheat supply (JOSEPHSON et al., 2013). Increasing agricultural production was, therefore, deemed necessary and became the subject of bitter political debate.

A dispute arose over the succession to Stalin between Nikita Khrushchev, then First Secretary of the Central Committee, and Georgy Malenkov, Chairman of the Council of Ministers. In their struggle for power, the question of the future orientation of agricultural policy played a key role (JOSEPHSON et al., 2013). Malenkov advocated increasing yields by greater use of fertiliser

and farming technology on the existing arable land in the so-called old agricultural areas in European Russia (HARRIS, 1955; McCAULEY, 1976). Instead, Khrushchev favoured a policy of extending maize cultivation in the former main wheat and rye growing areas in Ukraine and central Russia (McCAULEY, 1976). By expanding the area of farmland, wheat would be grown in the Eurasian Steppe – where there were vast stretches of land that had never been used for arable farming – exploiting the natural fertility of the steppe soil (DURGIN, 1962; McCAULEY, 1976). Khrushchev prevailed – probably also because the Soviet Union lacked sufficient capital reserves to intensify agricultural production in the western farming areas (WEIN, 1980).

In February 1954 Khrushchev announced a plan for increasing cereal production, which anticipated within a short period of time 35-40 % higher yields in relation to 1953. This rise was to be achieved by rapidly bringing into cultivation up to 30 million (and later up to 40 million) ha of predominantly untilled steppe land in Russia and Kazakhstan (DURGIN, 1962). Although the plan was approved there was a certain scepticism about its economic viability. Malenkov, who within the Communist Party was in opposition to the group around Khrushchev, called the plan an opportunistic adventure. Together with Molotov and Kaganovich, Malenkov's colleagues from Stalin's inner circle, he continued to support the "deepening" approach in opposition to Khrushchev's "broadening" approach. His intention was to reclaim only 20 million hectares of land for cultivation, while

using more resources to increase yields on existing and new arable land. But their plan failed to meet with agreement and later they were expelled from the Communist Party.

Agricultural production during the Virgin Lands Campaign (VLC) 1954-64

On the instructions of the Central Committee of the Communist Party of the Soviet Union (CCPSU), in spring 1954 tractors began ploughing up untouched steppe land in order to sow wheat to supply the growing Soviet population. Given that there was often no infrastructure in the untouched steppes, huge efforts were needed to mobilise and resettle "Conquerors of Virgin Land" (Pervotselinnik). The Virgin Lands Campaign ("Osvoenie tselinykh zemel") aimed at the large-scale mobilisation of young people, led by the youth organisation of the CPSU: Komsomol. In fact, with its appeal to the Soviet "youth", the Virgin Lands Campaign modelled itself on the total mobilisation of society during the accelerated industrialisation of the 1930s, except without the elements of Stalinist terror or the mass use of forced labour. After 1953 the state system of labour camps (GULAG) had for the most part been liquidated.

