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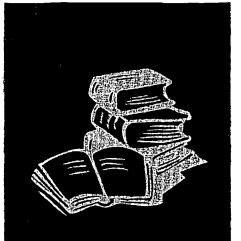
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ABSTRACT

The World Bank has been assisting the efforts of developing countries to reform secondary education systems for more than 35 years. During this period, the context and imperatives for education reform have changed considerably due to various factors such as globalization of the __world economy and the impact of new technologies. This paper is one of a series which addresses a wide range of topics within secondary education that reflect current challenges. The paper, a country case study, describes the experiences of Poland in developing secondary education. The paper explores the complexity of Poland's secondary education and training systems and the correspondingly difficult choices that the government faces in reforming them. It is divided into the following sections: "Country Context"; "Development of Secondary Education and Training"; "Quality and Learning"; "Equity"; "Management and Institutional Development"; "Innovations"; "Bank Support to the Country"; and "Issues." Annexed are data giving the percentage share of students in secondary education for the countries of Eastern Europe and Central Asia. (BT)

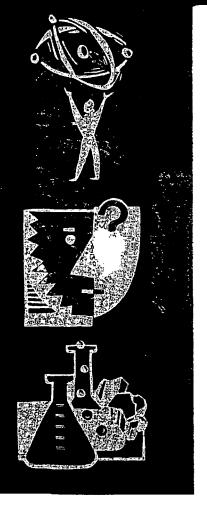




22860August 2001

POLAND: SECONDARY EDUCATION AND TRAINING

David H. Fretwell Antony Wheeler



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World Bank, Human Development Network Secondary Education Series

Poland Secondary Education and Training

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Foreword

Welcome to the Secondary Education Series of the Human Development Network, Education Group at the World Bank.

The World Bank has been assisting developing countries in their efforts to reform their secondary education systems for more than 35 years. During this period, the context and imperatives for education reform have changed considerably due to various factors such as globalization of the world economy and the impact of new technologies. This new environment requires rethinking the traditional way of providing secondary education and training systems and both industrializing and industrialized countries are grappling how best to prepare their youth to become productive workforce as well as responsible citizens. Thus, this series will address a wide range of topics within secondary education that reflect the challenges that we are facing now.

The publications in this Secondary Education Series might broadly be considered to fall into two categories, though there are clearly overlaps: those papers addressing policy issues and those describing in more detail particular countries' experiences. This paper, "Poland - Secondary Education and Training", is in this second category. The intention behind these country case studies is to expose the complexity of secondary education and training systems and the correspondingly difficult choices that governments face in reforming them. It is only through a clearer understanding of what is happening in particular countries that fruitful discussion and analysis, and further research, can take place. We hope that these case studies stimulate debate. We welcome your comments.

World Bank Human Development Network Education Group March 2001



Country Context

Among the countries of Eastern Europe, Poland exhibits the greatest degree of ethnic and religious homogeneity, with only small minorities, hence avoiding some of the most contentious issues for educational development in the region. Also, through the efforts of the Solidarity Movement, Poland was the pioneer in the process of economic transition, and particularly since about 1995 has probably made more progress along many aspects of the path of transition than any of its neighbors, leaving aside the special case of East Germany. Thus it might be expected that the adaptation of the education system to the needs of a market economy would be more advanced than in other ECA countries. However, so far Poland has not progressed faster in education reform than countries like Hungary, the Czech Republic, and Romania and is in some respects is still behind them, e.g., the share of educational spending in GDP has been consistently below that of other central European countries in the years following 1989. Although many aspects of education have been decentralized to local governments the Ministry of Education still plays a dominant role in the supervision of the system.

In the industrial sector, Poland's development under Communism was similar to neighboring countries, and similarly too there was underdevelopment of most service activities. But Poland differed in having a large private component in the agricultural sector, characterized by many small family farms, some of which generated little income. In another respect also Poland was at a relative disadvantage, because the country suffered extensive destruction in World War II, and resources for rebuilding were very limited.

