

ANEKS D

Tabele analiz korzyści i kosztów

**Cost-Benefit Analysis
Programme for the Oder 2006**

	2002	2003	2004	2005	2006	2007	2008	2009
Benefits								
Flood protection	149 075 232	245 580 819	343 314 309	222 557 617	257 092 418	322 324 824	314 650 423	316 569 022
Water Quality	301 537 213	419 838 452	509 125 051	545 752 275	550 955 131	552 686 799	561 426 418	562 522 424
Forestry	3 978 773	7 957 546	11 936 320	15 915 093	19 893 866	21 200 931	23 071 393	25 299 760
Environmental Protection	<i>intangible benefits</i>							
Waterway Transportation	20 703 070	17 954 834	40 605 314	44 857 915	52 268 460	61 418 227	54 929 413	53 926 882
Total	475 294 288	691 331 651	904 980 993	829 082 900	880 209 876	957 630 781	954 077 648	958 318 089
Opportunity Costs								
Investment costs*								
Flood protection	94 568 168	155 787 972	217 786 715	141 182 849	163 090 532	204 471 713	199 603 338	200 820 431
Water Quality	551 226 667	370 300 000	399 333 333	302 506 667	159 333 333	58 333 333	195 133 333	145 566 667
Forestry	22 317 399	22 317 399	22 317 399	22 317 399	22 317 399	18 608 057	18 608 057	18 608 057
Environmental Protection	28 372 345	28 372 345	35 167 562	15 956 620	15 956 620	12 161 608	12 161 608	12 161 608
Waterway Transportation	32 300 445	37 364 771	69 374 332	63 653 992	62 802 027	63 264 521	48 683 740	41 989 726
Total	728 785 024	614 142 487	743 979 342	545 617 527	423 499 912	356 839 233	474 190 077	419 146 489
O&M costs								
Flood protection	1 637 899	4 239 364	7 686 289	9 683 728	11 910 632	14 681 436	17 249 309	19 707 183
Water Quality	31 201 600	53 929 520	75 895 940	91 612 160	98 522 193	102 870 560	115 466 593	124 196 427
Forestry	281 494	562 988	844 482	1 125 976	1 407 469	1 676 838	1 946 207	2 215 576
Environmental Protection	-	-	-	-	-	-	-	-
Waterway Transportation	780 225	1 683 415	3 174 695	4 238 794	5 278 266	6 363 689	7 129 263	7 734 233
Total	33 901 218	60 415 287	87 601 405	106 660 657	117 118 561	125 592 523	141 791 373	153 853 418
Total opportunity costs	762 686 242	674 557 774	831 580 747	652 278 184	540 618 472	482 431 756	615 981 450	572 999 907
Net benefits	(287 391 954)	16 773 877	73 400 245	176 804 716	339 591 403	475 199 025	338 096 197	385 318 182
Discount factors								
Discount rate	2002 11,82%	2003 11,82%	2004 11,82%	2005 11,82%	2006 11,82%	2007 11,82%	2008 11,82%	2009 11,82%
Discount factor	1,118	1,250	1,398	1,563	1,748	1,955	2,186	2,444
Discounted benefits	425 063 211	552 927 624	647 309 869	530 348 875	503 547 976	489 940 835	436 536 122	392 136 325
Discounted costs	682 082 388	539 511 864	594 808 542	417 250 194	309 275 486	246 820 614	281 840 953	234 467 115
Net discounted benefits	(257 019 177)	13 415 760	52 501 327	113 098 680	194 272 489	243 120 221	154 695 169	157 669 210
Net Present Value (NPV)	1 467 788 229							
Benefit-cost ratio	1,35							
Results for each component								
	NPV	Benefit-cost ratio						
Flood protection	504 430 775	1,40						
Water Quality	1 039 517 003	1,43						
Forestry	44 829 497	1,30						
Environmental Protection	NA	NA						
Waterway Transportation	8 484 269	1,03						

FLOOD PROTECTION

Benefits

Total value of private damages (2001 PLN)

Dwellings	1 709 839 157
Agricultural land	3 111 806 827
Entreprises	3 447 683 282