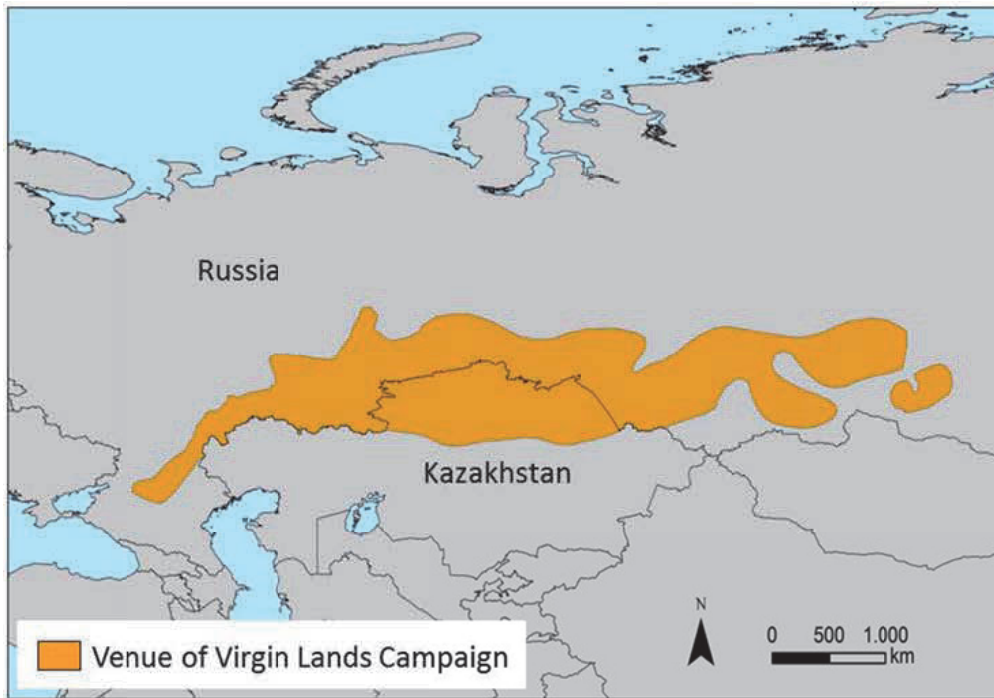
In addition to the lack of preparation for the land reclamation, when evaluating the VLC we must also note that the land with the best agricultural-ecological conditions was already in cultivation. This is to say that the expansion of agricultural land took place chiefly in

areas with unfavourable conditions for arable farming, such as insufficient rainfall (<300 mm per year), or a high frequency of drought and harsh winters as a result of a continental climate. Moreover, in the Virgin Lands areas, frosts often occurred early, in some places already in August and September (AFONIN et al., 2008; DURGIN, 1962).

The area covered by the VLC extended across northern Kazakhstan as well as several Russian provinces (Volograd, Rostov, Saratov, Bashkiria, Kurgan, Orenburg, Altai Krai, Kemerovo, Novosibirsk, Omsk, Tyumen, Krasnoyarsk, Irkutsk and Chita) (Fig. 1). Of the 40 million ha that were scheduled to be brought into cultivation during the VLC, 11 million had already been ploughed up in 1954, five million of which were in Kazakhstan (Figures 2 and 3). Originally the plan had envisaged bringing into cultivation 2.3 million ha in the first year, whereas in fact the area sown at the end totalled 3.6 million ha.

Because of a lack of agricultural technology, many fields could not be harvested and so the cereals were left to rot on their stalks. Even so, in the first year of the VLC, an additional 14.7 million tonnes of cereals were harvested in the Soviet Union. This promising early success on the fertile steppe lands encouraged further expansion. Already in the following year the area of land ploughed grew to 30 million ha, 20 million of which were sown with seed (DURGIN, 1962). The drought of 1955, however, shattered the faith in the success of such virgin land schemes, which assumed at least two to three good

Figure 1: Area of the Virgin Lands Campaign (1954-64)