At transition in 1989, Polish secondary education was characterized by the significant proportion of students (45.4%) enrolled in 3-year basic vocational schools leading to worker qualifications, as compared with general secondary schools (22.3%), and vocational secondary schools (32.3%), of which the latter two institutions screened students via entrance exams, and gave the possibility of access to tertiary education. By 1996/7 the general stream's share of enrollments had increased to 31.4%, and the vocational secondary stream to 38.2%, while the share of shorter vocational courses had declined to 30.4%, with most of the latter type of institution now concentrated in rural areas. Clearly there has been a significant change of emphasis in the orientation of the education system away from the provision of production workers towards graduating better qualified students able to prepare for technician-level work or proceed to higher education and eventually higher-level positions. Nevertheless, including the minority of students who drop out at the end of compulsory schooling and do not enter secondary education, still about one-third of school-leavers enter the labor force without marketable skills, the majority of them coming from rural areas. If it is also the case that, as in most West European countries, young people seldom want to take over family farms, then there is the potential for an appreciable movement of unqualified young labor market entrants into urban unemployment, with the attendant social problems.

One respect in which Poland differs appreciably from the neighboring countries is in the continuing existence of a significant rural population, along with an extensive rural education system, including secondary schools. However, Polish critics note a markedly lower level of performance and achievement among rural school pupils, at both primary and secondary levels. Factors which may contribute to this situation are the difficulty of attracting good teachers to



rural locations, a home environment less conducive to study, and the greater lack of supplementary resources for education in poor rural areas. Also the Ministry of Education has estimated that costs in vocational agricultural schools are double those of general lycees.

Development of Secondary Education and Training

The latest reform effort in Polish education, initiated in 1997/8, is still in process of implementation. It is intended to be a comprehensive attempt to update all levels of the education system, affecting most aspects of the delivery of education services, and linked to a reform of some aspects of the state administration. The period of compulsory education is six years of primary school (legal age of entry is seven in Poland, though nearly all children do a pre-primary grade 0 year), followed by three years of general studies. Secondary education (post-compulsory) will involve three years of specialized studies in a range of subject options, with the aim of having an increasing proportion of students qualifying to enter higher education. Although the 3-year vocational courses will remain, it is intended that these will no longer be terminal, but students will be permitted to continue post-secondary but non-university technical studies.

Teachers' training, conditions of service and duties are regulated by the Teachers' Charter of 1982 (amended 1996) which was negotiated by the Ministry of Education and the teachers' trade unions, a powerful conservative force (at least 30% of teachers are within 6 years of retirement). At present teaching salaries are below the national average salary, though they can be supplemented through overtime work or by teaching in rural or various types of specialized schools. Parents may also pay for extra-curricular teaching, e.g., to prepare for examinations. Additional payments for merit performance are resisted by the unions, who prefer to see standardized supplements for all teachers. The deployment of teachers has been constrained by their specificity, all of them being trained to teach only one subject, with the limited requirement, according to the Teachers' Charter, of only two periods of in-service training during their careers. After four years of service and satisfactory appraisal, teachers can receive a permanent appointment. Unqualified teachers can be hired where qualified teachers are lacking, e.g., for foreign languages, but they cannot receive permanent appointments. The 3-year vocational schools have typically had a much lower share of qualified teachers than other types of secondary institutions. In general terms the various rigidities surrounding the training and employment of teachers have acted as an obstacle to the effective implementation of reform efforts in Poland.

Other aspects of the educational process continue to led in a centralized fashion and somewhat differently than in other central and eastern European countries. For example, the Ministry continues to define all core curricula, and some 85% of textbooks are still produced by the national publishing house, following a centralized review and approval process. School inspection reports remain confidential, with no standardized criteria for assessing schools. Although principals have recently been given a greater degree of responsibility for the operation and performance of their schools, they still lack any control over the budget of the school, which is a serious curb on their initiative. According to Polish commentators, while principals are appointed through a competitive process, the determining criteria continue to be political rather than related to professional performance.



According to a recent Ministry of Agriculture report, 40% of the Polish population is rural, yet 98% of general lycee students are in urban schools. Many of the schools in rural areas are small primary schools with few pupils in a class, which are expensive to operate. Such rural post-primary schools as exist are predominantly the 3-year terminal vocational schools, so that rural pupils have few opportunities of access to higher education unless they move to an urban secondary school. Although the network of rural education facilities is not appropriate to the needs of rural development, efforts at rationalization and change are hampered by fierce opposition from the teachers' unions, who try to protect their members' jobs. In any case, because the great majority of teachers are women, often married with children, their mobility in response to any effort at educational rationalization is constrained by family considerations. Thus the structure of the teaching force, together with the pressure of the unions, tend to impose a straitjacket on efforts to improve rural education opportunities, and hence limit educational access for deprived segments of the population.

