

## TRANSFORMATION OF COLLECTIVE AGRICULTURAL PRODUCTION IN EAST GERMANY AND ITS LESSONS TO NORTH KOREA

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**Key words:** East Germany, North Korea, Agricultural transformation,  
Central-planning economy, Market economy

### ABSTRACT

This paper aims to summarize the main steps and experiences of the agricultural transformation process in Germany since 1989 when the Eastern part of the country embarked on a transition from a socialist central-planning economy to a market economic system. At some stages it is referred to the transformation process of other countries, in general of Central and Eastern Europe (CEEC). The paper will outline the major steps and consequences of agricultural transformation. A gradual approach of agricultural transformation and adjustment to a market economic system should be adopted and a big bang avoided for North Korea. In a market economy system the government has to give up any role to guide and manage the economy including the agricultural sector. However, it has to provide a sound legal framework which ensures the rights and obligations of private individuals and companies in a fair manner. In addition, while the state is converting the economy from a planning to a market economic system, it has to support the people to get used to this new system over a transitional period.

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## I . Introduction<sup>1</sup>

During the late 1980s and early 1990s remarkable changes have taken place in the former centrally planned economies in East Asia, the former Soviet Union and Central and Eastern Europe (CEEC). Most of these countries have changed into market-oriented economies. One of the most dramatic changes took place in Germany. The centrally planned economic system in East Germany (GDR)<sup>2</sup> has totally changed into a market-oriented economy through the unification of East and West Germany. The case will give an important implication to South and North Korea.

Within this paper it is aimed to summarise the main steps and experiences of the agricultural transformation process in Germany since 1989 when the Eastern part of the country embarked on a transition from a socialist central-planning economy to a market economic system. It culminated in the reunification with West Germany less than a year after having started the change of the political regime. While many factors have influenced the process itself which cannot be discussed in this paper, we will concentrate on the changes in agricultural production itself. It is beyond the scope of this paper to discuss all the other factors which had some repercussions on the agricultural transformation process, e.g. the transformation of the upstream and downstream sectors, food industries, rural financial systems, agricultural extension services, etc. At some stages a reference to these aspects is

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<sup>1</sup> This paper draws in some parts on Hinners-Tobrägel, L., A. Wolz, J. Choi, J. Heinrich: Major Issues Affecting the Agricultural Sector after Unification in Germany and Major Lessons for Korea, which had been presented at the KREI-Workshop "Transformation of the Agricultural Sector in the Transition Economies: Lessons for North Korea," Seoul, 17-18 December 2003

<sup>2</sup> East Germany: German Democratic Republic (GDR), often called 'New Länder' [New Federal States] after unification West Germany: Federal Republic of Germany (FRG), sometimes called 'Old Länder' after unification; FRG is the official name of the united Germany

made. Similarly, at some stages it is referred to the transformation process of other countries, in general of Central and Eastern Europe (CEEC). The paper will outline the major steps and consequences of agricultural transformation. Finally, the major conclusions with respect to the envisioned transformation process in North Korea will be drawn.

## **II. Major Characteristics of Agricultural Production in East Germany before Transformation**

As a socialist country society and economy of the former GDR were organised according to the Marxist-Leninist principles. Agricultural production as part of the overall economy had been guided by the central economic planning system. The major objectives of the agrarian policy of the GDR can be summarised as follows (von Oertzen-Haupt et al. 1991, 3-4):

- ensure an almost complete self-sufficiency in food for the population and in agricultural raw materials for the national economy
- complete cultivation of all agricultural area available, including marginal areas
- increase of productivity in animal husbandry while ensuring a high number of livestock
- steady increase of agricultural and food exports in order to earn much-needed foreign currencies
- transition to a steady intensification of agricultural production leading to an increase and specialisation of the individual farms, i.e. an industrialisation of agricultural production

The agrarian policy of the GDR tried to adopt technical advantages in order to steadily increase productivity. However, due to rising agricultural support costs and constraints in the supply of vital capital goods the approach could not be financed anymore since the second half of the 1980s. In addition, the agrarian policy followed some general objectives of social policy. The industrial type of agricultural production should demonstrate the “superiority of the socialist system”. The differences of the living

conditions between rural and urban areas should be overcome. Two aspects have to be mentioned in particular.

(1) Under the central planning system, prices were set administratively and did not respond to constraints or limitations. While it had been the political objective to cover all the costs of agricultural production, the reality looked different. The farm-gate prices for agricultural products were kept at a very high level, while the consumer prices for the major food items had been set at a rather low one. These low prices could only be managed due to massive subsidies from the state budget. For example, in 1988, about 13.4 percent of the state budget had been allocated for the subsidies of food prices.

(2) Since the 1950s, particularly since the early 1960s there had been severe efforts to promote industrial specialisation and to foster economic integration among the socialist countries within the Council for Mutual Economic Assistance (COMECON<sup>3</sup>). Compared to other sectors of the economy there had been surprisingly modest links with respect to agricultural production and food processing. The objective of national self reliance or even autarky had been predominant.

### **1. Role of Agriculture: Comparison of East and West Germany before Transformation**

Before the collapse of the socialist regime the GDR had been recognised as a major industrial economy. Nevertheless, the agricultural sector had been more important than in the Federal Republic at that time. The major economic indicators are summarised in Table 1.

The population came up to a bit of one fourth of the one of the Federal Republic which reflected the high emigration rates after World War II up to build up of the “Berlin Wall” in August

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<sup>3</sup> The COMECON or CMEA had been founded under the dominance of the Soviet Union in January 1949. The GDR joined in September 1950 and left with unification. Due to the political changes in 1989/1990 the COMECON had been dissolved in June 1991.

1961. On the other side, the value of the GNP made up more than one third of the one of the FRG reflecting the relatively high standard of economic development at that time. The relatively good economic parameters seemed to be the reason why the costs of unification had been estimated to be quite modest compared to the actual development during the 1990s. The agricultural sector of the GDR had been more important for the national economy than the one of the FRG (von Oertzen-Haupt et al. 1991, 19-40). More than 10 percent of all employed persons had a job in this sector. Similarly, more than 10 percent of the GNP had been contributed by agriculture during the late 1980s. In comparison, the agricultural sector of West Germany had been of minor importance at that time, already.