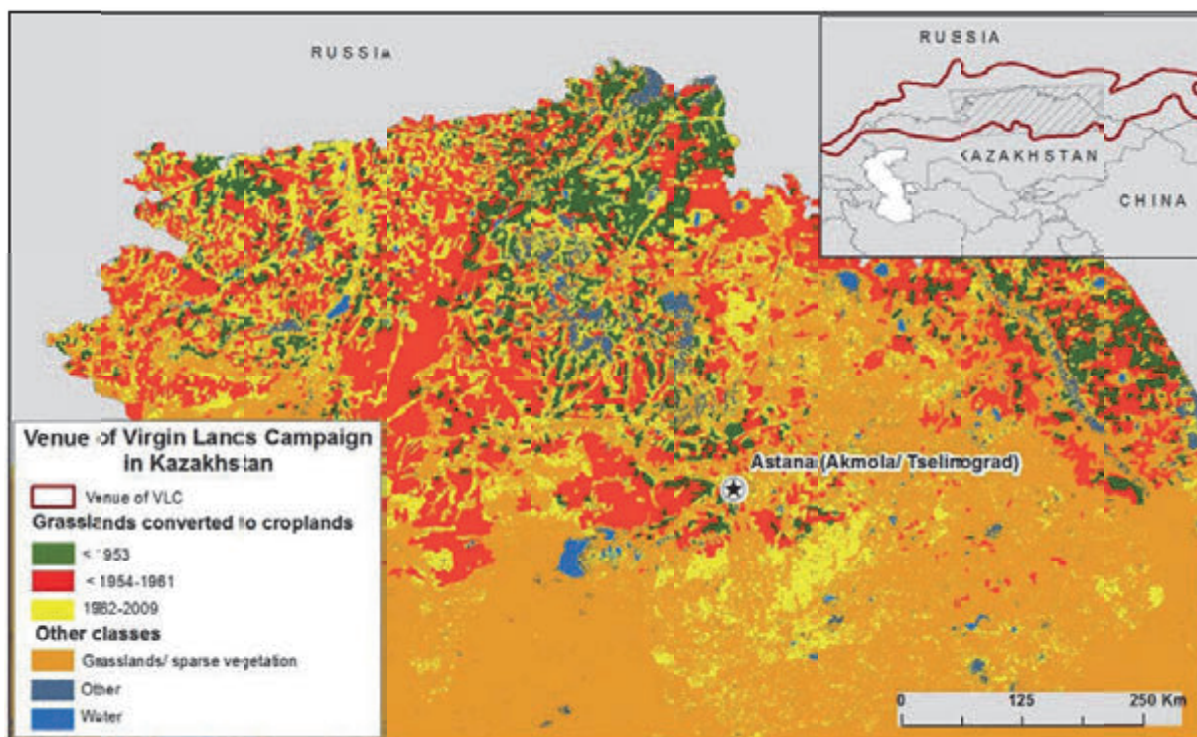


harvests every five years. Although land in cultivation in the Virgin Land areas had doubled relative to 1954, the area sown with seed only increased by 35 % (DURGIN, 1962).

The following year only 5.6 million ha of arable land were brought into cultivation (Figure 3), as the goal of the VLC, which had been to reclaim an arable area of 30 million ha, had been fulfilled. At the same time there was a substantial expansion of land sown with seed: 13 million additional ha. This meant that the total extent of land sown in the Virgin Lands area was 33 million ha.

1956 saw the best harvest in this area so far: 64 million tonnes of cereals (DURGIN, 1962). In 1957 a further 3 million ha of steppe land were ploughed up (Figure 3). But after a succession of consecutive drought periods starting in 1957, and in view of the vast area already ploughed but not yet sown, expansion of arable land virtually came to a halt in 1957. In the years that followed the harvests reflected the weather conditions of each particular year, but even in better years the cereal harvest did not match that of 1956, and this in spite of a huge expansion of arable farmland. At the beginning of the 1960s, in