Total number of damaged private units

Dwellings	680 000
Agricultural land (km2)	5 206
Entreprises	152 000

Average loss of value per damaged private unit

Dwellings	2 514
Agricultural land	597 697
Entreprises	22 682

Total number of private units in flooded provinces

Dwellings	6 112 983
Agricultural land (km2)	85 287
Entreprises	1 544 140

Main flooded area

Total area (km2)	144 999
Flooded area (km2)	8 851
% flooded	6,1%

Estimated private units in main flooded area

Dwellings	373 165
Agricultural land (km2)	5 206
Entreprises	94 262

Total recovered market value assuming full protection

Dwellings	938 312 382
Agricultural land	3 111 806 827
Entreprises	2 138 052 601
Total	6 188 171 809

Adjustment for actual protection

Prioritized areas (% damages in 1997)	70,1%
Infrastructure risk	10,0%
Share of total protection achieved	60,1%

Actual recovered market value

3 719 091 257

Share of investments in total	4,0%	6,6%	9,2%	6,0%	6,9%	8,7%	8,5%	8,5%
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	2002	2003	2004	2005	2006	2007	2008	2009
Schedule of market value recovery	149 075 232	245 580 819	343 314 309	222 557 617	257 092 418	322 324 824	314 650 423	316 569 022

FLOOD PROTECTION

Benefits

Total value of private damages (2001 PLN)

Dwellings
Agricultural land
Enterprises

Total number of damaged private units

Dwellings
Agricultural land (km2)
Enterprises

Average loss of value per damaged private unit

Dwellings
Agricultural land
Enterprises

Total number of private units in flooded provinces

Dwellings
Agricultural land (km2)
Enterprises

Main flooded area

Total area (km2)
Flooded area (km2)
% flooded

Estimated private units in main flooded area

Dwellings
Agricultural land (km2)
Enterprises

Total recovered market value assuming full protection

Dwellings
Agricultural land
Enterprises

Total

Adjustment for actual protection

Prioritized areas (% damages in 1997)
Infrastructure risk
Share of total protection achieved

Actual recovered market value

Share of investments in total	9,6%	9,4%	7,6%	5,0%	4,1%	3,2%	2,6%	100,0%
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	2010	2011	2012	2013	2014	2015	2016	
Schedule of market value recovery	358 778 227	349 185 225	283 952 821	187 639 094	153 488 011	118 953 208	95 930 007	3 719 091 257