With respect to land area, the former GDR just made up less than half of the area of the former FRG. The objective of

TABLE 1. General Economic Indicators: Comparison of GDR and FRG, 1989

Indicators	GDR (A)	FRG (B)	A/B (%)
Total area (1,000 ha)	10,833	24,863	43.6
Agricultural land	6,171	11,886	51.9
Population (1,000 persons)	16,614	62,063	26.8
Employment (total)	8,547	27,742	30.8
Agricultural employment <sup>a)</sup> (%)	10.8	5.2	-
International trade (million M or DM) <sup>b)</sup>			
Import	41,142	506,465	8.1
Export	41,105	641,041	6.4
Social product (billion M or DM)			
GNP <sup>c)</sup>	827	2,245	36.8
Agriculture, forestry & fisheries (%)	10.4	1.8	-

Note: a) Agriculture, incl. Forestry and Fisheries

b) One East German Mark (M) equals one West German Mark (DM)

c) Gross products for the GDR

Source: Ministry of Food, Agriculture & Forestry (BML): Statistical Yearbook of Food, Agriculture & Forestry, 1991; Federal Statistical Office: Statistical Yearbook of the United Germany, 1991.

achieving a high degree of self-sufficiency in food is reflected in the very high share of agricultural land amounting to about 60 percent of the total land area. Again, more than 80 percent of the agricultural land had been used as arable land. The number of livestock had been relatively high in order to ensure a high degree of self-sufficiency in animal products. The yields had been lower than those in the West which had been due to a somewhat lower level of technology applied and a higher share of losses, particularly during the second half of the 1980s.

Although member of the COMECON international trade had not been of much importance to the national economy compared to the situation in the FRG. It had been mainly concentrated on the other socialist countries. With respect to agricultural products West Germany had been of some relevance (Teller 1990, 139-141). With respect to West Germany agricultural trade has been of more importance than compared to most other countries. About 9.7 percent of the East German exports to West Germany and about 8.4 percent of the West German exports to East Germany had been made up by agricultural products in 1988. West Germany used to be most important export nation of the GDR with respect to agricultural products in taking up about 20 percent of the total. Similarly, with a share of 7.4 percent of all agricultural imports, West Germany had been the third important import nation, i.e. after the Soviet Union and Hungary. The West could export some processed products which had been in need in the East Germany, e.g. animal feed (oilseeds), roasted coffee, sweets and cheese. West Germany was mainly buying primary products from East Germany, like live animals, meat and cereals, but it became evident that the East was subsidising this trade and actually losing money. Agricultural trade with West Germany seemed to have been done with the main objective of getting urgently needed foreign exchange.

## **2. Self-Sufficiency in Food**

As discussed above, one of the major objectives of the agricultural policy of the GDR had been to achieve a maximum level of self-

sufficiency, or even autarky in food. Due to high subsidies by the state, particularly for the major food items, this policy had been very successful as shown in Table 2. With respect to animal products the degree of self-sufficiency had been above the 100 percent level. Concerning the major crop products, with the exception of cereals, this objective could be achieved as well. All major food products had been available to the consumers at a very low price level. While food production had been successful with respect to quantity, the quality standards had not always been satisfactorily. Due to insufficient capacities with respect to storage, handling and processing, cooling and distribution, shortages in food supply at the regional level and/or over some parts of the year had been common.

**TABLE 2.** Degree of Food Self-Sufficiency at National Level (Average: 1986-88) in the GDR and FRG (%)

	GDR	FRG	EU
Cereals, of which	84	100	115
- Wheat	95	111	121
- Barley	85	103	121
- Rye	98	106	-
- Oats	102	96	-
- Corn	-	55	-
Potatoes	102	93	-
Sugar	100	137	126
Oilseeds	112	52	-
Legumes	92	32	-
Milk	118	107	110
Total meat, of which	110	91	102
- Beef	108	120	106
- Pork	112	87	103
- Poultry	102	61	105
Eggs	107	72	102

Source: von Oertzen-Haupt et al.: Die Ausgangslage in den neuen Bundesländern. Frankfurt 1991, p. 31.

Due to this policy, the level of calorie intake per head had been, on average, about 10 percent higher than in West Germany, i.e. 3,800 cal vs. 3,400 cal. With respect to the major basic food items, e.g. meat, milk and butter, the average demand per person in the GDR had been higher than in the FRG. However, concerning vegetables, consumption had been concentrated on a few varieties only. Particularly, the average demand for bread and potatoes had been much higher than in the West. But these average figures have to be assessed with caution, as it had been estimated that a high share of these products had been used as animal feed by private home producers. This high level of food demand is a reflection of the relatively low food prices. On the other side, the average demand for fish, cheese, edible oil, (fresh) fruits, coffee, tea and wine had been much lower compared to the one in West Germany. The major reason had been their relatively high prices as most of them had to be imported.

### 3. Agricultural Employment

As shown in Table 1, the number of persons employed by the agricultural sector had been quite high. To some extent, however, this high share of agricultural employment amounting to about 10.8 percent is misleading (von Oertzen-Haupt et al. 1991, 17-18). Quite a number of non-farm jobs is included in this figure as will be shown in more detail in Table 3 below.

**TABLE 3.** Subgroups of the Agriculturally Employed Persons in the GDR, 1989

Total employed persons (1,000 persons)	859.2
- Directly employed in production	455.2
- Administration	134.9
- Construction, crafts, repairs	127.1
- Storage, processing	22.3
- Socio-cultural services	43.1
- Agro-chemical Centers	27.0
- Others, including veterinary services	49.6

Source: von Oertzen-Haupt et al.: *Die Ausgangslage in den neuen Bundesländern*. Frankfurt 1991, p. 17.

In 1989, about 859,200 persons had been employed in agricultural production, including the veterinary and plant protection services. In relation to the total agricultural area cultivated, the labour intensity index stood at 14 manpower equivalent units (MEU) per 100 hectares of agricultural area in comparison to about 9.8 of the former FRG. This shows that agricultural production still had been very labour-intensive. Surprisingly, the absolute number of the agricultural labour force increased during the 1980s; an atypical development for an industrialised country. A more detailed look at this overall figure of all persons gainfully employed in the agricultural sector reveals that not all of them were dealing with agricultural production itself. Just a bit more than half of them, or 53 percent, actually did so. Based on that figure, the share of agricultural employment stood at 6.1 percent and the respective MEU at 7.9 labourers per 100 hectares of agricultural area. Due to the high level of specialisation and concentration, a rising number of workers had to be recruited for the support and repairs of agricultural machines, construction work, sideline activities (e.g. processing, storage, drying, etc.) and for transportation of farm products during the 1980s.

