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# Foreign Aid and Foreign Direct Investment: Key Players in the Environmental Restoration of Central and Eastern Europe

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# Foreign Aid and Foreign Direct Investment:
# Key Players in the Environmental Restoration of Central and Eastern Europe

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## Introduction

For more than ten years, countries in Central and Eastern Europe (CEE) have struggled to cleanup, communist-era sources of industrial pollution. Auer et al. (2001) report on how CEE countries dealt with this problem during the 1990s.[1] Communist-era governments perpetrated environmental crises in CEE that are well-known to scientists, scholars, and ordinary people alike. More than a decade after the fall of the Berlin Wall, many contaminated sites and pollution-prone industries remain in CEE; a large fraction of these sites are located in economically-troubled sub-regions of CEE. For more than ten years, authorities in the region have endeavored to cleanup and revitalize these polluted and economically distressed areas. The record of accomplishment is mixed.

Foreign investors are key, prospective actors in the cleanup and restoration of old, contaminated sites and in the rehabilitation of pollution-prone industries in CEE. Paradoxically, in the early 1990s, many observers warned that foreign direct investment (FDI) to CEE would be stymied by investors' fears of liability for past environmental damages, and more broadly, investors' ambivalence about the lack of clear rules governing environmental liability. Reacting to alleviate these fears, during the 1990s, CEE governments clarified rules and procedures governing environmental liability. In many cases, governments also granted investors partial or total immunity from liability for past damages.

Auer et al. (2001) found that the aggregate level of FDI in CEE was not gravely affected by environmental liability problems. However, during the 1990s, foreign firms *did* steer

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[1] The CEE countries includes Poland, Hungary, Czech Republic, Slovakia, Bulgaria,

investments away from pollution-prone and contaminated industries, investing in greenfield projects and in cleaner industry sectors. One explanation for this trend is that despite efforts to clarify environmental liability rules, foreign investors were skeptical about the profitability of contaminated and pollution-prone industry sectors. Another possibility is that investors worried that rules were impermanent and would not be adequately enforced. Also, non-environmental factors may explain sluggish FDI flows to these industries, including, e.g., these industries' overcapacity; stiff regional competition; barriers to entry; and structural problems, including labor-management conflict, to name a few. The causes of underinvestment in pollution-prone industries and in cleanup of contaminated industries are numerous; but the fact remains: many old, industrial sites and environmentally-compromised primary industry sectors remain in state hands and FDI to these sectors, including mining, non-ferrous metals, and steel, is declining over time as a percentage of overall FDI to the region (Auer et al., 2001).

Cleaning-up, transferring, and restoring contaminated properties in CEE require more than simply clarifying environmental liability rules. To manage these problems effectively, CEE governments at both the national and local levels must explore more comprehensive reforms, including brownfields revitalization. CEE governments should consider whether other, more wealthy countries' brownfields revitalization experiences are adaptable to the CEE context.

Auer et al. (2001) argue that CEE countries are capable of adopting regulatory reforms required for Western-style brownfields revitalization. However, currently, most domestic public resources for environmental protection in CEE are channeled to the prevention of *future* pollution. The resources for cleanup of past pollution are scarce. Moreover, as noted, foreign firms also are reluctant to invest in dirty sites and in pollution-prone industries. Many of these properties are concentrated in poor locales of CEE – including in the "industrial belts" and "black triangle" sub-regions – areas that tend to be more polluted and more economically distressed than neighboring areas. This paper contends that donors, including bilateral and multilateral donors, should re-examine the special needs of these sub-regions since these external actors are the most plausible source of financing for brownfields cleanup in the near future. This paper focuses in particular on the prospective roles that multilateral financial institutions and intergovernmental organizations can play in cleanup of past pollution in CEE.

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Romania, Albania, the successor countries of communist-era Yugoslavia, and the Baltic States.

More broadly, this paper suggests that simplistic market-oriented and institutional approaches are not sufficient to realize sustainable development in CEE or in any other region. Conventionally, it is argued that free markets and well-functioning legal and macroeconomic institutions are sufficient for remedying environmental problems and nurturing sustainable economic development. The experience of CEE demonstrates that making legal assurances to investors and appealing to investors' profit motives are not adequate to the task at hand.

## The Patterns of FDI in Central and Eastern Europe

FDI involves partial or total ownership of a firm in one country by a firm in another country. In addition to a transfer of capital and managerial resources, FDI implies control over production. In 1998, 71.5% of the world's FDI inflows were to developed countries (DCs), 28.5% were to lesser developed countries (LDCs). 91.6% of the world's FDI originated from DCs.[2] The majority of FDI is sponsored by multinational companies (MNCs). From 1987 to 1992, the average annual FDI inflow to CEE was $1.576 billion. The inflows were $11.831 billion in 1995, $9.219 billion in 1996, $11.345 billion in 1997, and $14.313 billion in 1998. The stock of FDI in CEE grew from $2.959 billion in 1990 to $66.298 billion in 1998.[3] As noted by Lucas (1997) and Siin and Weichenrieder (1997), many LDCs are more successful than are CEE countries in attracting FDI (in per capita terms). In 1998, the share of FDI in CEE as a portion of world FDI was 2.2%. UNCTAD's *World Investment Report* (1998b) attributes this weak performance to CEE's relatively undeveloped legal/regulatory systems and to CEE countries' relatively cumbersome privatization rules and procedures.

The Czech Republic, Hungary and Poland account for more than 80% of the stock of FDI in CEE. In 1998, FDI stocks in the Czech Republic, Hungary, and Poland were $13.457 billion, $18.255 billion and $21.722 billion, respectively. These countries are relatively more attractive

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[2] In 1987-1992, the average World's FDI annual inflow was $173.54 billion. In 1998, it was $643.879 billion. Data on FDI inflows and outflows are from the *World Investment Report* (UNCTAD, 1999, Table B.1, Table B.2).

[3] Data on FDI inflow, stocks, and composition are from the *World Investment Report*

to FDI because they have made more progress in the transition toward a market economy and have a more developed legal and regulatory institutions (World Investment Report, 1998).

Moving to the origin of FDI: in 1998, Germany was the largest source of FDI in CEE (19%), followed by the US (15%), and the Netherlands (15%). The European Union (EU) accounted for more than two thirds of FDI in CEE. In 1998, the main origins of investment to the Czech Republic were Germany, the Netherlands, and Austria (in that order); Germany, the US and the Netherlands were the main sources of private investment in Hungary and in Poland.[4]

The importance of FDI to CEE can be measured by the size of FDI relative to the size of CEE economies. In 1995-1997, the average ratios of FDI inflow to gross fixed capital formation were 40% in Latvia, 30% in Hungary, and 15% in Estonia, Poland and Bulgaria (UNCTAD, 1999: 71). In 1997, the ratios of FDI stock to GDP were 35% in Hungary, and around 23% in Estonia, Latvia and the Czech Republic. (The average of this ratio for the CEE region as a whole is 9%).