FLOOD PROTECTION

Costs									
Investment costs	2002	2003	2004	2005	2006	2007	2008	2009	
Raciborz reservoir	23 632 884	23 632 884	70 898 652	35 449 326	47 265 768	59 082 210	59 082 210	59 082 210	
Modernization of WWW	29 541 105	54 355 633	23 632 884	17 724 663	17 724 663	19 426 231	17 724 663	17 724 663	
Kamieniec Zabkowicki reservoir			47 265 768	23 632 884	34 267 682	56 128 100	64 990 431	72 080 296	
Protection of Slubice and Opole	14 179 731	44 902 480	34 267 682	27 177 817	25 996 172	28 359 460			
Protection of Klodzka valley upstream of Klozko	24 460 035	28 359 461	23 632 884	21 269 596	21 269 596	23 632 884	34 267 682	34 267 682	
Protection of Nysa Klodzka downstream of Nysa Reser			11 745 543	11 816 442	11 816 442	11 887 341	17 724 663	11 816 442	
Engineering of environmental mitigation measures	2 754 413	4 537 514	6 343 302	4 112 122	4 750 210	5 955 487	5 813 689	5 849 139	
Total	94 568 168	155 787 972	217 786 715	141 182 849	163 090 532	204 471 713	199 603 338	200 820 431	
Operating costs - parameters									
Operating costs - mechanical (% inv.)	4,0%								
Operating costs - structural (% inv.)	1,5%								
Reservoirs & polders - % mechanical	10,0%			Case	Size (M m ³)	Employees	Employees per Mm ³		
Reservoirs & polders - % structural	90,0%			1	113,6	15	0,1320		
Dykes - % mechanical	0,0%			2	124,0	10	0,0806		
Dykes - % structural	100,0%			3	103,2	11	0,1066		
Raciborz reservoir	1,75%	18				Average	0,1064		
Modernization of WWW	1,81%	6							
Kamieniec Zabkowicki reservoir	1,75%	12							
Protection of Slubice and Opole	1,91%	17							
Protection of Klodzka valley upstream of Klozko	2,00%	5							
Protection of Nysa Klodzka downstream of Nysa Reser	2,00%	5							
Operating costs (= % completion * operating costs)									
Raciborz reservoir	413 575	827 151	2 067 877	2 688 241	3 515 391	4 549 330	5 583 269	6 617 208	
Modernization of WWW	534 898	1 519 111	1 947 030	2 267 969	2 588 908	2 940 657	3 261 596	3 582 535	
Kamieniec Zabkowicki reservoir	-	-	827 151	1 240 726	1 840 411	2 822 653	3 959 985	5 221 390	
Protection of Slubice and Opole	270 301	1 126 255	1 779 482	2 297 559	2 793 112	3 333 714	3 333 714	3 333 714	
Protection of Klodzka valley upstream of Klozko	489 201	1 056 390	1 529 048	1 954 440	2 379 831	2 852 489	3 537 843	4 223 196	
Protection of Nysa Klodzka downstream of Nysa Reser	-	-	234 911	471 240	707 569	945 315	1 299 809	1 536 137	
Total	1 707 976	4 528 907	8 385 499	10 920 175	13 825 222	17 444 158	20 976 215	24 514 181	
Of which: salary costs									
Raciborz reservoir	20 606	61 817	164 846	298 784	473 933	700 597	978 775	1 308 468	
Modernization of WWW	7 220	27 725	54 006	84 620	119 565	159 258	203 284	251 641	
Kamieniec Zabkowicki reservoir	-	-	25 757	64 393	121 703	209 600	332 912	495 505	
Protection of Slubice and Opole	33 136	171 204	389 352	671 011	1 013 420	1 422 102	1 830 783	2 239 465	
Protection of Klodzka valley upstream of Klozko	9 114	28 795	57 282	93 695	138 032	191 176	257 088	335 769	
Protection of Nysa Klodzka downstream of Nysa Reser	-	-	7 965	23 944	47 936	79 989	124 063	176 150	
Total	70 076	289 542	699 210	1 236 447	1 914 590	2 762 722	3 726 906	4 806 998	
Terminal value, O&M costs excluding salaries									
O&M costs (excluding salaries)	1 637 899	4 239 364	7 686 289	9 683 728	11 910 632	14 681 436	17 249 309	19 707 183	

FLOOD PROTECTION

Costs

Investment costs	2010	2011	2012	2013	2014	2015	2016	Total
Raciborz reservoir	59 082 210	59 082 210						496 290 564
Modernization of WWW	21 269 596	60 263 854	69 126 186	73 025 612	66 999 226	54 355 633	47 265 768	590 160 379
Kamieniec Zabkowicki reservoir	100 439 757	63 808 787	66 762 897					529 376 602
Protection of Slubice and Opole								174 883 342
Protection of Klodzka valley upstream of Klozko	28 359 461	14 179 730	21 269 596	24 814 528	15 715 868	7 089 865		322 588 867
Protection of Nysa Klodzka downstream of Nysa Resen	11 816 442	17 724 663	17 724 663	17 724 663	11 816 442	11 816 442	11 816 442	177 246 630
Engineering of environmental mitigation measures	6 629 024	6 451 777	5 246 500	3 466 944	2 835 946	2 197 858	1 772 466	68 716 392
Total	227 596 490	221 511 021	180 129 842	119 031 747	97 367 482	75 459 798	60 854 676	2 359 262 776

Operating costs - parameters

Operating costs - mechanical (% inv.)

Operating costs - structural (% inv.)