#### **4. Organisation of Agricultural Production and Farm Structure**

Following the collectivisation during the 1950s private farming had been almost abolished in the GDR like in most other socialist countries. Farming had been dominated by collective farms and, to some extent, by state farms. Following the amalgamation of these collective and state farms during the 1970s agricultural production had been characterised by a relatively small number of large-scale farms. At the same time the industrialisation of agricultural production had been introduced in separating crop production from animal husbandry farms. It is evident that these farms had to be co-ordinated at higher, in general, at district levels. By the end of 1980s the number of collective and state farms came up to about 4,700 (Table 4). These farms cultivated about 94 percent of all agricultural land and employed about 99 percent of the agricultural work force.

Besides these large-scale farms, there had been about 5,500 private holdings comprising private gardeners, part-time and a few full-time farmers and 55 church-owned farms whose land had not been collectivised at all. These few private farmers had only very limited entrepreneurial liberty, but were closely linked to the state-owned upstream and downstream sectors. In addition, agricultural land had been cultivated by about 375,000 hobby farmers; on average, these farmers cultivated up to a quarter of a hectare. In most cases, these hobby farmers were members of the collective farms or agricultural workers of the state farms. With respect to certain products, like vegetables, eggs, chicken and rabbit meat, and fruits these farmers contributed significantly to total production (Wilson and Wilson 2001, 117).

The farm structure of the GDR had been completely different to the one in the former FRG which is shown in Table 5 presenting the situation at the eve of unification. West Germany and the Western Europe in general had been characterised by a complete different organisation of farming, i.e. small-scale family farms. Therefore, two diametrically contrary types of production units marked farming. On the one side, there had been about

**TABLE 4.** Patterns of Farms and Land Use in East Germany, 1989

Group	Average farm size	Number	Share (%)		
			Number	Labour	Farmland
State-owned farms	706 ha	465	5	14	7
Arable co-operatives	4,392 ha	1,159	11	37	85
Livestock co-operatives	17 ha	2,696	26	38	1
Othera) (e.g. GPG, ZBE)	368 ha	431	4	11	1
Individual farms, incl. church estates	60 ha	5,604	54	-	6
Total (absolute)	510 ha	10,355	100	100	100

Note a) GPG: Gärtenerische Produktionsgenossenschaften (specialised horticulture co-operatives)

ZBE: Zwischenbetriebliche Einrichtung (specialised co-ordinating units)

Source: Statistical Yearbook 1991, in: Hinners-Tobrägel, L., J. Heinrich: Comparative Analysis of Agricultural Enterprises in Poland, Hungary and East Germany in the 1990s. Halle (Saale), IAMO, 2002, p. 3

TABLE 5. Farm Structure and Distribution of Land in West Germany, 1989

Farm Size	Structure of Farms		Distribution of Arable Land	
	Number	Share (%)	Land (1,000 ha)	Share (%)
1-5 ha	196,480	30.2	498	4.3
5-20 ha	247,185	38.1	2,793	23.7
20-100 ha	198,656	30.6	7,506	63.6
over 100 ha	6,482	1	995	8.4
Total	648,803	100	11,792	100
Average Farm Size	18.7 ha			

Source: Federal Statistical Office: Statistical Yearbook of the United Germany, 1991.

4,700 large-scale, highly specialised farms run mainly by farm workers and co-operative farmers (who in reality could be regarded as workers as well) in East Germany. On the other side, there had been about 650,000 small-scale family farms in West Germany. It had been a great challenge to the agrarian politicians of that time to integrate these contrary systems into a single one.

### III. Major Aspects in Transforming Agricultural Production

Already before the collapse of the socialist regime, agricultural production in the GDR had not been very profitable due to an administratively set up price-cost relationship, a low level of re-investment particularly since the early 1980s leading to very high machine costs (i.e. often break downs and repairs), political demands on production patterns to name the most important ones. Economies of scale on the large farms and complexes of the East were expected to yield lower costs, but in fact they did not. At unification, costs of agricultural production were higher in East Germany than in West Germany, and in the latter, cost of production were higher than in many market economies with lower levels of agricultural support (Koester and Brooks 1997, 19).

The major steps of the unification process can be summarised as follows:

- 9 November 1989: Opening of the border by GDR authorities (“Fall of the Berlin Wall”)
- 18 March 1990: Election of a new parliament and of a non-communist government in the GDR
- 29 June 1990: Adoption of the Agricultural Adjustment Act by the East German Parliament
- 1 July 1990: Monetary unification, i.e. adoption of the West German currency (DM) in East Germany
- 1 August 1990: Adoption of all EU regulations
- 3 October 1990: Unification with West Germany

As prices had been administratively set up under the planning system, it was quickly realised that the production pattern under the given price-cost-relations would lead to the immediate collapse of all farms in the East with the adoption of the West German DM at 1 July 1990. It had been politically decided that the East German Mark (M) was exchanged to the West German Deutsche Mark (DM) in the relation of 1 : 1. Thus, East German agriculture became unprofitable over night given the actual input–output relations (Böse et al. 1991, 70-73). This fact is summarised in Table 6 which shows the sectoral performance data of East German agriculture at West German prices of 1990.

Table 6 summarises the economic situation of East German agriculture given the input-output-relation taken over from the central planning system once monetary unification and the EU prices became effective. In a nutshell the consequences of this adoption had been an increase of input prices and a decline of output prices. Hence, farms were under severe pressure to adjust within a very short period. The net income in agriculture was highly negative. Livestock production was under more pressure to adjust than crop production. Gross value added of livestock production at market prices was even negative. Actually, this shows that East Germany would have been better off without this

production at that point of time. However, the advice to close down all production units which produced a negative value added had not been politically acceptable.