Quality and Learning

Monitoring and evaluation of the Polish educational system are seriously underdeveloped functions. Currently pedagogical supervision consists of checking whether teachers teach the requisite hours and follow the teaching program, with no evaluation of teaching skills or educational outcomes. In the absence of standardized criteria or any independent assessment mechanism, neither teachers nor students are evaluated. As yet parents have no active role in the operation of schools, and neither do employers.

The ongoing educational reform effort proposes to address this problem through a system of standardized final examinations in secondary schools, managed through a Central Examination Commission and eight regional commissions. They will define examination requirements and analyze results for the benefit of the Ministry of Education, but there appears to be no mechanism for systematic feedback to teachers and pupils. The concept of evaluation as an instrument to guide the learning process rather than as a method of selecting students has therefore still not been fully adopted, so that in this respect Poland remains behind most of the neighboring countries, though there is no longer complete stagnation.

Equity

As noted initially, Poland has a relatively homogeneous population, so that it does not suffer to any significant extent from the ethnic inequities in educational access which adversely affect several other ECA countries. However the rural/urban dichotomy is a serious source of inequity in Poland, as mentioned in para. 8 above. Besides the specific educational inequities in rural areas noted already, remedial measures are further hampered because of the more limited capacity of small rural authorities in terms of resources, both personnel and finance. Also solutions such as bussing of students to neighboring urban facilities are complicated by inadequate rural road networks and public transportation.

Although non-public schools have been authorized since 1991, relatively few have yet opened. In 1995/6, 4.5% of general secondary pupils and 1.2% of vocational secondary pupils



were attending non-public schools. The greater part of non-public schools in 1995/6 operated under church or other civic auspices, with significant support from state and other sources to augment fee income. Thus they tend to be relatively accessible to the population at large. There are also private "for profit" schools (107 general secondary and 72 vocational secondary in 1995/6) which are intended to attract children from better-off families, offering more personalized instruction and wider curriculum choice, and presumably charging higher fees to support this level of service.

Management and Institutional Development

While some steps have been taken towards decentralization and devolution of responsibilities for education, the Ministry of Education and the teachers' unions remain the main forces in the shaping of educational policy. Parents, pupils, and employers all remain inactive in the evolution of the education system. Although parents and pupils are each supposed to constitute one-third of the membership of school councils, along with teachers, the experience so far has been that they are ineffectual, seemingly because of widespread apathy. There appear to be few links between the Ministry of Education apparatus and employers or labor office staff, whether at central or provincial levels. Thus there is minimal client input into determining the content of technical and vocational studies, and there is frequent complaint that many schools continue to teach narrow specializations for which there is no longer demand in the labor market. (But the schools are equipped to teach those courses, and the teachers trained to deliver them.)

There have been a number of measures to devolve responsibilities for the operation and management of schools to lower levels, and this is very much an ongoing process in course of further modification, so that any description is at best of only temporary validity. Each of the voivods or provinces has an education supervisor (Kurator), who although part of the provincial government is appointed by and directly responsible to the Ministry of Education. The Kurator's responsibilities are varied and include the appointment of principals, the planning of new primary-level schools, the organization of in-service teacher-training, and most importantly educational supervision. The 1996 Municipal Act gave 46 larger cities responsibility for post-primary schools in their area, which would be financed through the state educational grant based on formula financing. The 1991 Education Act had previously given the approximately 2500 communes in Poland the right to run post-primary schools and other educational institutions located in their area. In practice this seems not to have worked very effectively, since in 1997 an estimated 70% of post-primary schools were still being run directly by the Kurators' offices – many communes are very small and lack the qualified staff and other resources to be effective educational administrators.

Although there have been numerous attempts to reduce the weight of centralization in the operation of the education system, it appears that the total effect so far has been limited, and essentially the Ministry with its education supervisors in the provinces, and the trade unions, continue to be the dominant forces. In this respect Poland would seem to have made less progress than its neighbors, though there is undoubtedly ongoing debate on this issue, as well as efforts to catch up.