In discussing the sectoral distribution of FDI in CEE, we first identify polluting and contaminating industries. UNCTAD (1999: 294) provides a list of pollution-prone or "dirty sectors." These industries are deemed pollution-prone to the extent that a relatively large fraction of their annual total costs are environment-related expenditures (see, e.g., Leonard, 1988; Low and Yeats, 1992). Pollution-prone industries include: (1) chemicals; (2) paper and pulp; (3) cement, glass and ceramics; (4) mining of metals and minerals; (5) iron and steel; (6) nonferrous metals; (7) coal mining and production; (8) refineries and petroleum products; and (9) leather and tanning.

Table 1 shows data on the shares of FDI inflows directed to each sector in the Czech Republic, Hungary, Poland, Slovakia, Slovenia and Latvia. The data are aggregated from the primary, secondary, and tertiary sectors (UNCTAD, 1999: 435). The primary sector includes "clean" subsectors (e.g., hunting, forestry, fishing) and pollution-prone subsectors (e.g., mining, quarrying, petroleum). The secondary sector also includes "clean" subsectors (e.g., machinery and equipment, electrical machinery, automotive, food, beverages, tobacco) and pollution-prone

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(UNCTAD, 1999, Tables B.1., B.3, A.II.3).

[4] *World Investment Report* (UNCTAD, 1999: 72).

subsectors (e.g., leather, wood, paper and pulp, coke, petroleum products, metal and metal products, chemicals). The subsectors of the tertiary sector are relatively clean compared to primary and secondary subsectors, and include, e.g., water distribution, wholesale and distribution trade, hotels and restaurants, telecommunication, insurance and banking, and real estate.

Table 1: Sectoral Distribution of FDI Inflow in CEE in 1997 and 1998, in Percent

| | Czech Republic | Hungary | Poland | Slovakia | Slovenia | Latvia |
|---|---|---|---|---|---|---|
| Primary Sector | | | | | | |
| Polluting | 1 | 1 | 0 | 0 | 0 | 0 |
| Non Polluting | 0 | 1 | 1 | 1 | 0 | 0 |
| Secondary Sector | | | | | | |
| Polluting | 13 | 14 | 16 | 0 | 19 | 15 |
| Non Polluting | 32 | 25 | 29 | 47 | 19 | 30 |
| Tertiary Sector | 43 | 59 | 44 | 51 | 53 | 44 |
| Unspecified | 11 | 0 | 10 | 1 | 9 | 11 |

Notes: Data are from World Investment Report (1999), Table A.II.3. Pollution-prone industries from the primary sectors are mining, quarrying and petroleum. Pollution-prone industries in the secondary sector are textiles and leather, pulp, paper and publishing, coke and petroleum products, chemical and chemical products, and metal and metal products. There are no pollution-prone industries in the tertiary sector.

Table 1's clustering of data into dirty and clean subsectors is imperfect for analytical purposes. For example, the paper industry is grouped together with the cleaner activities of publishing and printing. A more accurate data classification of investment flows to dirty and clean industries requires refined FDI data that are not unavailable from most CEE countries (to the best of our knowledge) nor are they available from UNCTAD or other international sources.

That said, Table 1 suggests that most of FDI in CEE is directed to relatively clean industries. In the Czech Republic, 14% of FDI goes to pollution-prone sectors, in Hungary 15%, in Poland 17%, in Slovakia 0%, in Slovenia 19%, and in Latvia 15%. The primary sector is not a

major destination for FDI in CEE. Manufacturing is the dominant destination for FDI in Poland and the Czech Republic and the service sector is the dominant recipient of FDI in Hungary, Slovakia, Slovenia and the Baltic Republics (UNCTAD, 1999: 72).

The data in Table 1 is corroborated by national sources. Auer et al. (2001) report such data for Poland, based on indicators from the Polish Agency for Foreign Investment (PAIZ). That data indicate that the share of FDI inflows to dirty industries as a percentage of overall FDI inflows to Poland declined from 24% in 1993 to slightly more than 10% in 1999. The discrepancy between the data reported here and that reported for FDI inflows to Poland in the previous paragraph is likely due to the more refined data set used by PAIZ, i.e., data disaggregated to the level of industry subsectors and sub-subsectors. In contrast, national level data cited by UNCTAD are compiled at a higher level of sector aggregation, leading to an overestimation of the amount of FDI flowing to pollution-prone industries in Poland and other CEE countries.

To summarize, FDI in CEE has been growing in the 1990s, but its share in global FDI is relatively small. Most investments come from advanced industrialized countries. The EU supplies around 2/3 of FDI in CEE. FDI is important to some CEE countries, in particular for capital formation. Hungary, Poland and the Czech Republic absorb most of the FDI in CEE. The share of FDI inflows destined for pollution-prone sectors in CEE was around 15% during the 1990s.

## The Costs and Benefits of FDI

The costs and benefits of FDI to host countries are intensely debated. Here, we summarize the different positions.[5] Briefly, on the negative side, some authors argue that MNCs repatriate profits away from the host country. Others argue that MNCs' production methods are not suitable for low and medium income countries, promoting unemployment and distorting the host country's economic development. It is also argued that MNCs absorb local talent and savings that could otherwise promote more lasting, local economic growth. A fourth view is that

[5] For a recent review, see, Moran (1999).

MNCs damage the environment, pressuring host governments to relax environmental standards. On the positive side, it is argued that MNCs promote technological progress and managerial efficiency, increase labor productivity, and promote economic growth in the host country. Given the international scope of their business, MNCs have relatively great access to world markets, which indirectly benefit the host country by promoting local production and employment. Others argue that MNCs, the overwhelming majority of which are incorporated in DCs, use cleaner production techniques since they need to abide by stricter environmental codes in their home countries.

In the context of CEE, as summarized by Lucas (1997), it is argued that privatizing state-owned enterprises using FDI distracts policy makers from the more complex task of economic reform and that it distorts CEE development. Another argument is that CEE state-owned assets are sold below their "true" value to attract foreign firms. Others argue that MNCs do not attend to social needs in CEE, instead, exploiting CEE's relatively cheap and abundant human, capital, and natural resources. For example, it is argued that MNCs do not invest actively in R&D activities of newly bought firms and do not interact with local suppliers in CEE. Evidence is scarce of a strong positive relationship between FDI and economic growth in CEE (Smolik, 1997). However, some experts (e.g., Sadowska-Cieslak and Pac-Pomarnacki, 1991; Pac-Pomarnacki, 1997; Lucas, 1997; EBRD, 2001) detect a positive effect of FDI on CEE economic growth and expect stronger effects in the future, as MNCs provide management skills and new technologies and participate in the privatization of state-owned enterprises. Notwithstanding this debate about the alleged plusses and minuses of FDI, CEE governments and CEE private sector actors generally welcome FDI.