Figure 2: Phases of land reclamation in Kazakhstan

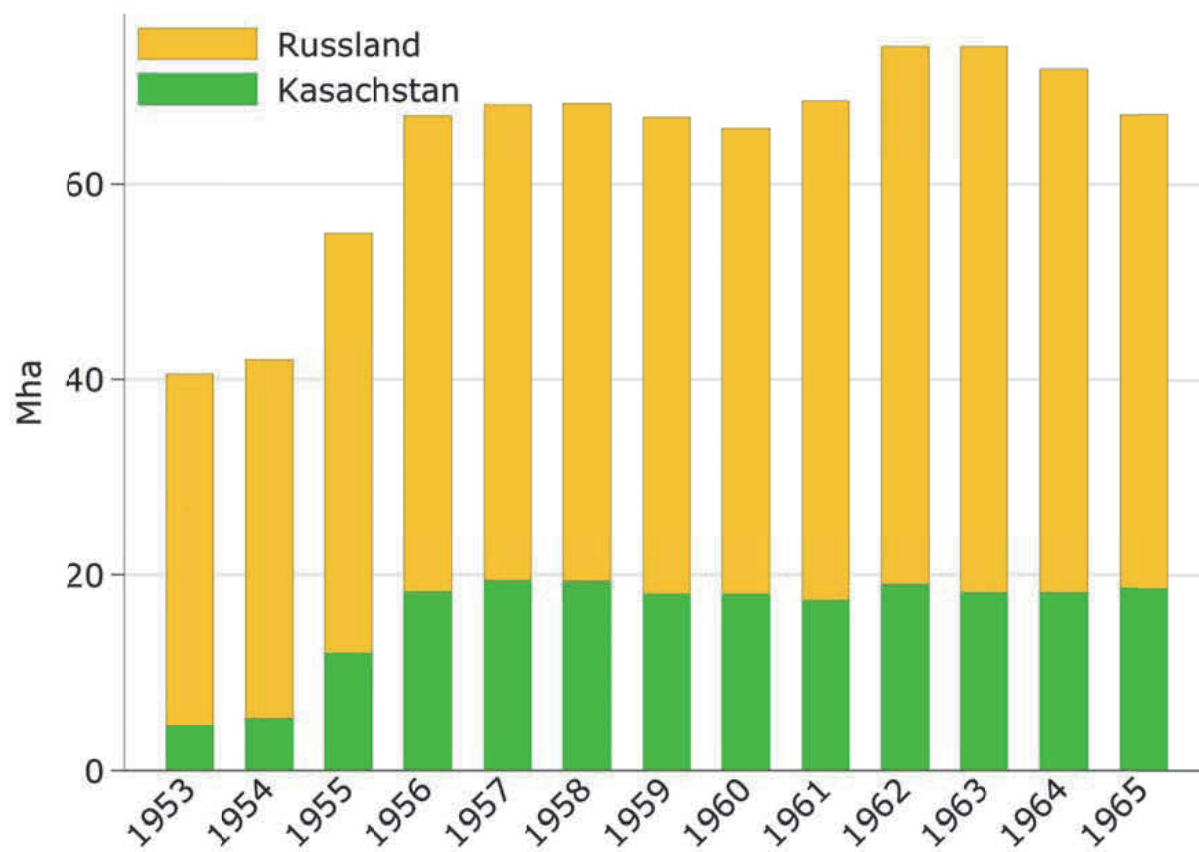


Source: KLEIN et al., 2012; MSU, 1964.

particular, several years of drought had a disastrous effect on cereal production in the Soviet Union (JOSEPHSON et al., 2013). The drought of 1963 was especially serious for cereal production in the traditional granaries of the Volga and Black Earth regions, but also in Ukraine and the Virgin Land areas. The extreme droughts led to very low yields (an average of 3 dt per ha in Kazakhstan, KAZSTAT, 2003). The grain harvested was not even sufficient to provide enough seed for the following year (JOSEPHSON et al., 2013).

Because of the cereal shortage there was large-scale slaughter across the Soviet Union to adjust livestock numbers to the sparse volumes of feed (GKS SSSR, 1991; GKS, 1956). In the end the Soviet Union was obliged to purchase around 10 million tonnes of cereals from its "political and economic" enemies (JOSEPHSON et al., 2013). The hope that the reclaimed Virgin Lands could act as a stable buffer to compensate for poor harvests in the traditional granaries had been shattered, and the Soviet Union came nowhere near reaching its objective of

Figure 3: Increase in newly cultivated arable land in the Russian and Kazakhstani parts of the VLC from 1954–64, in millions of hectares



Source: GKS SSSR, 1991; GKS, 1956–1990; KAZSTAT, 2003; KAZSTAT, 2010.

160-180 million tonnes of cereal production by 1965. Soon afterwards Khrushchev was ousted by his opponents in the CPSU, led by Leonid Brezhnev. Criticism of Khrushchev's determined and overoptimistic agricultural policy clearly played a role in his downfall (JOSEPHSON et al., 2013).

Agricultural production after the VLC 1965-1990

It was not possible to bring the agricultural activities in the Virgin Lands areas to a rapid end. During the VLC hundreds of thousands of people had migrated from throughout the entire Soviet Union to the Virgin Lands areas in Russia and Kazakhstan. Thousands of new settlements had been built, as well as the accompanying infrastructure such as schools and hospitals. From 1954 to 1960 the Soviet government invested 44 billion rubles, or 20 % of total Soviet expenditure on developing the VLC areas (DURGIN, 1962). Under the terms of the state planned economy the overall profit of the VLC accounted for came to 76 billion rubles. The Soviet calculation was based on an evaluation of the cereal harvest at market prices and tax income from the VLC areas.