Reservoirs & polders - % mechanical
 Reservoirs & polders - % structural
 Dykes - % mechanical
 Dykes - % structural
 Raciborz reservoir
 Modernization of WWW
 Kamieniec Zabkowicki reservoir
 Protection of Slubice and Opole
 Protection of Klodzka valley upstream of Klozko
 Protection of Nysa Klodzka downstream of Nysa Resen

Operating costs (= % completion * operating costs)

Validation

Raciborz reservoir	7 651 146	8 685 085	8 685 085	8 685 085	8 685 085	8 685 085	8 685 085	8 685 085
Modernization of WWW	3 967 662	5 058 855	6 310 517	7 632 786	8 845 935	9 830 148	10 685 986	10 685 986
Kamieniec Zabkowicki reservoir	6 979 086	8 095 740	9 264 091	9 264 091	9 264 091	9 264 091	9 264 091	9 264 091
Protection of Slubice and Opole	3 333 714	3 333 714	3 333 714	3 333 714	3 333 714	3 333 714	3 333 714	3 333 714
Protection of Klodzka valley upstream of Klozko	4 790 386	5 073 980	5 499 372	5 995 663	6 309 980	6 451 777	6 451 777	6 451 777
Protection of Nysa Klodzka downstream of Nysa Resen	1 772 466	2 126 960	2 481 453	2 835 946	3 072 275	3 308 604	3 544 933	3 544 933
Total	28 494 460	32 374 333	35 574 231	37 747 284	39 511 079	40 873 419	41 965 585	41 965 585

Of which: salary costs

Raciborz reservoir	1 689 675	2 122 397	2 555 119	2 987 841	3 420 562	3 853 284	4 286 006	
Modernization of WWW	305 197	373 482	458 662	561 690	681 094	813 782	958 023	
Kamieniec Zabkowicki reservoir	712 832	964 931	1 253 412	1 541 893	1 830 374	2 118 856	2 407 337	
Protection of Slubice and Opole	2 648 147	3 056 828	3 465 510	3 874 192	4 282 873	4 691 555	5 100 237	
Protection of Klodzka valley upstream of Klozko	425 017	519 548	622 005	733 707	851 266	971 467	1 091 667	
Protection of Nysa Klodzka downstream of Nysa Resen	236 250	308 370	392 511	488 671	592 845	705 032	825 232	
Total	6 017 118	7 345 557	8 747 218	10 187 994	11 659 015	13 153 975	14 668 501	

Terminal value, O&M costs excluding salaries

230 992 178

O&M costs (excluding salaries)

	22 477 342	25 028 776	26 827 013	27 559 289	27 852 065	27 719 443	258 289 261	
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FLOOD PROTECTION

Cost-Benefit Analysis

	2002	2003	2004	2005	2006	2007	2008	2009
Benefits	149 075 232	245 580 819	343 314 309	222 557 617	257 092 418	322 324 824	314 650 423	316 569 022
Investment costs	94 568 168	155 787 972	217 786 715	141 182 849	163 090 532	204 471 713	199 603 338	200 820 431
O&M (excluding salaries)	1 637 899	4 239 364	7 686 289	9 683 728	11 910 632	14 681 436	17 249 309	19 707 183
Net benefits	52 869 165	85 553 482	117 841 304	71 691 039	82 091 254	103 171 675	97 797 775	96 041 408
Discount rate	11,82%	11,82%	11,82%	11,82%	11,82%	11,82%	11,82%	11,82%
Discount factor	1,118	1,250	1,398	1,563	1,748	1,955	2,186	2,444
Discounted benefits	133 320 341	196 415 741	245 563 986	142 365 958	147 076 703	164 907 078	143 967 606	129 537 587
Discounted costs	86 038 610	127 989 995	161 275 101	96 506 537	100 114 171	112 122 625	99 220 450	90 238 188
Net discounted benefits	47 281 732	68 425 746	84 288 885	45 859 421	46 962 532	52 784 453	44 747 156	39 299 399
Net present value	504 430 775							
Benefit-cost ratio	1,40							