Some observers argue that FDI in CEE promotes environmental quality (Goldenman, 1999; OECD, 1999c). However, there is evidence that FDI has not been as ameliorative to the environment as originally hoped. Private investors' decisions about where to invest in CEE are multidimensional, involving political, economic and environmental calculations and concerns.[6] However, anecdotal evidence suggests that a large fraction of FDI in CEE goes to greenfield

[6] See Meyer (1998), Estrin et. al. (1997), Smolik (1997), and Klavens and Zamparutti (1995).

investments. Some observers believe that this trend is associated with investors' concerns about liability for past pollution.[7] Ensuing paragraphs consider these concerns, in detail.

## Managing Environmental Liability Risks

Beginning in the early days of the post-communist era in CEE, donor countries and international financial institutions (IFIs) worried that poorly defined rules governing liability for past pollution in CEE would chase away prospective investors (see, e.g., U.S. General Accounting Office, 1994). However, there is considerable evidence that CEE governments made genuine progress in clarifying and instituting environmental liability rules beginning relatively early in the post-communist era. Some governments, including the Government of Poland quickly realized: a) that liability rules governing past pollution had to be developed and deployed to reassure foreign investors; and b) that the new liability regimes must provide an exemption or comparable incentives to investors, otherwise investors would steer away from contaminated properties, leaving the state with environmentally-damaged assets and most or all of the cleanup responsibilities.

By the early 1990s, the Polish, Czech, and Hungarian governments were using combinations of incentives to reassure investors, including, for example, allowing the latter to subtract part or all costs for cleanup of past pollution from the purchase price of the property. Another popular inducement was to offer new owners limited liability against pollution cleanup and third party damage claims, and/or escrow accounts whereby investors placed part of the property's purchase in escrow to use for approved cleanup purposes, with the unused account balance reverting to the government after a specified time. In all three of these countries, problems cropped-up with these various remedies. For example, in at least one instance, the Hungarian government's reimbursement of cleanup costs to a new owner of a state-owned factory exceeded the purchase price of that factory (Heti Vilaggazdasg, 1994). Fearing a similar outcome, members of

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[7] See, e.g., UNCTAD (1998a) Press Release, November 2, 1998; see also, the text of the 1998 address by the World Bank's Vice President for Europe and Central Asia (www.mem.dk/aarhus-conference/statements/worldbank); see also, Bluffstone and Panayoto (2000).

parliament in the Czech Republic slowed-down the approval process for a deal between privatization authorities and Germany's Volkswagen. The latter hoped to purchase the Czech automobile company, Skoda. Lawmakers worried that the Czech state was offering overly generous terms to Volkswagen for future environmental clean-up claims at Skoda (Wassersug, 1994). In Poland, escrow accounts were phased-out in the mid-1990s after a court forbade future deals with this type of instrument. The court questioned the government's claim on unused and expired escrow monies (Sleszynski, 1999). CEE governments also made changes to environmental liability rules and procedures over the course of the 1990s that unsettled some investors. For example, the Czech government announced in the early-1990s that investors in the "first wave" of privatization would not receive exemptions against pollution-related damage claims, whether or not these exemptions were issued at the time of the original property sale (Lawson, 1994). This policy was changed after confused and angry investors protested.

Despite these problems, it is clear that CEE governments took seriously investors' concerns about environmental liability and made reasonable efforts to assuage these concerns by immunizing investors against damage claims and helping to pay cleanup costs, among other incentives. Moreover, some governments, including Poland, have been credited for streamlining environmental liability rules and procedures and created offices dedicated to negotiating these matters between the state and prospective investors. Certainly, improvements could be made to current liability schemes in these countries, including, e.g., a system for the thorough, accurate inventorying of environmental damages at properties and increasing the availability of insurance to investors seeking protection against potential pollution cleanup and damage claims. But overall, legal assurances to foreigners who considered investing in contaminated properties were much more explicit and clear at the end of the 1990s than at the beginning of that decade.

These reforms notwithstanding, it appears that clarification of environmental liability rules and relatively generous terms for indemnification and cleanup compensation have not accelerated private investment in-flows to pollution-prone industries and contaminated properties in CEE. For example, in Poland, over the course of the 1990s, foreign investments in pollution-prone heavy and extractive industries fell as a percentage of total FDI to the Polish economy (Auer et al., 2001: 18-19). A variety of factors – some having nothing to do with environmental liability – could explain this trend. But at a minimum, we can state that environmental liability

reforms were not sufficient to move significant sums of foreign private investment into industries such as steel, metallurgy, mining, and chemicals in Poland. Moreover, anecdotal evidence suggests that during the 1990s, in several CEE countries, many private investors built factories in greenfields rather than paying to cleanup and rebuild on old, industrial sites.

## Past Contamination in CEE: Not Just a Liability Problem

More than merely an environmental dilemma, contaminated, moribund industrial sites in CEE are symptomatic of more complicated and entrenched problems. Areas harboring large numbers of polluted industrial properties are indicative of a broader kind of deprivation characterized by a lack of economic opportunity, low income jobs and high unemployment, lasting economic recession, poor public infrastructure, impaired public health, and other socioeconomic ills. In the United States, otherwise wealthy cities harbor pockets of economic backwardness and persistent poverty. Many of these neighborhoods are populated by a poor and often racially-segregated underclass. Frequently, these areas are blighted by shuttered factories, condemned warehouses, and obsolete infrastructure, such as old, idle railway yards and empty, trash-strewn building lots. Auer et al. (2001) suggested that certain sub-national regions in Central and Eastern Europe evince similar combinations of social and environmental ills. We substantiate that argument here. Namely, we contend that: 1) that lasting economic ills and persistent environmental ills occur as pairs in parts of Central and Eastern Europe; and 2) that economically- and environmentally-poisoned areas of CEE are distinctly disadvantaged and are deserving of renewed attention by European and American governmental and transnational actors such as the European Union, the European Bank for Reconstruction and Development, the World Bank Group, and bilateral aid agencies. Economic and environmental data from various CEE countries substantiate these arguments.