Innovations

Although the structure of Polish secondary education has clearly changed, as reflected by the evolving shares of enrollments in the different types of institutions noted in para. 3 above, it is difficult otherwise to speak of any significant innovative developments. There are ongoing initiatives, especially in the area of decentralization, but the results are not yet conclusive. In several areas such as assessment and evaluation Poland is rather notable for its lack of progress.

Bank Support to the Country

Dialogue with Poland in the education field has taken place since 1990. Preparation of an education project was initiated in 1993, and completed in 1994, but the government decided not to borrow. A sector dialogue was resumed in 1997 and in 1998 preparation was begun on a Education Opportunities Loan. A Rural Development Project, approved in 2000, includes a rural education component.

Issues

Poland has in many respects made less progress than other Central European countries in restructuring and updating its secondary education system to meet the needs of a transition economy. Consequently there are several serious issues which need to be further addressed.

- Over-centralization. Educational policy-making in Poland continues to be mainly the concern of the Ministry of Education and the teachers' unions. Parents, pupils, local social leaders and employers have limited involvement. This creates the impression that the system is run primarily to benefit those working in it. Efforts are needed to show that this is not the case.
- Rural/urban Inequalities. There are fewer educational options available in many rural areas, and the results achieved in rural schools are generally thought inferior to those in urban areas. Given the incidence of rural poverty, this educational inequality is also a source of inequity for the rural poor.
- Assessment and Supervision. Poland has made little progress as yet in developing standardized criteria for pupil or teacher assessment, and pedagogical supervision is still primarily a control function rather than a channel for innovation and guidance to teachers.



Annex

Share of Students in Secondary Education in Eastern Europe and Central Asia - 200 Miles and - 200 Miles and - 200 Miles and - 200 Miles and - 200 Miles an

Country	Education Level	1989	1990	1991	1992	1993	1994	1995	1996	.,1
lh u	distribution of the	:								
Albania	TOTAL	100	100	100	100	100	100	100	100	
een <mark>"eas</mark> net	General secondary	31.1	29.4	49.4	63.0	70.9	78.0	79.4	82.1	J:1
97 J. J.	Vocational/Technical	68.9	70.6	50.6	37.0	29.1	22.0	20.6	17.9	:1
Armenia	TOTAL	100	100	100	100	100	100	100	100	
	General secondary	53.2	54.2	55.8	57.9	63.1	67.3	72.0	71.7	
	Vocational/Technical	46.8	45.8	44.2	42.i	36.9	32.7	28.0	28.3	:
Azerbaijan .	TOTAL	100	100	100	100	100	100	100	100	
•	General secondary	54.2	56.3	57.4	61.0	63.8	66.8	69.7	72.4	
	Vocational/Technical	45.8	. 43.7	42.6	39.0	36.2	33.2	30.3	27.6	:
Belarus -	TOTAL	100	100	100	100	100	100	100	. 100	٠
	General secondary	35.0	35.4	35.4	34.9	34.3	36.0	37.1	39.4	
	Vocational/Technical	65.0	64.6	64.6	65.1	65.7	64.0	62.9	60.6	
Bosnia-Herzegovina	TOTAL	•	-	÷		•	-			١.
	General secondary	-	-	•	-	-	•	•	•	
	Vocational/Technical	-	-	-		-	-	•	•	
Bulgaria	TOTAL	100	100	100	100	100	100	100	100	
	General secondary	39.5	38.7	38.9	40.5	41.6	42.3	42.7	42.6	4
	Vocational/Technical	60.5	61.3	61.1	59.5	58.4	57.7	57.3	57.4	:
Croatia	TOTAL	-	-	100	100	100	100	100	100	
	General secondary	-	-	13.0	18.8	23.6	25.3	24.7	24.6	:
	Vocational/Technical		•	87.0	81.2	76.4	74.7	75.3	75.4	
Czech Republic	TOTAL	100	100	100	100	100	100	100	100	
•	General secondary	17.8	18.9	17.7	17.4	15.8	13.1	13.2	14.5	1
٠	Vocational/Technical	82.2	81.1	82.3	82.6	84.2	86.9	86.8	85.5	
Estonia	TOTAL	-	100	-	100	100	100	100	100	
	General secondary	64.8	49.0	67.5	50.2	52.4	55.0	54.7	53.5	
	Vocational/Technical	-	51.0	-	49.8	47.6	45.0	45.3	46.5	
FYR Macedonia	TOTAL	•	-	-	•	•	-	•	•	
	General secondary	٠_	-			•		-	•	:
	Vocational/Technical	-	-	-	•	•	-	-	-	•
Georgia	TOTAL	100	100	100	100	100	100	100	100	
•	General secondary	67.6	70.4	70.6	69.4	62.8	63.3	61.7	64.6	(
	Vocational/Technical	32.4	29.6	29.4	30.6	37.2	36.7	38.3	35.4	:
Hungary	TOTAL	100	100	100	100	100	100	100	100	
	General secondary	23.9	24.0	24.6	25.6	26.1	26.8	27.0	27.1	:
	Vocational/Technical	76.1	76.0	75.4	74.4	73.9	73.2	73.0	72.9	•
Kazakhstan	TOTAL	100	100	100	100	100	100	100	100	
	General secondary	42.9	44.8	45.5	44.6	44.9	45.5	45.9	52.5	
	Vocational/Technical	57.1	55.2	54.5	55.4	55.1	54.5	54.1	47.5	
Kyrgyz Republic	TOTAL	100	100	100	100	100	100	100	100	
• •	General secondary	61.7	62.8	62.8	62.3	61.7	62.0	64.0	67.8	
	Vocational/Technical	38.3	37.2	37.2	37.7		38.0	36.0	32.2	:

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Latvia	TOTAL	100	100	100	100	100	100	100	100	•
	General secondary	32.0	31.4	31.6	33.6	40.4	44.2	47.2	53.1	-
	Vocational/Technical	68.0	68.6	68.4	66.4	59.6	55.8	52.8	46.9	-
Lithuania	TOTAL	100	100	- 100	100	100	100	100	100	100
	General secondary	36.7	38.6	40.5	46.9	46.1	48.7	49.5	52.9	54.2
	Vocational/Technical	63.3	61.4	59.5	53.1	53.9	51.3	50.5	47.1	45.8
Moldova	TOTAL	-	•	100	100	100	100	100	100	-
	General secondary	-	-	38.8	39.3	41.3	43.2	44.6	46.0	- '
	Vocational/Technical	-	-	61.2	60.7	58.7	56.8	55.4	54.0	· -
Poland	TOTAL	100	100	100	100	100	100	100	100	100
	General secondary	22.5	23.4	25,2	26.9	28.1	29,2	30.5	31.1	32.4
	Vocational/Technical	77.5	76.6	74.8	73.1	71.9	70.8	69.5	68.9	67.6
Romania	TOTAL	100	100	100	100	100	100	100	100	100
	General secondary	3.5	12.8	21.6	26.5	29.0	29.4	29.0	30.0	30.4
	Vocational/Technical	96.5	87.2	78.4	73.5	71.0	70.6	71.0	70.0	69.
Russian Federation	TOTAL	100	100	100	100	100	100	100	100	10
	General secondary	31.3	33.0	32.8	33.1	33.9	36.2	37.1	38.3	39.
	Vocational/Technical	68.7	67.0	67.2	66.9	66.1	63.8	62.9	61.7	60.
Slovak Republic	TOTAL	100	100	100	100	100	100	100	100	10
Sicvax respectiv	General secondary	18.1	19.2	20.1	20.9	21.7	22.4	23.2	24.1	25.
	Vocational/Technical	81.9	80.8	79.9	79.1	78.3	77.6	76.8	75.9	75.
Slovenia	TOTAL	-	-	•	-	100	100	100	100	-
210veina	General secondary	_		_		24.3	24.4	24.4	24.8	-
	Vocational/Technical	_		_	_	75.7	75.6	75.6	75.2	_
Tajikistan	TOTAL	100	100	_	100	-	•	100		-
	General secondary	67.3	76.7	80.4	64.8	76.0	77.0	65.6	_	
	Vocational/Technical	32.7	23.3	•	35.2	-		34.4	-	-
Turkmenistan	TOTAL	100	100	100	100	100	100	100	100	10
	General secondary	62.5	63.9	62.9	62.6	64.9	70.7	76.1	69.4	77.
	Vocational/Technical	37.5	36.1	37.1	37.4	35.1	29.3	23.9	30.6	22.
Ukraine	TOTAL	-	•	100	100	100	100	100	100	10
	General secondary	-	•	38.3	37.5	.37.6	39.9	41.6	43.9	47
	Vocational/Technical	-	-	61.7	62.5	62.4	60.1	58.4	56.1	52
Uzbekistan	TOTAL	100	100	100	100	100	-	-	-	-
	General secondary	53.7	56.2	56.8	53.7	51.4	-	<i>-</i>	-	-
	Vocational/Technical	46.3	43.8	43.2	46.3	48.6	-	-	-	-
Yugoslav Republic	TOTAL	· -	100	100	100	100	100	100	100	-
	General secondary	-	27.1	35.1	44.3	55.4	56.2	53.7	55.7	-
	Vocational/Technical		72.9	64.9	55.7	44.6	43.8	46.3	44.3	-