Intangible benefits

Increased access, favors local development

Intangible costs

Lost value of the land (including ecosystems, forests) where works are located

FLOOD PROTECTION

Cost-Benefit Analysis

	2010	2011	2012	2013	2014	2015	2016	Total
Benefits	358 778 227	349 185 225	283 952 821	187 639 094	153 488 011	118 953 208	95 930 007	3 719 091 257
Investment costs	227 596 490	221 511 021	180 129 842	119 031 747	97 367 482	75 459 798	60 854 676	2 359 262 776
O&M (excluding salaries)	22 477 342	25 028 776	26 827 013	27 559 289	27 852 065	27 719 443	258 289 261	502 549 030
Net benefits	108 704 395	102 645 427	76 995 966	41 048 058	28 268 464	15 773 967	(223 213 930)	857 279 451
Discount rate	11,82%	11,82%	11,82%	11,82%	11,82%	11,82%	11,82%	
Discount factor	2,733	3,056	3,417	3,820	4,272	4,777	5,341	
Discounted benefits	131 293 852	114 278 648	83 108 673	49 115 030	35 929 938	24 902 852	17 960 496	1 759 744 490
Discounted costs	91 513 794	80 685 644	60 573 124	38 370 592	29 312 586	21 600 572	59 751 726	1 255 313 715
Net discounted benefits	39 780 058	33 593 004	22 535 548	10 744 438	6 617 352	3 302 280	(41 791 229)	504 430 775
Net present value								
Benefit-cost ratio								

Intangible benefits

Increased access, favors local development

Intangible costs

Lost value of the land (including ecosystems, fr

WATER QUALITY

Benefits

Hm³ of treated water (municipal and industrial)	1995	1998	1999	1995-1998				
treated	2 319	2 378	2 288	-0,3%				
discharged by plants	1 062	1 066	996	-1,6%				
discharged from sewerage system	1 258	1 311	1 293	0,7%				
Meeting EEC norms	1 214	1 309	1 304	1,8%				
biologically	1 133	980	920	-5,1%				
with increased biogene removal	81	328	384	47,5%				
Forecast of treated water volumes (base case scenario)	2002	2003	2004	2005	2006	2007	2008	2009
Wastewater treatment component of the Programme (hm³)	1 375	1 400	1 425	1 451	1 477	1 504	1 531	1 558
37 projects (15 000 m ³ and more)	143	235	313	348	359	370	389	400
Industrial plants	64	79	96	109	113	113	113	113
37 projects (15 000 m ³ and more, including industrial)	207	314	410	457	472	482	502	512
Total volume of treated water with the Programme	1 582	1 714	1 835	1 908	1 949	1 986	2 032	2 070
Value of 1 m³ of treated water								
Before the Programme, 2001 price	1,920							
Before the Programme, 2000 price (2001 PLN)	1,717							
Before the Programme (conservative estimate, 2001 PLN)	1,717							
Benefit of treating 1 hm ³ (2001 PLN)	1 717 080							
Annual increase in capacity	15,0%	8,3%	7,0%	4,0%	2,1%	1,9%	2,3%	1,9%
Adjusted benefit per hm³	1 459 077	1 337 336	1 243 083	1 193 369	1 168 076	1 145 740	1 118 983	1 098 003
Benefits of water treatment	301 537 213	419 838 452	509 125 051	545 752 275	550 955 131	552 686 799	561 426 418	562 522 424

Costs

WATER QUALITY

Benefits

Hm³ of treated water (municipal and industrial)
 treated
 discharged by plants
 discharged from sewerage system
Meeting EEC norms
 biologically
 with increased biogene removal

	2010	2011	2012	2013	2014	2015	2016
Forecast of treated water volumes (base case scenario)							
Wastewater treatment component of the Programme (hm³)	1 586	1 615	1 644	1 673	1 703	1 734	1 765
37 projects (15 000 m ³ and more)	410	410	410	421	432	443	443
Industrial plants	113	113	113	113	113	113	113
37 projects (15 000 m ³ and more, including industrial)	523	523	523	534	545	556	556
Total volume of treated water with the Programme	2 109	2 138	2 167	2 207	2 248	2 290	2 321
Value of 1 m³ of treated water							
Before the Programme, 2001 price							
Before the Programme, 2000 price (2001 PLN)							
Before the Programme (conservative estimate, 2001 PLN)							
Benefit of treating 1 hm ³ (2001 PLN)							
Annual increase in capacity	1,9%	1,4%	1,4%	1,9%	1,9%	1,8%	1,4%
Adjusted benefit per hm³	1 077 533	1 062 963	1 048 526	1 028 924	1 009 795	991 120	977 625
Benefits of water treatment	563 440 877	555 822 046	548 273 180	549 290 259	550 135 055	550 813 986	543 314 244