### Czech Republic

Public health problems and ecological stress caused by pollution in the Northern Bohemia district of the Czech Republic is infamous in its scope and multiple sources describe this region

as the country's most environmentally damaged (see, e.g., Environmental Resources Limited, 1990: 27). The Czech Republic is among Central Europe's largest emitters of sulfur dioxide both in absolute and per capita terms, and Northern Bohemia, rich in sulfur-rich brown coal and lignite, is the origin for much of this pollution. The mining districts of Northern Bohemia endure the highest air pollution in the nation (Figure 1):

**[Insert Figure 1 here]**

as well as high mortality rates, and relatively lower life expectancies.

**[Insert Figure 2 here]**

High air pollution levels and mortality rates are positively correlated with high unemployment rates (figure from OECD, 1998).

**[Insert Figure 3 here]**

In 1999, in Prague, the unemployment rate fluctuated between in 3.6 and 4.2 percent. It was three times higher in Northern Bohemia (Czech Statistics Office, 2000).

**Slovak Republic**

During the socialist period, central planners in Slovakia concentrated particular economic activities in particular regions, with some of the most highly pollution-prone industries located in the eastern city of Kosice. Elevated levels of mortality and numerous illnesses and pathologies in this region are blamed on the hangover from heavy industrial pollution. In Kosice, neonatal mortality (i.e., death of newborns between 0-28 days after birth) is nearly two times the rate in

the capital, Bratislava (CommonHealth, 1997). Infant mortality (up to one year of age) is 14 for every 1,000 live births in Kosice compared to 5.9 per 1,000 live births in Bratislava. As concerned physicians note, Kosice is a relatively large city and some one-third of all births occur in the eastern half of Slovakia. Significantly lowering infant mortality in this region would substantially reduce the country's infant mortality overall (CommonHealth, 1997). In the central town of Ziar nad Hronom, male workers in the local aluminum plant suffer from high rates of bladder cancer, and a high incidence of fluorosis has been documented in residents living near the smelter (Pavlinek and Pickles, 2000: 149). Poor health in Kosice and Ziar nad Hronom are exacerbated by a poor health care system, unhealthy lifestyles, and chronically faltering local economies. Since the fall of communism in Slovakia, unemployment in central Slovakia and eastern Slovakia has been consistently higher than all other regions in the country. In Kosice, the unemployment rate was 18.3 percent in 1998, more than doubling over the course of the 1990s (OECD, 1999a).

**Hungary**

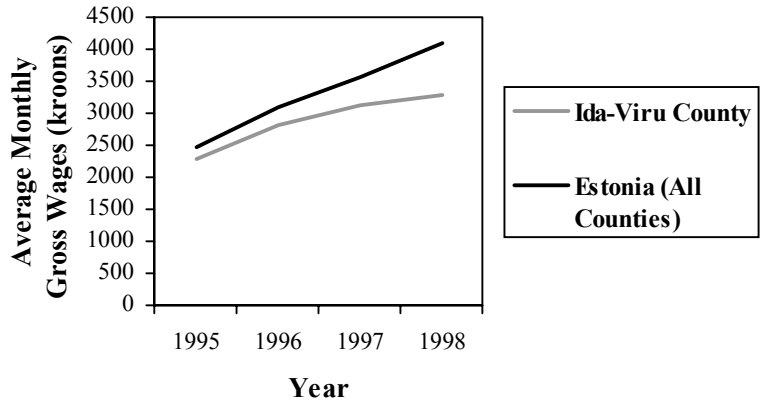
The Borsod-Abauj-Zemplen industrial zone in Hungary ails from the same combination of economic recession and environmental malaise as does Northern Bohemia in the Czech Republic and Kosice and Ziar nad Hronom in Slovakia. Among the more grim indicators of morbidity, people living in Borsod County, home to metal smelters and other pollution-prone factories, have higher stomach cancer rates, chronic bronchitis, emphysema, and asthma than do "control" towns with little or no industry (Hertzman, 1995: 34-35). High incidence of stomach cancers in Borsod County may also be a consequence of high nitrate levels in drinking water. Compared to a standardized national average of 100 for various indicators of public health, data from Borsod are disturbing: families in Borsod use physicians more frequently (112) than do average Hungarian families (100), but there are far fewer doctors per capita in Borsod than in the nation as a whole (74 doctors per 1000 persons in Borsod versus 100 doctors per 1000 persons as the standardized national average) (OECD, 1999b: 112). Correlated with high rates of illness in the Hungarian industrial heartland are high unemployment rates. In 1999, as in most years since the

end of the communist era, Borsod-Abauj-Zemplen led all other Hungarian regions with more than 13 percent of the labor force unemployed (Hungarian Central Statistics Office, 2001).

**Estonia**

Estonia's most industrialized area resides in the northeast in the county of Ida-Viru. There, oil shale extraction, refining, and combustion industries are prominent. So are the byproducts of these industries, including a landscape cratered and subsiding due to mining, ash fields contaminated with hazardous waste, and poor air quality caused by two power plants that burn oil shale. By far, Ida-Viru leads all other counties in the production of sulfur dioxide and dust – due largely to the activities of the power stations (Ministry of Environment of Estonia, 1997: 49-50). During the 1980s, respiratory illnesses were 1.5 times higher among children living in northeastern towns than in the population as a whole. Hypertension and sensitivity to allergies in adults were 2.7 and 2.5 times as high, respectively, in the northeast versus the rest of Estonia (Silla, 1996: 164). Estonian physicians believe these and other elevated morbidity rates are linked to relatively higher concentrations of air pollution in the northeast, including in Kohtla-Jarve, Kivioli, and Narva. But lower access to health care and relatively depressed economic conditions in this region contribute to the public health crisis. In the late 1980s, average gross wages for Estonian workers in the northeast rose less steeply than did wages in the country as a whole (Figure 4).

Figure 4: Average Monthly Gross Wages (kroons) in Ida-Viru County versus All Estonian Counties




Source: data adapted from Ida-Viru County, 2001.

Moreover, GDP per capita in the northeast was between 60.0 and 67.3 percent of the national average during the late 1990s (Statistical Office of Estonia, 2001). An important and troubling aspect of this situation is that a majority of the population in the northeast is ethnic Russian. Russian-speaking residents occasionally query whether the national government in Tallinn pays enough attention to the economic and environmental problems of the northeast.

**Poland**

The heavily industrialized Upper Silesian region is Poland's most polluted territory. Katowice Voivod in Silesia is among the most notoriously damaged, with serious environmental problems across various environmental media. To illustrate, its agricultural crops contain high concentrations of heavy metals: a thorough inventory and environmental assessment of farm land in Katowice found less than 40 percent of plots fit for unrestricted cultivation (Hertzman, 1995: 21). Cadmium and lead concentrations in potatoes from parts of Katowice greatly exceed World Health Organization maximum acceptable limits. As Hertzman notes, because heavy metals persist in soils, pollution abatement of new sources of pollution will not alleviate this problem. Blood lead levels in children in Katowice region are higher versus less contaminated regions of

the country. Consequently, Katowice's children suffer from elevated rates of anemia, diseases of the digestive tract, chromosome abnormalities, and epilepsy (Hertzman, 1995: 22).