In spite of officially proclaimed successes, because of its unsatisfactory results the Virgin Lands Campaign barely featured in Soviet propaganda after 1964. During Brezhnev's time in office the Soviet government focused on attaining a greater degree of intensity in

agriculture, by heavily increasing the volumes of chemical fertilisers used, more efficient use of machinery and equipment, intermittent decommissioning of farmland and increasing protection against wind erosion. In spite of this, further stretches of land in the VLC area were ploughed to create arable land, often in areas that were barely suitable for arable farming (Figure 4). Both the Russian and Kazakhstani VLC areas reached their peak farmland extent in the period 1975-80, a total area that remained practically unchanged until the collapse of the Soviet Union in 1991.

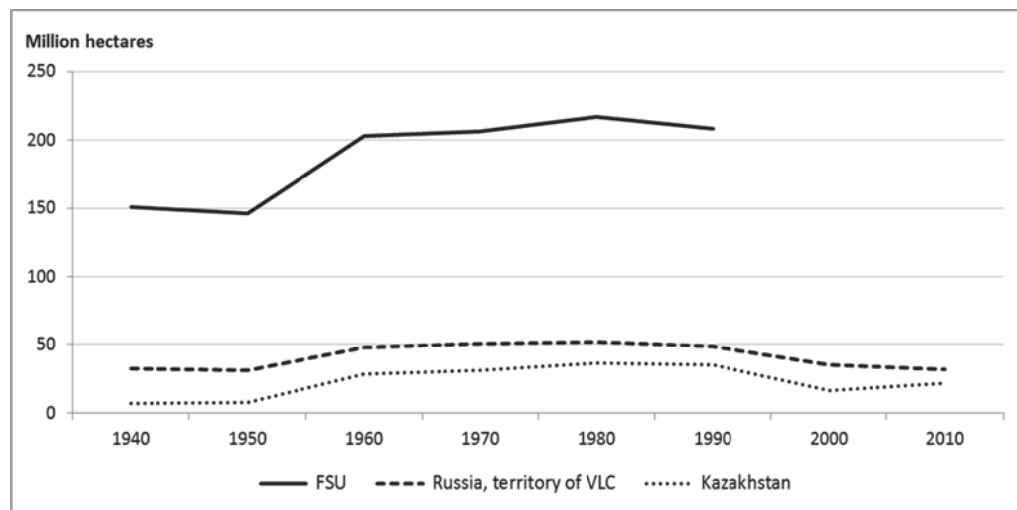
In both the Russian and Kazakhstani VLC areas, efforts were made to increase cereal yields (Figure 5). Between 1965-90 the average wheat yield in Kazakhstan was 8.9 dt/ha in comparison to 7.1 dt/ha in the period 1954-64. Similarly, in the Russian VLC areas annual cereal yields rose from an average of 6.8 dt/ha in 1954-64 to 9.4 dt/ha in 1965-90. This helped stabilise cereal production and allowed less favourable areas such as the northern and temperate part of European Russia to cut back. Yields, however, still remained well below those in the European granaries of the Soviet Union (Ukraine and especially the Black Earth region), where over the same period they were as high as 16 dt/ha. Soviet cereal production continued to be at too low a level even to meet the minimal goal of self-sufficiency, and cereal imports from the capitalist West regularly amounted to between 10 % and 16 % of Soviet production.