- Not available

Notes: Definition of title - percentage of students enrolled by type of upper secondary education in the total number enrolled in upper secondary education Sources: World Bank staff estimates based on data supplied by UNICEF ICDC



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Fretwell, David H. 2001 "Poland Secondary Education and Training". Secondary Education Series. World Bank, Human Development Network, Education Group, Washington, D.C.

Online version:

http://www1.worldbank.org/education/secondary/documents/Fretwell2.pdf

Fretwell, David H. 2001 "Romania Secondary Education and Training". Secondary Education Series. World Bank, Human Development Network, Education Group, Washington, D.C.

Online version:

http://www1.worldbank.org/education/secondary/documents/Fretwell3.pdf

Fretwell, David H. 2001 "Turkey Secondary Education and Training". Secondary Education Series. World Bank, Human Development Network, Education Group, Washington, D.C.

Online version:

http://www1.worldbank.org/education/secondary/documents/Fretwell4.pdf

Fretwell, David H. 2001 "Russia Secondary Education and Training". Secondary Education Series. World Bank, Human Development Network, Education Group, Washington, D.C.

Online version:

http://www1.worldbank.org/eduation/secondary/documents/Fretwell5.pdf

Lewin, Keith M. 2000. "Mapping Science Education Policy in Developing Countries." Secondary Education Series. World Bank, Human Development Network, Education Group, Washington, D.C.

Online version:

http://www1.worldbank.org/education/scied/documents/Lewin-Mapping.pdf

Lewin, Keith M. 2000. "Linking Science Education to Labour Markets: Issues and Strategies." Secondary Education Series. World Bank, Human Development Network, Education Group, Washington, D.C.

Online version:

http://www1.worldbank.org/education/scied/documents/Lewin-Labor.pdf



Larach, Linda, 2001 "Brazil Secondary Education Profile a Summary of Secondary Education: Time to Move Forward". Secondary Education Series.

World Bank, Human Development Network, Education Group, Washington, D.C. Online version:

http://www1.worldbank.org/education/secondary/documents/larach.pdf

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Linden, Toby. 2001 "Double-shift Secondary Schools: Possibilities and Issues". Secondary Education Series. World Bank, Human Development Network, Education Group, Washington, D.C.
Online version:
http://www1.worldbank.org/education/secondary/documents/Linden.pdf

Ware, Sylvia, ed. 1999. "Science and Environment Education: Views from Developing Countries." Secondary Education Series. World Bank, Human Development Network, Education Group, Washington, D.C. Online version:

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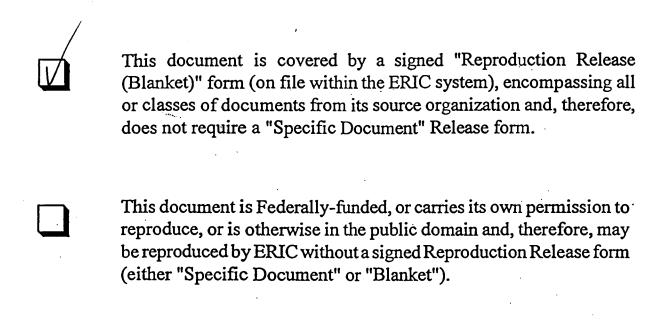


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