Therefore, the adoption process had been very rapid. While the first steps had been prepared when East Germany still had been an independent state, the society and economy had to follow a “big bang” approach. With the adoption of the DM as the official currency after 1 July 1990 and of the EU-system, agricultural production under the given input-output-relations had become totally unprofitable on East German farms, as shown above. However, other factors enforced this re-adjustment process as well. Traditional export markets, e.g. for livestock, broke down. In addition, the national market for food products almost collapsed

**TABLE 6.** Sectoral Performance Data of East Germany Agriculture at Prices of West German Agriculture<sup>a)</sup> in mill. DM

	Crops	Livestock	Total
Value of Production	13,237.7	18,921.7	32,159.4
Purchased Inputs	10,061.1	19,102.7	29,163.8
Gross Value Added at Market Prices	3,176.6	-181.0	2,995.6
Subsidies	515.9	208.1	724.0
Taxes	933.9		933.9
Gross Value Added at Factor Costs	2,758.6	27.1	2,785.7
Depreciation	1,817.4	1,305.8	3,123.2
Net Value Added at Market Prices	1,359.2	-1,486.8	-127.6
Net Value Added at Factor Costs	941.2	-1,278.7	-337.5
Wages <sup>b)</sup>	3,875.0	4,741.7	8,616.7
Interest Payments	773.2	583.2	1,356.4
Net Income	-3,707.0	-6,603.6	-10,310.6

Note a) Quantities are an average of 1986-1989 and prices of 1990.

b) Inclusive wages for members of collective farms.

Sources: Böse, Ch. et al.: Auswirkungen der geänderten Rahmenbedingungen auf die Landwirtschaft der neuen Bundesländer. Frankfurt, 1991, p. 72; Koester, U.: The evolving farm structure in East Germany. Warsaw, 1999, p. 3.

completely. Consumers rushed to buy West German products. During the first months after the adoption of the DM, about three quarters of all food products had been imported from West Germany. East German products were left in the shelves and some of the food processing companies went bankrupt. Many had to close down, others had been bought by West German and other European food processing companies. After about one or two years, consumers actually reacted right the opposite way. Then, they were looking for the locally produced and traditional food items, again.

As the major issues of the agricultural policy is decided by the EU, East Germany adopted the EU agricultural system overnight and become part of the EU. There had been no adjustment period to get to know the market economic system. The pressure to adopt to market-economy conditions was here strongest and the reformation process had to be implemented in a relatively short period of time. This is contrary to the other countries in CEE which will join the EU at 1 May 2004 after a lengthy negotiation and preparation process. These countries have conceded adjustment periods even after joining the EU.

### **1. Guiding Rules of the Transformation Process**

The rules for privatising the agricultural sector were determined early and issued prior to unification, under the Agricultural Adjustment Act of 29 June 1990. The rules were subsequently modified in an amendment to the Act on 7 July 1991. The main political objective had been to foster agricultural production to be competitive within the EU-market, to ensure an adequate level of income to the agricultural work force, and to support an environmentally friendly and sustainable agriculture. The issues which guided these objectives can be summarised under the key words of de-collectivisation (restructuring), restitution, and privatisation (Wilson and Wilson 2001, 124-134; Koester and Brooks 1997, 7-12; Forstner and Isermeyer 2000, 67-68).

**de-collectivisation:** All socialist-type collective farms, i.e. agricultural production co-operatives (APC) had to be dissolved

by the end of 1991 and be transformed into legal entities which are compatible with the market economic system, i.e. limited liability companies, joint-stock companies, or genuine (i.e. member-oriented) agricultural producer co-operatives. Otherwise, the collective farms had to be liquidated. In addition, the owners of farm assets, as discussed under restitution and privatisation, had the option to establish private or family farms, or set up private partnerships. Many collective farm assemblies considered changing to a co-operative to be the preferred option. Workers in many cases assumed that the co-operative form of organisation would preserve their jobs and bring the fewest changes from the working environment of the past. In practice, changes in co-operatives, as in all farms, had been deep and fundamental. The former state farms were put under the administration of Treuhand Ltd. and later of the German Public Land Administration Company Ltd. although any claims of former owners had to be settled first.

**restitution:** Former owners or their respective heirs could claim the return of the physical assets or the respective equivalent in monetary terms; i.e. those who had to hand over assets (land, buildings, animals, machines, etc.) during the enforced collectivisation in the 1950s had the right to get them back. In this respect, those (or their heirs) who had their land confiscated before that time had no option to get it back which particularly concerned those whose land was expropriated between 1945 and 1949 when East Germany had been under the administration of the Soviet Union. Legally most of the agricultural land, particularly of the agricultural producer co-operatives still belonged to private individuals, but they had no right at all to perform their ownership right. Actually, the state did not bother to update cadastres (i.e. the inventory of real estate) since the early 1960s, anymore.

While most land owners could be relatively easily identified, still about one sixth of all arable land was still under public administration during the mid-1990s. The major reasons had been that there were several ownership claims for the same piece of land, former agricultural land had been diverted for other purposes

(e.g. used for constructing buildings), or no claim for a specific piece of land had been made. Uncertainty about the status of land greatly affected the restitution process and similarly the privatisation process, as only that land could be sold by public auction if no individual owner could be identified at all. Hence, most land under the administration of Treuhand Ltd. used to be leased to farmers or farm companies, but during the first years on short term contracts only.

**privatisation:** The state should no more be owner and decision-maker in agricultural production. All assets should be owned by individuals and/or companies. The ownership rights of the agricultural land had been returned to their respective claimants, as shown above. The privatisation of non-land assets of the farms proceeded separately from the disposition of the land. According to the Agricultural Adjustment Act the remaining assets should be divided among three groups: (1) those who brought assets into the collective at the time they joined (former owners of assets), (2) the land owners (those who had a claim for restitution) and (3) the workers. In reality, an individual could belong to one, two or even all three groups. The law also provided rules for valuing the assets. All agricultural enterprises had to set up an opening balance account where assets were valued at prevailing market prices, not book values. A problematic issue had been the role of debts accumulated during the socialist period ("old debts") which cannot be discussed at this stage due to limited space available. With respect to compensation, it is evident that the various groups had different objectives so the decisions differed to some extent although in general the workers had by far the majority.