Agricultural production during the period of transition 1991-2000

The dissolution of the Soviet Union and the institutional reforms that followed brought about rapid and far-ranging changes to land use in the entire former Soviet Union (FSU). The sudden disappearance of a guaranteed market, combined with a roughly 90 % drop in state agricultural subsidies, resulted in a massive slump in agricultural production in former VLC areas, both in Russia and Kazakhstan (PETRICK et al., 2013; PRISHCHEPOV et al., 2013; SCHIERHORN et al., 2013) and the total area of land farmed in Kazakhstan shrank substantially. In Kazakhstan, 19 million ha of VLC arable land became fallow,

and by the end only 47 % of the area farmed in 1990 was still in cultivation (Figure 4). The extent of land taken out of cultivation corresponds approximately to the 20 million ha expansion of arable land during the VLC, 1954-64. A similar development took place in the Russian part of the VLC, where from 1991 to 2000 13.5 million ha became fallow, and only 46 % of the area farmed in 1991 remained in cultivation (Figure 4). Around half of the steppe land converted into arable land thus became fallow. Large areas began a slow reversion to steppe land (KRAEMER, 2014). In the VLC areas under investigation, the land that was decommissioned was predominantly in areas where the soil had degraded in the Soviet era, which was situated too

Figure 4: Total area of sown land (in million hectares) in the former Soviet Union (SU) as well as in the Russian and Kazakhstani parts of the VLC

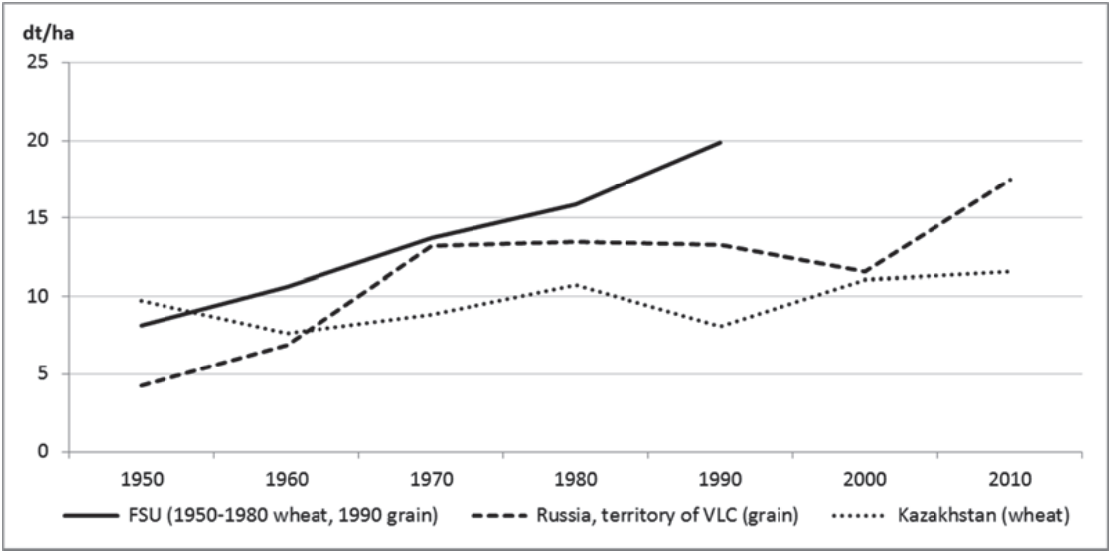


Source: GKS SSSR, 1991; GKS, 1956-1990; KAZSTAT, 2003; KAZSTAT, 2010.

far from settlements and suffered from too little rainfall (KRAEMER, 2014). Structural changes in the economy also played a key role in the reduction in agricultural land. During the transition crisis this occurred as a result of massive drops in feed cultivation, triggered by the radical cutback in labour-intensive and capital-intensive animal production (PETRICK, 2014; SCHIERHORN et al., 2013). After 2000 some of the fallow arable land was brought back into cultivation. This trend has continued to the present day and can be seen in both some provinces of the Russian part of the VLC as well in northern

Kazakhstan (Figure 4). By 2010 the area of arable land in Kazakhstan had returned to 60 % of the 1990 figure. The changes in use reflect the specific agro-ecological suitability of each soil for crop farming. Areas of land better suited to cereal production were the first to be brought back into cultivation, whereas fields with degraded soils and a low level of natural suitability for crop farming remained unused (KRAEMER, 2014; KRAEMER et al., under review). In 2010 the sown area was only around 70 % of the figure during the high point of the VLC in 1965 (Figure 6).