As is true of the other contaminated subregions of Central and Eastern Europe mentioned above, Upper Silesia's environmental and public health problems are correlated with severe economic deprivation. In 2000, unemployment in Upper Silesia hovered around 17 percent. This is high by any reasonable standard, though not the highest rate of any Polish subregion. However, there is some evidence indicating that as the Polish economy experiences a nationwide slowdown, economic hardship in Upper Silesia is especially severe (Figure 5).

Table 2: Rate of Increase in Unemployment in Fourth Quarter 2000 versus November 1997 across Polish Voivodships

| **Voivodship (subregion)** | **Percent Increase of 4Q 2000 Unemployment Rate over Nov. 1997 Unemployment Rate** |
|---|---|
| Dolnoslaskie | 64.5 |
| Kujawsko-Pomorskie | 41.1 |
| Lubelskie | 72.7 |
| Lubuskie | 86.5 |
| Lodzkie | 51.3 |
| Malopolskie | 25.0 |
| Mazowieckie | 52.4 |
| Opolskie | 43.8 |
| Podkarpackie | 51.7 |
| Podlaskie | 44.3 |
| Pomorskie | 62.5 |
| **Slaskie** | **104.5** |
| Swietokrzyskie | 47.1 |
| Warminsko-Mazurskie | 29.7 |
| Wielkopolskie | 88.6 |
| Zachodniopomorskie | 25.0 |
| Source: adapted from Polish Statistics Office, 2001. | |

Slaskie, which encompasses the Upper Silesian region, was the only subregion in Poland whose unemployment rate more than doubled between November of 1997 (the earliest date when such

data was recorded in the newly-designed Voivod system in Poland) and the fourth quarter of 2000.

## Brownfields Revitalization

Since economic and environmental problems go hand-in-hand in these subregions of CEE, it is sensible for CEE governments at various levels – from local to national – to devise multi-faceted strategies to resuscitate these local economies. As the CEE experience reveals, clarification and incentivization of environmental liability schemes, alone, will not solve the problem, and in particular, are not sufficient to move large private resources into contaminated industries in CEE. This outcome is unsurprising since environmental liability is only one of the problems that encumber these industries and the subregions where they reside. Environmentally-contaminated industrial lands and the communities that surround them need stimulus packages that include, but are not exclusive to, liability-related incentives. Western-style brownfields revitalization programs offer a more sophisticated set of remedies.

In the United States, Germany, the Netherlands, Austria, and England, governments have experimented with combinations of legal and economic reforms to encourage private cleanup of contaminated publicly- and privately-owned land. In the United States, for example, the federal government has entered into "covenant not to sue" arrangements with purchasers of old, contaminated lands. These covenants protect purchasers against the more onerous clauses of the "Superfund" law governing cleanup of sites with serious hazardous waste contamination. Superfund imposes strict, retroactive, joint and several liability: owners are liable for past pollution on properties they purchase, whether or not they generated the pollution in question. Brownfields revitalization programs often partly or fully exempt purchasers from this liability assignment. Even more generous amnesty provisions have been offered to purchasers of old contaminated properties in eastern Germany, in the Netherlands, and in Austria. Of course, the rationale for granting immunity is to lure investors to make what are otherwise legally- and financially-precarious investments. CEE governments are certainly capable of instituting similar limited and non-retroactive liability arrangements. Indeed, and as discussed above, the Czech, Hungarian, and Polish governments have, at times, adopted these types of schemes. But it is not

the legal requirements for brownfields revitalization that are impractical for CEE governments. The key obstacle is that brownfields revitalization is exorbitant. Moreover, cleanup costs are seldom the sole responsibility of private actors. In Western Europe and the United States, governments have played significant roles in paying for cleanup. Most CEE governments are precluded from doing likewise.

In Germany, taxpayer money covers most of the cleanup of the Ruhrgebiet in Nordhrein-Westfalen – a region where more than two-thirds of Germany's old, derelict factories and contaminated industrial lands reside (Meyer et al. 1995). Similarly in Austria, the Netherlands, and England, governments are major players in cleanup of old, contaminated lands. This is the case, even in instances where governments have identified private sector culprits of past contamination (see, e.g., Kasamas, 1995).

This level of domestic, public sector largesse is impractical for CEE governments to copy, and not simply because CEE governments and taxpayers lack "deep pockets" to pay for cleanup of old contamination. No less important is that, in CEE, there is a bias toward *abating future pollution rather than cleaning-up past pollution*. CEE governments that aspire to EU membership are obliged to reduce emissions to levels approximating those of member states. Moreover, the primacy of pollution abatement is reinforced by donor governments and IFIs who have declared, formally, a preference for pollution prevention over pollution cleanup. OECD reports that most private sector environmental investments are channeled to pollution prevention. Hence, *no one* in the domestic or foreign public and private sector realms are focusing primarily on cleaning-up CEE's past pollution. This situation condemns old, contaminated lands, the factories on them, and the neighborhoods around them, to a dismal economic and environmental future.

## Cleaning-up Past Pollution in CEE

In light of the financial constraints faced by CEE countries, in the near future, external public actors are the most promising sources of financing for brownfields revitalization. These actors include private investors, bilateral aid agencies, and international financial institutions who offer credit at concessionary rates of interest. The last element deserves elaboration. CEE

countries are not LDCs, but they also are not rich. These countries face the formidable challenge of transforming their economies, efforts that will continue for years to come. In light of the likely accession of several CEE countries into the EU, it is in the EU's interest and in the interest of supporters of EU enlargement (including the US) to promote sustainable development in CEE. Part of the process of environmental restoration is cleaning-up beleaguered subregions that are at once environmentally and economically distressed. These regions should qualify for aid, much as American inner cities in the Great Lakes region and the Northeast, with their combinations of persistent high unemployment, high crime rates, and boarded-up businesses and brownfields are recipients of federal assistance.

In a prospective plan to remediate contaminated and economically depressed subregions of CEE, loans from external public sector actors could be managed by CEE governments, and the cleanup of past pollution administered by joint ventures between governments and foreign and domestic private investors. Restored sites could be transferred to private hands and some portion of revenues from the operation of the transferred properties returned to the lending institution(s). CEE governments are capable of supervising the cleanup and adopting the appropriate regulatory environment to facilitate this aid regime. Since many of the properties in question are state-owned or formerly state-owned, CEE governments are knowledgeable of the particular problems at each site. It is true that many CEE governments, especially in the southern tier of the region, have been slow, and in many cases, reluctant to transfer public properties to private hands. Nevertheless, for the foreseeable future, it is appropriate that CEE governments play a significant role in brownfields cleanup and revitalization schemes since many of the properties in question are publicly-owned.