The amendment to the Act clarified the voting rules and the distribution of assets among claimants. In cases where wealth had to be redistributed, the former owners of land and non-land assets were remunerated first at fixed minimum rates. The remaining value was distributed half to the workers according to working time, and half to the farm as a contribution to the asset base of the enterprise. Now, all claimants had the option to take their claims in cash or in kind and leave the collective farm, or

they could leave their claims as individual share capital to the successor organisation. The law gave the members the right to leave the collective farm at will, requiring only proper notice; one month in 1990 and three months thereafter. Once the collective farm had been transformed the right of departure had to be included in the respective by-laws. In addition, the law gave the farm management the option to dismiss workers when layoffs were needed or when workers did not perform well. A dismissed worker, however, could still remain member of the co-operative farm.

With respect to those who wanted to leave the co-operative farm, two groups can be distinguished. The first group comprise those who wanted to take up private farming themselves. They received the value of the assets they had brought into the collective within one month after leaving the farm. Additional remuneration of assets and land took place after the approval of the balance sheet. Those who did not take up private farming only received their claims after the approval of the balance sheet. In order to reduce liquidity problems the claimants have been paid in instalments over various years. In addition, in many cases, managers of the co-operative farms convinced these departing members to renounce some of their entitled values in order to secure the viability of the enterprise and the security of jobs. In this respect, it can be stated that the survival of many enterprises that succeeded the collective farms was only possible because members accepted a smaller share than the one foreseen by the law.

Broadly speaking, the political 'leitmotif' of the West German politicians and agricultural administration in 1990 could be summarised as follows: All collective farms should be transformed into family farms, i.e. the dominant farm production model in West Germany and the EU. However, family farming did not become the dominant type of organisation in agricultural production. Even though a number of features of the government support programmes favoured the small private sector over transformed co-operatives and other large-scale entities, other

factors worked to preserve them. In many instances, managers convinced beneficiaries of land restitution to rent their land to the enterprise at a low rate in the expectation of securing employment. Since members in the early phase of transition were not well informed about alternatives, and land values were not readily observable, the co-operatives generally leased land at low rents and on long-term contracts. In addition, most of the land owners were not farmers by occupation, and did not choose to become farmers. In general, they had been employed in non-farm jobs, e.g. many of the children and grand-children of those farmers who had to hand over their land and other assets during collectivisation in the 1950s. In general, these persons rented their land to the successor enterprise of the collective farm.

## **2. Impact of the Transformation**

This re-organisation of agricultural production had far-reaching repercussions on work and life in the rural areas in Eastern Germany after unification. Within this contribution we want to focus on three major aspects, i.e. on the changes in land ownership, farm organisation and production, and agricultural employment.

### *2.1. Land Ownership*

With the privatisation of the agricultural land, land ownership had been split up among a huge number of individual owners. About 800,000 land owners had to be identified (Wilson and Wilson 2001, 126). In that sense, the restitution and privatisation process led to a high degree of fragmentation of land ownership. Nevertheless due to a relatively well-functioning leasing system (Table 7), including the reasons discussed above, the cultivation of land is not very fragmented as it is shown in Table 8 below. In this respect, it can be stated that there is a large number of land owners, but a relatively small number of farms as will be discussed in the next chapter.

This high incidence of land tenancy used to have negative effects on access to new credit for undertaking vital investments in the early 1990s, since land is accepted as the major source of

**TABLE 7.** Share of Lease in East Germany in Relation to Farm Organisation (%)

	1991/92	1993/94
Single owner full time	86.8	89.8
Partnership	94.8	97.0
Corporate farms	99.1	99.7

Source: Koester, U., K. Brooks: *Agriculture and German Reunification*. p. 29.

collateral by the banks. East German farms are characterised by a very high share of rented land. In the early 1990s the tenancy rate of individual farms had been close to 90 percent and those of transformed co-operatives and other juridical entities almost up to 100 percent. During the last years the share of rented land has declined a bit, but not very much. At the beginning of this decade, the share of rented land in East Germany came up to 88 percent, whereas in West Germany its share stood at 52 percent and in the EU-15 even at 41 percent only. But as the large-scale farms have shown their economic viability over the years, there is no problem anymore to get access to financial services by the banks.

## *2.2. Farm Organisation, Farm Size and Production*

The transformation resulted in the re-emergence of private farming in East Germany. In addition, many private farmers joined to form a partnership. In general, these are close relatives who got registered under this legal setting. Most socialist farm entities, if not liquidated, were transformed into juridical entities compatible with the market economic system, i.e. into transformed agricultural producer co-operatives, limited liability companies and joint-stock companies. In the following years also quite a number of private individuals got registered as limited liability companies.

Therefore, land restitution, asset distribution, and reorganisation of farms brought changes in the number of different types of farms, and in the cultivated area under each farm (Koester

and Brooks 1999, 13-14). Already after the first year of unification, the share of land held by collective farms declined to 73 percent. The share of land held by private farmers and partnerships increased continuously over time from 3 percent in 1991 to about 30 percent in 1994, already. Juridical entities, which are practically non-existent in West German agriculture, controlled about 70 percent of the land in 1994. The share of the transformed co-operatives is falling somewhat faster than that of other juridical entities.

By the year 2001, about 90 percent of all farms in East Germany are made up by private farms and partnerships as it is shown in Table 8. However, these two types are cultivating less than half of the total agricultural area. Transformed agricultural producer co-operatives, limited liability companies and joint-stock companies making up just 10 percent of all farm cultivate more than half of the agricultural area. In West Germany agricultural production is still dominated by private farms and, to a limited extent, by partnerships although their overall number declined rapidly during the 1990s. So it has to be stated that, still, more than

**TABLE 8.** Agricultural Production by Legal Entity in East and West Germany, 2001

	East Germany			West Germany		
	Number	%	% of area	Number	%	% of area
Private farms	24,200	78.8	24.1	399,000	96.0	91.4
Partnerships	3,300	10.6	22.9	14,500	3.5	7.7
Agric. Producer Coops	1,200	3.8	29.2	200	0.0	0.1
Joint-stock companies,	1,900	6.1	23.4	700	0.2	0.6
Others	200	0.8	0.3	1,300	0.3	0.6
Total*	30,700	100.0	100.0	416,200	100.0	100.0

Note: \* Due to rounding this sum does not always add up to the total sum, exactly.

Source: Ministry of Consumer Protection, Food and Agriculture (BMVEL): Ernährungs-und agrarpolitischer Bericht der Bundesregierung 2002. Bonn, Annex, p. 12.

10 years after unification, different types of farm entities characterise agricultural production in the two parts of Germany, i.e. juridical entities in the East and family farms in the West.