Figure 5: Development of cereal yields in the former Soviet Union (FSU) in both the Russian and Kazakhstani parts of the VLC

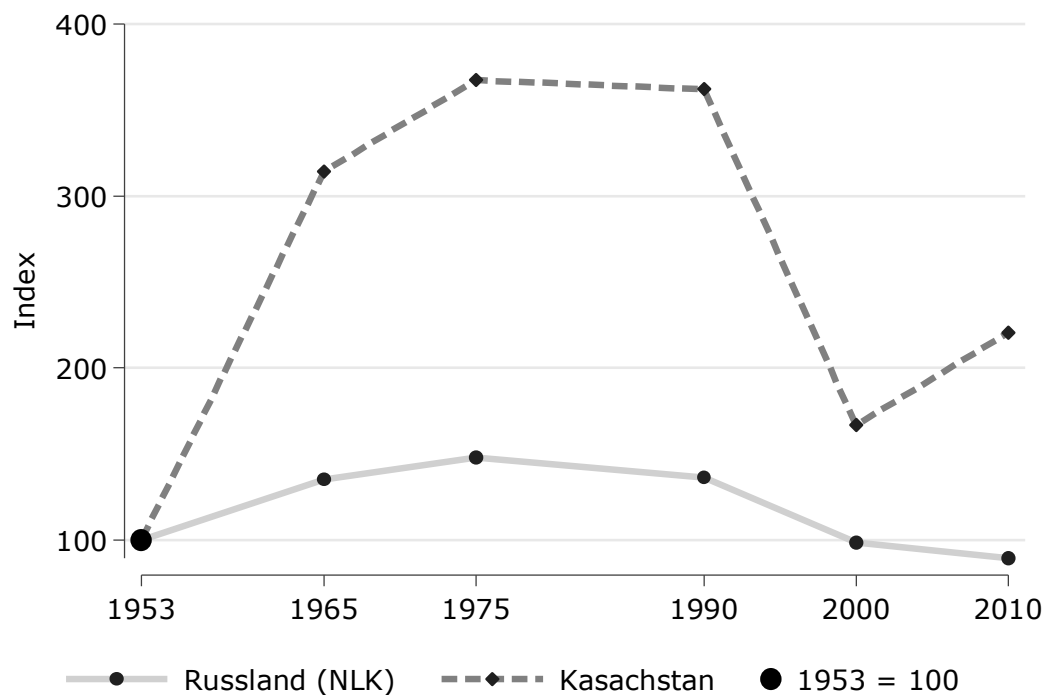


Source: GKS SSSR, 1991; GKS, 1956-1990; KAZSTAT, 2003; KAZSTAT, 2010.
 Note: For the Russian part of the VLC cereal yields are depicted, for the Soviet Union and the Kazakhstani part of the VLC wheat yields are depicted, all in decitonnes per hectare.

On the other hand, compared to 1953 the amount of arable land in Kazakhstan had more than doubled by 2010. Unlike in Kazakhstan, in the Russian part of the VLC areas, land continued to be decommissioned after 2000. Between 2000 and 2010 the area sown with seed fell by 3.2 million ha. Overall, in 2010 the area of arable land in cultivation in the Russian VLC areas was only 65 % of that in 1990, and 60 % of the 1965 figure (Figure 6). Interestingly, in the Russian VLC areas considerably less arable land was in cultivation in 2010 than prior to the

VLC (i.e. only 89 % of the 1953 figure) (Figure 6). In some Russian provinces of the VLC, e.g. the Republic of Buryatia, crop production almost came to a complete halt. In this sense the year 2000 represented a turning point, as wheat yields started rising again. The average wheat yield rose in Kazakhstan from 9.4 dt/ha in 1999-2000 to 10.3 dt/ha in 2000-10. Yields experienced a similar development in the Russian VLC areas, rising from 10.8 dt/ha (1990-2000) to 14.6 dt/ha (2000-10) (Figure 5).