To facilitate the process, CEE governments must grant foreign investors and IFIs fairly generous immunity to liability from past environmental damages. Cleanup costs and third party damage claims will be borne by CEE governments themselves. This otherwise unbearable burden is lightened in the scheme proposed here because cash-strapped CEE governments will receive short-term financing from IFIs, the European Union's pre-accession facility, from bilateral donors, and private investors who take equity stakes in revitalized brownfield projects. In ensuing paragraphs, we consider the prospective roles played by a variety of external actors, with special attention to IFIs and the EU.

## External Public Financial Sources

Four actors/instruments that can help expedite cleanup of past pollution in CEE are the International Finance Corporation (IFC) of the World Bank Group, the European Bank for Reconstruction and Development (EBRD), the Instrument for Structural Policies for Pre-accession (IPSA), and the EU's Objective 1 funds.

### International Finance Corporation

The IFC is the largest multilateral source of funds for development projects in LDCs that involve foreign and local private capital and/or public-private joint ventures.[8] A member of the World Bank Group, the IFC was established in 1956 to promote private sector development in LDCs. This mission is advanced through project financing, helping companies raise money in international financial markets, and providing technical assistance and advice to governments and business. The financial products offered include long term loans and currency hedging, various equity-based instruments, and loan guarantees and standby financing instruments.

Currently, there are 174 member countries in the IFC, all of whom are members of the World Bank Group's International Bank for Reconstruction and Development (IBRD). Member countries are either donors or non-donors. Donors are typically DCs whereas CEE countries who joined in the late 1980s and early 1990s are non-donors. The latter are eligible for IFC loans. Most of IFC project operations are financed through institutional borrowing in international markets. Around 20% of the IFC's funds are borrowed from the IBRD.

The IFC's lending policies are a propos to the challenges of brownfields cleanup and revitalization in CEE. The IFC requires that financed projects produce profits for investors and are beneficial to the economy as a whole. These are reasonable requirements for economies in transition. Second, IFC projects must comply with strict environmental standards. In practice, brownfields cleanup will not restore the environment to pristine conditions. Nevertheless, cleanup of brownfields to a level that is appropriate for industrial and commercial uses – a

[8] For information on the structures and functions of the IFC, see: www.ifc.org.

practice condoned in Western Europe and the United States – is a model worth striving for in CEE and is consistent with the spirit, if not the letter, of IFC lending rules. Third, the IFC finances projects that are jointly publicly-privately owned, provided that the project is managed on a commercial basis. Owners may include combinations of foreign and host country actors. These management and ownership schemes are appropriate for the cleanup of past pollution in CEE; the record already shows that successful cleanup of old contamination in CEE tends to involve multiple actors – public and private, foreign and domestic – and that the best experiences involve enterprises that operate on a commercial basis. Consider, for example, the cleanup and revitalization of Kunda Cement in Estonia – a large, pollution-prone factory bought by an Asian investor from the Estonian government in the mid-1990s. The retrofitting and modernization of that facility was greatly assisted by a $44 million loan from the IFC. By the mid-1990s, Kunda Cement had reduced its emissions of dust from a high of more than 160 kg per ton cement to less than 1 kg per ton cement (Auer and Raukas, 2000).

**European Financial Institutions**

Given their quest to join the EU, CEE countries could approach European-based sources of capital to fund cleanup of past pollution. Two possible sources of financing are the European Bank for Reconstruction and Development (EBRD) and the EU's Instrument for Structural Policies for Pre-accession (ISPA).[9]

The EBRD was established in 1991 to foster economic transition in CEE and the former Soviet Union through private-public co-financing of projects. The financing instruments of the EBRD include guarantees, equity investments, and loans. The EBRD is organized by three country groups (Central Europe, Russia and Central Asia, Southern and Eastern Europe and the Caucasus) and three sector groups (Financial Institutions, Infrastructure, and Industry and Commerce).

The EBRD emphasizes sustainable development and environmentally sound practices as criteria for project financing. To date, most of the environment-related projects financed by the

[9] See www.ebrd.org for more information on the EBRD. See www.europa.eu.int/comm/regional_policy/activity/ispa_en.htm and Council Regulation (EC) No

Bank deal with prospective pollution. But cleanup of past pollution could be an elevated priority of at least two Bank groups. The industry and commerce group promote private sector participation and investments in oil, gas, petroleum, and mining industries.[10] The infrastructure group focuses on, inter alia, investments to improve drinking water and sewage treatment infrastructure. Brownfields cleanup – though not a major area of lending in these groups – could and should be a higher priority, particularly for projects with promising commercial prospects.

The European Union's Instrument for Structural Policies for Pre-accession (ISPA) pursues a different aid philosophy. The ISPA was established in 1999 by the European Council. The Council authorized more than a billion euros (over the period 2000-2006) for CEE countries preparing to join the EU, namely, Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia.

Most ISPA assistance is in the form of non-repayable grants, focusing on environmental infrastructure and transportation. Environmental projects help enable eligible countries to comply with EU environmental directives and standards. The ISPA charter embraces assistance to remedy severe environmental problems in CEE, making it a plausible source for the cleanup of past pollution in the region.

ISPA funds are apportioned based on recipient countries' GDP per capita, population size, and land area. The countries receiving the largest shares of ISPA funds are Poland (30-37%) and Romania (20-26%). Other recipients are Bulgaria (8-12%), Czech Republic (5.5-8.0%), Lithuania (4.0-6.0%), Slovakia and Latvia (3.5-5.5%, each), and Estonia and Slovenia (2.0-3.5% and 1.0-2.0%, respectively). ISPA projects may finance up to 85% of total project costs, depending on the availability of matching funds and the potential revenue generated by the project. Upon accession to the EU, CEE countries lose their entitlement to ISPA funds. However, with accession, economically-deprived subregions of entering countries become eligible for the EU's so-called "Objective 1" funds. These resources may be used for brownfields revitalization. Other recent admitees to the EU have received access to these funds, so it is plausible that CEE members will be accorded similar privileges. Compared with the IFC and the

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1267/1999 for more information on the ISPA.

[10] By the end of 2000, EBRD had signed 32 projects in the natural resources sector, with

EBRD, the ISPA and Objective 1 funds offer cheaper, more flexible, and more attractive sources of financing for CEE countries seeking to remediate past pollution. But to date, and with the exception of Objective 1, anecdotal evidence suggests that most of these institutions and instruments tend to favor remediation of prospective pollution over cleanup of past pollution.