Since unification the number of private farms has increased significantly in East Germany which is reflected in a rapid increase of their average area cultivated (BMVEL 2002: Annex, 12). In 2001 the average farm size of all farms came up to 182.3 ha while the one for private farms stood at 55.9 ha, only. The average farm size managed by partnerships stood at 393.1 ha. The one of agricultural producer co-operatives came up to 1,419.2 ha, of limited liability companies (Ltd.) to 680.4 ha and of joint-stock companies to 1,247.1 ha, respectively. Nevertheless, there is still a significant gap to the West German figures. Here, the average farm size of all farms just came up to 27.6 ha. Private farms just cultivate about 26.2 ha and partnerships about 61.1 ha, respectively. While juridical entities are not very important in farm production, as reflected in Table 8, the few which exist cultivate by far smaller areas than their East German counterparts. On average, the average farm size of juridical entities just stood at 41.4 ha.

The transformation process had severe repercussions on agricultural production in East Germany, like in the other transition economies of Central and Eastern Europe (CEEC) and the former Soviet Union. After transition, there had been a sharp decline in yields mainly due to the fact that output prices went down while input prices had gone up. Most farms had not much surplus cash available. In this respect, producers followed a “low input – low output” strategy. Compared to their colleagues in other CEEC this period did not last very long in East Germany, and farmers had the necessary resources available due to heavy financial support by the government to apply the appropriate mix of inputs. Hence, the decline in crop production had been small, and after a short period expanded due to high increases in productivity although the farm area declined.

There had been a sharp decline in animal husbandry like in the other CEEC, which did not recover during the following years (Hinnens-Tobrägel and Heinrich 2002, 7-9). The livestock

sector had been under greater pressure to adjust than the crop sector. Relative prices for livestock products were higher in East Germany than prices for crops for various reasons, mostly related to higher relative costs. Net income, at West German prices, was negative for the crop and livestock sectors and for agriculture as a whole, as had been shown in Table 6 above. However, the crop sector produced a positive net value added, while the livestock sector used inputs worth more than the value of output. Within two weeks only after the monetary union, the stocks of cattle, pigs and sheep had been reduced by 43, 50 and 55 percent, respectively. Their number has consolidated at that level, although the drop of pigs continued for another three years until it reached about 36 percent in 1995 of their former number in 1989.

Already five years after unification, East German agriculture had become competitive under the current policies, and showed ample capacity to adjust to likely future changes. The yields of the major crops in East Germany were far below those in West Germany in 1989, but already approached West Germany's level in 1994. Yields on the largest private farms in the East are higher, on average, than in the West. Similarly, the productivity in animal husbandry increased rapidly since the early 1990s. With respect to milk production, farmers in East Germany already overtook their colleagues in West Germany in the late 1990s where average milk yield per cow exceeded those of the West.

### *2.3. Agricultural Employment*

The agricultural sector had been proportionally more affected by job cuts than any other sector of the economy (Wilson and Wilson 2001, 139-141; Koester and Brooks 1997, 16-19). This is because the restructuring of the collective farms involved the rationalisation and in general the closure of all non-agricultural activities. Because of the financial difficulties faced by most collective farms and their successors in the immediate years after unification, redundancies were an unavoidable survival strategy. The livestock sector suffered high job losses because of the cutbacks in livestock numbers, and this affected the female

workforce in particular. In 1989, there had been about 850,000 persons employed in this sector as shown in Table 3 above. Their number declined rapidly over the next few years, i.e. to 362,000 persons in 1991 and 202,000 persons in 1992. By 1998 their number stood at about 145,000 persons, only. Since then a slight increase to about 160,000 persons could be observed (BMVEL 2002: Annex: 14).

In the situation of actually negative value added of the agricultural sector, additional reasons can be summarised as follows: (a) Wages increased due to currency unification at an exchange rate of one to one and by the decision of the German government to adjust wages in the East quickly to those in the West. Had wages instead remained at the real level of 1989, which was thirty percent of the Western level, employment could have remained much more stable. (b) There had been various programmes of grants and subsidised credit which led to high capital investments in labour saving technologies. The basic argument for these subsidies had been the observation that the capital stock of East German agriculture was out of date. However, credit subsidies actually reduced the apparent cost of capital when its real cost had risen with transition. (c) The wages in the non-agricultural sectors increased even more than in agriculture.

In the German case the social impact of the agricultural transformation resulting in a tremendous cut of jobs was largely muted by complementary payments for the unemployed, by retraining programmes and the reduction in the pension age to support the older agricultural workers. Unemployment benefits and pensions immediately after unification were about as high as wages earned in agriculture before unification. Hence, there was a strong push for farms to lay off workers and workers were pulled out of agriculture by in general quite generous social security programmes. The transformation therefore did not create problems of rural poverty and hardships or any (larger-scale) organised protests by the workers against the layoffs. No other country in transition had the resources to offer a rural social safety net as comprehensive or as generous as Germany.

## **IV. Critical Assessment of the Transformation Process**

More than a decade has been passed since the start of the agricultural transformation. Compared to other economic sectors it is almost completed. Without the strong role of the government this task could not have been accomplished in such a short period of time. In the following the major aspects of this role and our evaluation will be discussed (Forstner and Isermeyer 2000, 85-88; Fiege and Hinners-Tobrägel 2002, 28-29; Koester and Brooks 1997, 19-22; Hinners-Tobrägel and Heinrich 2002, 9-10).

### **1. Role of Government**

After the collapse of the socialist regime, the government in East Germany had a keen interest in setting up farming structures which were compatible with the market economic system without interrupting the supply of food. The transformation process already started in early 1990. At that time, it was anticipated that most of the large-scale farms could continue to operate while just switching the legal label. However, this approach had to be abandoned as it was realised that the whole economic system did not prove strong enough to survive. The political process led to a quick unification with the FRG. With the adoption of the West German currency at 1 July 1990 and the unification at 3 October 1990, the West German legal and administrative system (including all EU regulation affecting the agricultural sector) had been taken over.