Figure 6: Area sown with seed in 2010, compared to 1953



Source: GKS SSSR, 1991; GKS, 1956-1990; KAZSTAT, 2003; KAZSTAT, 2010.

Impact of the VLC on the environment, the economy and on policymaking

The VLC had a profound impact on the environment. The conversion of 40 million ha of largely untouched Eurasian steppe land during the VLC signified a massive reduction in habitats for many key species. For example the expansion of cultivated land in untouched steppe areas seriously diminished and fragmented the habitat of the saiga antelope (*Saiga tatarica*), which had previously been home to three distinct sub-populations (BEKENOV et al., 1998). The negative effects of this habitat fragmentation were underestimated at the start of the 1950s, and some were not even known about. By 1990 the reduction in habitats had led to inbreeding amongst the saiga antelopes, and the lack of new genetic material resulted in an increase in mortality rates.

The rapid ploughing up of vast tracts of steppe land without any accompanying measures to combat wind erosion led to a repeat of the notorious North American dust bowl of the 1930s. It is estimated that around 7 of the 40 million ha of arable land in the Russian VLC areas were damaged by wind erosion. Salinisation also occurred in the dry steppe lands. A lack of preventative measures against erosion and the insufficient use of chemical fertilisers led to a reduction in the humus volumes in some VLC areas to a tenth of the starting level. Soil degradation continues to be a massive problem for Russia and Kazakhstan. Today farmers are paying the

price with extremely low yields in the areas affected. According to the first estimates since 1990, the vast degree of soil erosion has also probably released more than 920 million tonnes of carbon into the atmosphere. At the same time, the decommissioning of land after 1990 in the Russian and Kazakhstani VLC areas helped capture around 24 million tonnes of carbon per year.

The VLC had a substantial impact on the socio-economic development in the agricultural border areas of northern Eurasia. Populating these areas in a short time was possible by mobilising massive human and financial resources. Northern Kazakhstan developed into one of the most important granaries in the world (PETRICK et al., 2013). On the other hand much criticism was voiced about the loss of Kazakh national identity through the disappearance of nomadism in the entire Kazakhstani VLC area (KRAEMER, 2014). This question gained in importance when discussion arose over whether concentrating solely on crop production in agricultural border areas was a sensible strategy, or whether the dry steppes were not more suitable to livestock farming.

In hindsight, the conclusion we can draw from the economic and ecological impact of the VLC is that the plan advanced by Malenkov and his supporters – to bring only 20 million ha of virgin steppe land into cultivation and focus more on increasing yields in the new and old cereal areas – would have probably been the better strategy. But Khrushchev's determination to reclaim virgin land was legendary, eventually costing him his office.

In his "Kazakhstan 2050" strategy, President Nursultan Nazarbayev declared the agricultural sector to be a main target of his economic policy. Cropland and live-stock numbers are to be expanded again and, with state subsidies, new technologies are expected to give a boost to productivity (PETRICK, 2014). Similar to Khrushchev, who cited 1990 as the year when Kazakhstan should have reached a level of general prosperity on a par with leading nations, for Nazarbayev 2050 is the target year by which his country should have by and large caught up with the West.

What is certain is that the diversification of the Kazakhstani economy, 50 % of whose value is based on oil and gas production, is advancing. But we must bear in mind that the successful realisation of this ambitious catch-up programme is based on strict state regulation, implemented by a frequently corrupt bureaucracy. In actual fact, many institutions responsible for the administration of land ownership, have not essentially changed since the end of the Soviet Union. For example, most farmland is leased out by the state. Functioning land markets do not exist, which means a market-based allocation of land to the best user cannot occur. Instead, the state-regulated lease system represents another source of corruption. Although Kazakhstan is richly endowed with land as a factor, land productivity is very low. Contemporary developments in crop and livestock farming, which result in land-use conflicts, particularly in those areas with marginal soils, continue to be worrying. Agriculture in the Russian and Kazakhstani VLC

areas only has a future if those responsible for policy succeed in drawing lessons from the past for a sustainable regional development in the future.

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