## Revitalizing External Participation in the Cleanup of CEE

In this article, we propose that the donor community re-examine the basis for making – or not making – loans and concessionary grants available to regions that are at once environmentally-challenged and economically depressed. Referring not to CEE countries but to lesser developed countries, a recent article by Ricardo Hausmann (2001) calls for a similar reassessment of "business as usual" by the donors. Hausmann notes that physical geographical explanations for persistent poverty in LDCs are coming back into vogue. The resurgence of geography for understanding underdevelopment is inspired, in part, by waning confidence in the World Bank's and other IFIs' conventional explanations for persistent poverty in LDCs. Hausmann provides an alternative explanation, urging that "bad latitude" condemns countries between the Tropics of Capricorn and Cancer to poverty. Regions with bad latitude are often landlocked, tend to face much steeper travel costs to get their products to market, have trouble coordinating infrastructure expenditures with neighboring regions, have less incentive to spend on R&D, and a host of other problems (Hausmann, 2001: 47-49).

We contend that another type of geographical problem affects polluted and economically depressed regions of Central and Eastern Europe. Not so much a function of "bad latitude," ailing subregions of CEE are victims of "dirty factor endowments." They suffer from natural, geographical disadvantages vis-a-vis neighboring regions. True, in earlier decades, the great veins of brown coal and lignite in Upper Silesia and Northern Bohemia were the envy of their neighbors, and these resources were the backbone of local industry. However, as factors of production, these resources are of comparably poor monetary and energy value and are environmentally noxious. The combination of dirty factors endowments and economic planners

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a total investment of around 1.4 billion euros (around US 1.4 billion dollars).

who ordered the indiscriminate and careless exploitation of these resources led to enduring environmental problems that are not ameliorated by pollution abatement.

So far, the crisis of past pollution in many subregions of CEE lasts longer because resources for pollution management – whether from public or private sources and whether from foreign or domestic actors – is directed primarily to pollution prevention/pollution control projects rather than cleanup of past pollution. The emphasis on pollution abatement rather than pollution cleanup is consistent with norms enunciated at the Aarhus Conference (Environment for Europe, 1998) and is justifiable on cost and environmental grounds. However, this policy has a negative consequence in that past pollution is neglected leaving potentially productive capital and land assets idle, and rendering some regions economically depressed and environmentally ill.

Since domestic public and private investment in these countries is channeled preferentially to pollution prevention and control, financing for cleanup of past pollution must come from external sources. Foreign private investors are potential participants in this endeavor, but precisely because foreign investors are wary about liability for past pollution and are naturally inclined to greenfield projects, these actors will not cleanup brownfields in the absence of external public investment. It is time for external public sector actors, including the IFIs (such as the IFC and the EBRD, both of whom work closely with private sector actors) and the European Union to elevate their participation in cleanup of past pollution, since these entities are the most promising actors to jumpstart the process. Bilateral aid agencies like the United States Agency for International Development should return to the table too, especially since, as argued above, various subregions of CEE qualify for concessionary aid in the de facto sense that these areas are chronically economically and environmentally distressed.

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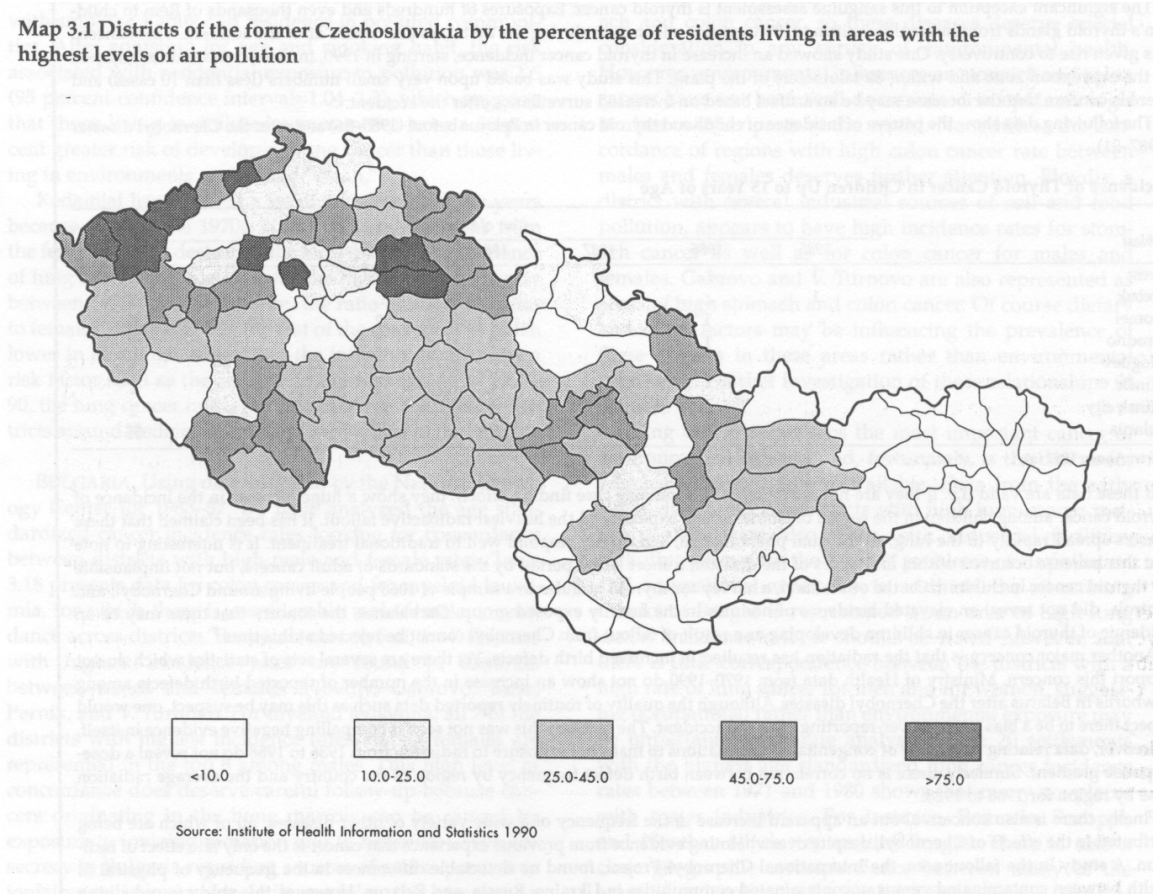
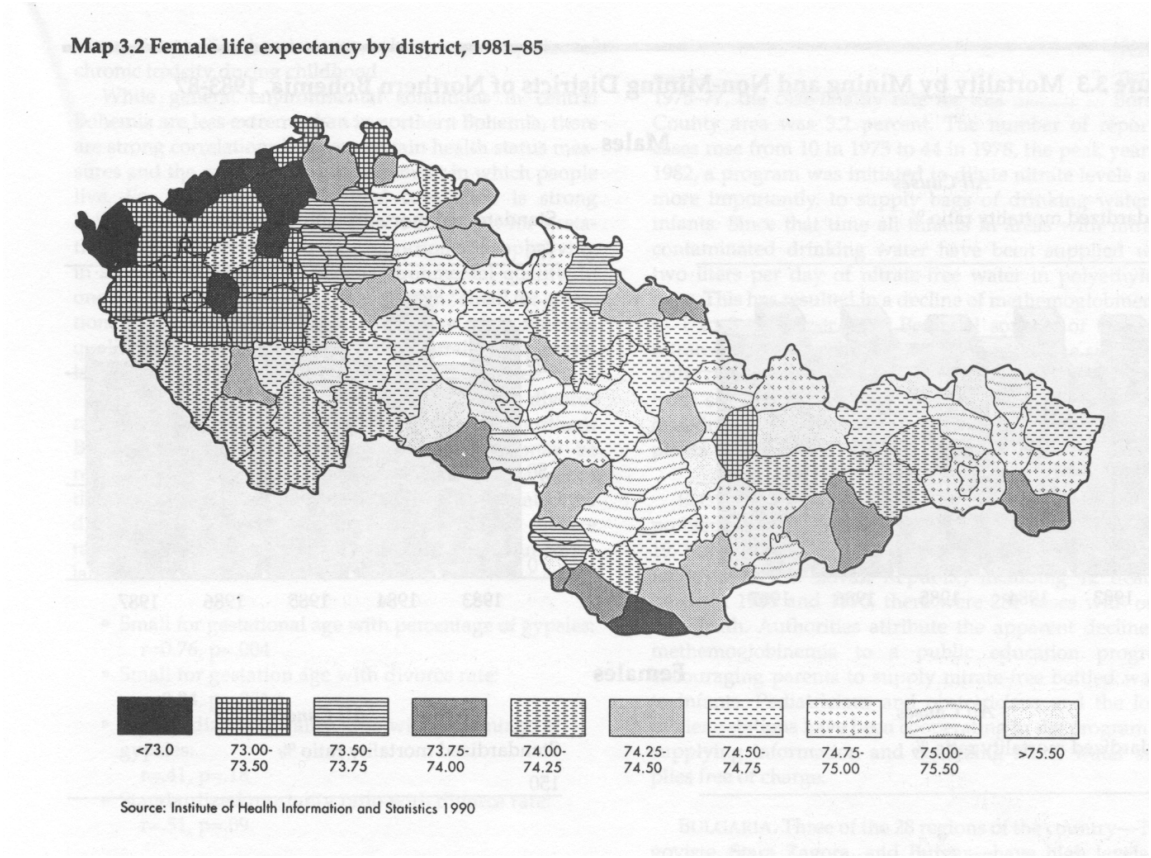
Figure 1: Areas with High Levels of Air Pollution in the Former Czechoslovakia