With unification, the question came up whether to build up farming structures based on the family farm model as in West Germany and the other EU countries, or to leave the structural development mainly to the market forces, i.e. to give all types of organisations an equal chance. Large farms and co-operatives were diametrically contrary to the model of the family farm which was commonly accepted up to then by the (West German) society and on which agricultural policy had been based for decades. The basic decision was made in favour of the market

solution as laid out in the Agricultural Adjustment Law of 1990 and its amendment in 1991. Hence, the existing experience in large-sized farming was not thoughtlessly abandoned. The agro-political model of family farming, still important after transformation but questioned since, increasingly lost influence on agrarian policy. This facilitated the advancement of large-scale enterprise structures which are highly competitive in European agriculture.

The government supported the transformation process in setting up an agricultural administration which included the familiarisation of East German staff with the West German laws, procedures and regulations in West Germany and sending West German officials to offices in East Germany, financing legal advice for the transformation of the collective farms, etc. as the West German laws and EU-regulations had been adopted from one day to the next without any adjustment period. All laws and regulations as well as experienced staff could be provided to the East. Therefore, no time had been lost in adapting the national laws based on the socialist model into market-economic compatible ones. The laws adopted under the socialist regime just had been nullified.

East Germany could rely on well-established political and legal institutions providing political and economic stability. The government policies had been well developed. There had been no frictions like in most other CEEC which used to have changes in policies with each national election during the 1990s. These countries had to look for their respective objectives in which direction their societies and economies are supposed to go while in East Germany the objective had been clear right from the beginning, i.e. the complete absorption of West German institutions. German agricultural policy in the 1990s was marked by a relatively steady development in essential areas. In this way, farmers in the new German states could plan trusting reliable prices, while their Eastern neighbours were exposed to often changing political directions and a galloping inflation. Hence, East German agriculture could quickly make use of (1) a viable financial system offering

reliable financial services, (2) clear regulations about the land ownership and land use rights including effective land leasing laws, and (3) working marketing channels and established markets.

In addition, it has to be stated that agricultural employees in East Germany had, in general, a considerable superior education and knowledge than most of their colleagues in the CEEC. Hence, they could adapt to the West German institutions relatively easily. These were documented in the national language, so companies could adjust to the quickly changing legal and economic changes. In the other CEEC information on the functioning of altered institutions and market developments in practice had to be tediously acquired from sources in foreign languages. Particularly small farms, which formed the majority of companies in countries like Poland or Hungary, could not accomplish that task very quickly. The absence of a language barrier in East Germany moreover simplified the arrival of experienced practitioners and consultants. Often these newcomers served as multipliers of knowledge transfer, concerning legal and economic reforms as well as innovations of production techniques.

All state land (i.e. agricultural and forest areas) which could not be privatised or restituted at the beginning, had been handed over to the specially created "Treuhand Ltd." (a temporarily set-up state company under the Ministry of Finance) which took over all state assets from the East German state with the intention to privatise these assets over time in order to finance the costs of unification. After its dissolution in 1998 all remaining state land had been transferred to the German Public Land Administration Company Ltd. ("Bodenverwertungs-und-verwaltungs-GmbH") which is supposed to gradually privatise it without jeopardising the local land prices.

Very severe repercussions had been the decision of the government to specify the exchange rate of East German Mark and West German DM. Against the advice of the Federal Bank and most economists it had been set at parity, i.e. 1 to 1. This chosen exchange rate did not reflect purchasing power parity, which would have led to an exchange rate of 4 to 1, nor did it

reflect the parity of real exchange rates, which would have led to an even greater exchange rate. In consequence of this political decision, prices dropped overnight by a high percentage.

To address the shock to prices and farm incomes following the adoption of the DM at the given exchange rate, the German government launched a huge financial assistance programme for a five year period with declining budget allocations. Assistance budgeted for the second half of 1990 amounted to about DM 6.9 billion and declined to DM 2.0 billion in 1994 and to DM 1.8 billion in 1995, giving a total budget allocation of DM 17.4 billion. Financial support in the first year of unification exceeded the annual value added of East German agriculture in West German prices by far. Agriculture's value of production in 1990/91 amounted to about DM 15.0 billion and equalled about the value of purchased inputs. Taking into account depreciation, agriculture's value added in 1990/91 was negative.

The government not only supported the agricultural sector but the others as well, including the build up of public infrastructure. Summing up all these support measures over the last 13 years, almost 1 trillion EUR or about 4 percent of the annual national GDP had been transferred from the Western to the Eastern part of the country. This transfer will go on although on a declining level, up to at least 2014. Nevertheless, a large number of East Germans had to migrate to the Western part in search of employment and income and still the official unemployment rate in East Germany stands at around 17 percent compared to about 9 percent in the West. On the other side, the living standard of the population has adjusted, although not fully yet. The GDP per capita just stands at 63 percent of the West German level, but the disposable income and effective demand stand at 83 and 91 percent, respectively. This is the effect of the huge financial assistance and the fact that the average price level in East Germany is about 8 percent lower than the West German one.

## **2. Evaluation**

The German unification had been an historic opportunity which

has come at very high financial and personal costs. It is theoretic to speculate how East Germany had developed if the GDR had continued as an independent state while adopting democracy and a market-economic system. The major problem which came up after transition seems to be the fact that it took very much longer and needed more financial and other resources from the West than anybody had anticipated at unification. People both in the East as in the West had to get adjusted to this much longer time horizon. The government tries to open up enough funds in order to smooth the still ongoing transformation process.

The near collapse of the industrial sectors had not been foreseen by most politicians and scientists. The people (including agricultural producers and farm workers) reacted to this rapid change of the framework conditions which meant for many that their lifetime experiences became obsolete over night and people had to adjust to a new 'unknown' system quickly. The government took remedial actions in offering a very generous social security system. There had been almost no open protests against the transformation process although the unemployment rate had been and still is very high in East Germany. However, the price had been a rapid increase of debts by the state and the survival of the social security system in Germany is at risk.

Already before unification, the Common Agricultural Policy (CAP) of the EU regulated agricultural prices in West Germany. Following unification, East Germany's agricultural sector adopted EU prices in one stroke. Contrary to the situation in most other CEEC where producers would benefit from the adoption of EU prices, the EU price structure implied a significant fall in agricultural prices and a deterioration in intersectoral terms of trade. The price shock came because monetary unification was based on a very high valuation of the East German mark, at parity with the West German DM. The adoption of EU prices with the chosen exchange rate brought a drop in producer prices of approximately one half or more. The government provided agriculture with special aid to cope with the price break, as it was called. Under the EU price structure, East German farms

clearly could not sustain their traditional large labour force and ample purchases of inputs.

On the other side, the CAP reform policies provided especially to the big farms a certain means of financial relief. As the net value added of agricultural production had been negative, almost all of the large farms participated in the EU set-aside area programme. In order to reduce farm production, this programme paid farmers a fee for leaving agricultural land idle. Already in 1991, the land idled in East Germany exceeded significantly the set-aside area in the other eleven EU member countries taken together. This programme provided a tremendous financial gain for East German agriculture at a time when large areas would most likely have been idled anyway, even without payments.

The changes in the agricultural sector had been remarkable. After a few years only, agriculture had been one of the few sectors in which agricultural production increased despite the significant decline of the labour force. In contrast, industrial production dropped by nearly 60 percent within the first two years of unification and was still more than 40 percent lower in 1994 than in 1989. East Germany's stable agricultural output is exceptional for the CEEC. Elsewhere in the region the decline in sectoral output has been one quarter and one half.

In conclusion, it can be stated that the transformation process of the agricultural sector can be seen as quite successful, particularly with respect to those who are still employed in it. Special success is manifested in the development of productivity: productivity of labour and land could decisively be improved through investments in real and human capital, and have exceeded West German levels especially in animal husbandry and dairy farming for some years already. The most important factors influencing this development can be summarised as follows: a relatively easy transfer of the institutional (legal, political, economic) framework, no language barrier and a pool of knowledgeable experts available, an absence of discrimination of farm sizes and legal forms and the enormous financial transfers. Therefore, on the part of the agricultural enterprises which had

been transformed successfully, the transformation process has to be judged positively. For the national economy the verdict is less clear. The subsidies and transfers will burden the public purse for many years to come.

## V. Implications for North Korea

The restructuring of the East German economy, including the agricultural sector, occurred rapidly, introducing far-reaching changes never experienced by the West German population. Surprisingly, the East German population accepted such rapid and profound change without major complaints. The main reasons seem to be the massive financial transfers to the East over a long period, which are still on-going over another decade or even longer. This included the adoption of the West German social security system which smoothed the adoption process at the individual level. In addition, East Germans had always the option to migrate to the West in search of employment and income, i.e. there had been a policy of free movement. Based on the German experience and keeping in mind the experience of other transformation countries, our recommendations with respect to the Korean situation<sup>4</sup> look as follows:

- The South Korean economy will be in no position to provide the financial transfers to the North, as West Germany did to East Germany. Hence, a gradual approach of agricultural transformation and adjustment to a market economic system should be adopted and a 'big bang' avoided. However, we admit, that it is open whether the North could go on as a separate political entity for some time after a change of the political regime. The German experience shows that the pressure "from the streets" can become that strong that the politicians have to accept the wish of the people very quickly.

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<sup>4</sup> Our reference to the situation in North Korea is based on: Brem, M., K.R. Kim, 2002 and Yoon, C.H., L.J. Lau, 2001.

- In a market economy system the government has to give up any role to guide and manage the economy including the agricultural sector. However, it has to provide a sound legal framework which ensures the rights and obligations of private individuals and companies in a fair manner. In addition, while the state is converting the economy from a planning to a market economic system, it has to support the people to get used to this new system over a transitional period. The advantage of the German experience has been that there had been no language barrier and the West German legal framework could be transferred to the East almost over night. The rule of the law could be implemented immediately. In the other CEEC it took a longer period to adopt the necessary legal requirements into national law. In this respect, Korea can learn from the German experience.
- Within the short term period the major objective for agricultural transition in North Korea should look as follows: agricultural production should be increased rapidly in a labour-absorbing manner. The German experience is not a good case study for the Korean situation as agricultural labour had been reduced significantly within a short period. High rates of unemployment had to be accepted, a situation which has not improved during the 13 years after unification. Already now the share of agricultural employment in North Korea is higher than during the 1990s which reflects the poor state of the industrial sectors. A labour-absorbing strategy in agriculture buys some time to improve the prospects of these non-farm sectors as they will have to absorb agricultural labour in the medium term anyway. Hence, the role of agriculture as a buffer for employment and survival should be continued. The alternative is the option of having a very high degree of open unemployment immediately which is supposed to lead to massive migration from the North to the South. In this sense, the Chinese and Vietnamese approach is to be recommended.
- There should be no immediate breakup of the present farm

organisations, but the land allotted to the individual households should be increased. They should be encouraged to produce not only for subsistence but also for sale on the market. There should be no political preference for family farms, but the people should decide for themselves how they want to organise farming in the future. The various types of farms have to compete with each other and, hence, also with the farms in the South. While the type of farm organisations can be flexible, it is necessary to ensure private ownership rights on land and non-land assets. Owners must have the liberty to decide for themselves what to do with their assets.

- The agricultural sector of the North has to be supported very quickly to avoid famine. Food aid should only be provided under exceptional circumstances. The major focus should be on the promotion of agricultural production. Financial support has to be allocated, but should at the beginning be concentrated in the fields of fertilisers, pesticides, animal feed, etc. which are labour-absorbing. At least at the beginning the support of labour-replacing strategies, e.g. support in buying machines, etc. should be avoided.
- The South has to be prepared for an opening or, even, collapse of the North Korean regime. In any case, the notion has to be avoided that the Southerners know everything already what is good for the people in the North. The North Koreans have to be encouraged to take matters in their own hands. They should not be pushed into following a certain development path without their involvement and consent. On the other side, it is evident that a lot of financial support has to be given but the impression has to be avoided that the South will become the permanent paymaster of the North. The North Koreans have to be encouraged to be self-confident, a factor which the West Germans did not understand before and after unification. In the German case, while there had been no language barrier, there had been a mental one.
- While, at least in the short run, agricultural development should be the focus of any development strategy, it has to be

kept in mind that agriculture is just one sector in the rural areas. For the time being, it is the most important one. But other, i.e. non-farm, employment opportunities have to be created as well. Therefore, rural development strategies at the district and/or regional levels have to be designed. In this respect, it is referred to the Korean experience in the past. Well designed development programmes are a precondition for effective rural development. For example, labour intensive farming such as cocoon production might be suitable in remote mountainous areas opening an option for silk processing. In addition, environmental aspects have to be addressed as most of the forests have been denuded during the last decade.

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