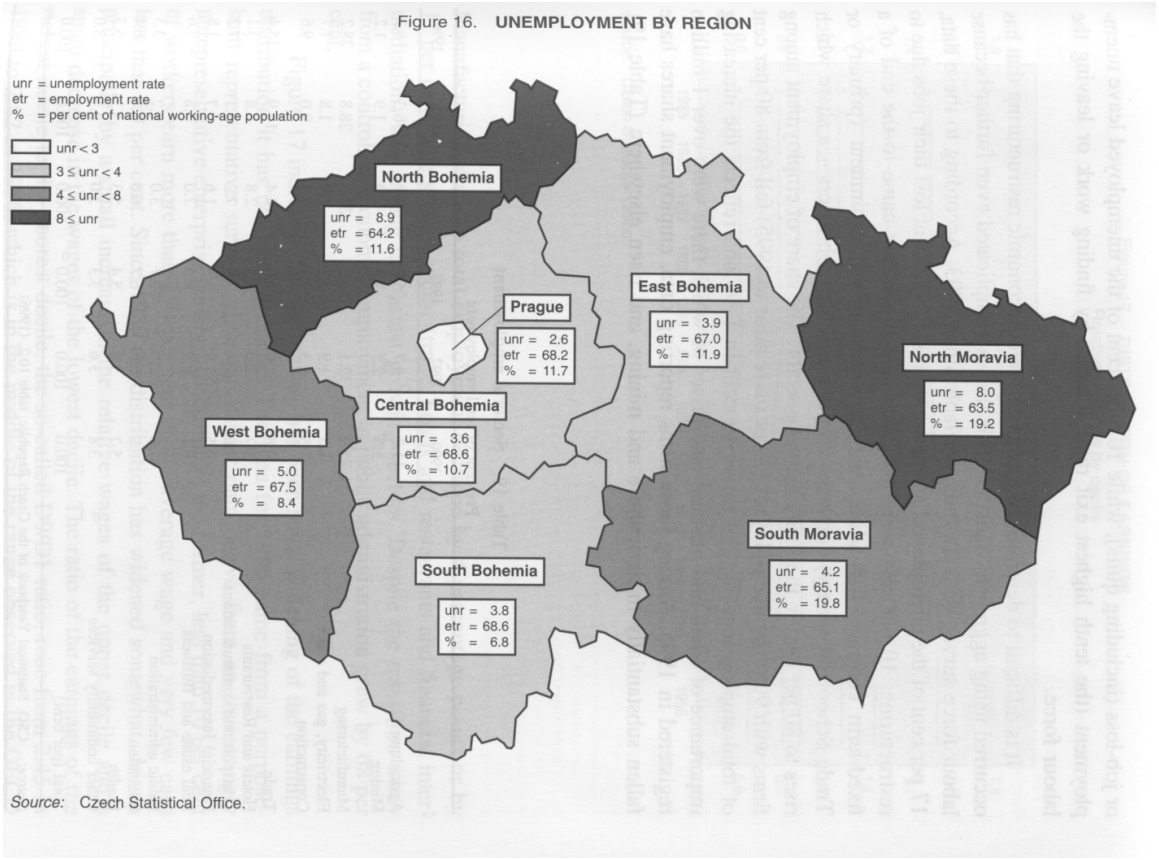

Source: Hertzman, 1995: 38.

Figure 2: Female Life Expectancy by District, 1981-85




Source: Hertzman, 1995: 39.

Figure 3: Unemployment in the Czech Republic by Region, 1997




Source: OECD, 1998.