Costs

WATER QUALITY

	2002	2003	2004	2005	2006	2007	2008	2009
Investment costs								
37 projects (15 000 m ³ and more) (2001 PLN)	486 800 000	307 493 333	314 360 000	226 780 000	133 166 667	58 333 333	195 133 333	145 566 667
Industrial plants (2001 PLN)	64 426 667	62 806 667	84 973 333	75 726 667	26 166 667	-	-	-
37 projects (15 000 m³ and more, including industrial) (2001 PLN)	551 226 667	370 300 000	399 333 333	302 506 667	159 333 333	58 333 333	195 133 333	145 566 667
Operating costs - Canadian plants								
	Small plant	Medium plant	Large plant					
Daily volume (m ³)	15 000	57 500	100 000					
Unit O&M cost per m ³	0,115 \$	0,108 \$	0,100 \$					
Unit salaries	0,040 \$	0,030 \$	0,020 \$					
Unit O&M costs - other	0,075 \$	0,078 \$	0,080 \$					
Total O&M costs	629 625 \$	2 256 156 \$	3 650 000 \$					
Salaries	219 000 \$	629 625 \$	730 000 \$					
O&M Other costs	410 625 \$	1 626 531 \$	2 920 000 \$					
Number of employees per plant	3	8	12					
Total investment cost (per m ³)	500,00 \$	437,50 \$	375,00 \$					
Total investment cost	7 500 000 \$	25 156 250 \$	37 500 000 \$					
Annual O&M / Total investment	8,40%	8,97%	9,73%					
Annual non-salary O&M / Total investment	5,48%	6,47%	7,79%					
O&M (2001 PLN)	31 201 600	53 929 520	75 895 940	91 612 160	98 522 193	102 870 560	115 466 593	124 196 427
Employment	889,1	1 320,7	1 711,3	1 878,4	1 920,4	1 944,4	1 981,6	2 004,4
Salaries (2001 PLN)	21 374 531	31 748 795	41 138 857	45 155 958	46 165 642	46 742 604	47 636 896	48 185 010

WATER QUALITY

	2010	2011	2012	2013	2014	2015	2016	Total
Investment costs								
37 projects (15 000 m3 and more) (2001 PLN)	145 566 667	-	-	216 400 000	216 400 000	216 400 000	-	2 662 400 000
Industrial plants (2001 PLN)	-	-	-	-	-	-	-	314 100 000
37 projects (15 000 m3 and more, including industrial) (2001 PLN)	145 566 667	-	-	216 400 000	216 400 000	216 400 000	-	2 976 500 000
Operating costs - Canadian plants								
Daily volume (m ³)								
Unit O&M cost per m ³								
Unit salaries								
Unit O&M costs - other								
Total O&M costs								
Salaries								
O&M Other costs								
Number of employees per plant								
Total investment cost (per m ³)								
Total investment cost								
Annual O&M / Total investment								
Annual non-salary O&M / Total investment								
O&M (2001 PLN)	132 926 260	132 926 260	132 926 260	139 250 860	145 575 460	151 900 060	151 900 060	
Employment	2 027,2	2 027,2	2 027,2	2 045,2	2 063,2	2 081,2	2 081,2	
Salaries (2001 PLN)	48 733 124	48 733 124	48 733 124	49 165 846	49 598 568	50 031 289	50 031 289	

WATER QUALITY

Cost-Benefit Analysis

	2002	2003	2004	2005	2006	2007	2008	2009
Benefits of water treatment	301 537 213	419 838 452	509 125 051	545 752 275	550 955 131	552 686 799	561 426 418	562 522 424
Investment costs	551 226 667	370 300 000	399 333 333	302 506 667	159 333 333	58 333 333	195 133 333	145 566 667
O&M (excluding salaries)	31 201 600	53 929 520	75 895 940	91 612 160	98 522 193	102 870 560	115 466 593	124 196 427
Net benefits	(280 891 054)	(4 391 068)	33 895 777	151 633 449	293 099 604	391 482 905	250 826 491	292 759 331
Discount rate	11,82%	11,82%	11,82%	11,82%	11,82%	11,82%	11,82%	11,82%
Discount factor	1,118	1,250	1,398	1,563	1,748	1,955	2,186	2,444
Discounted benefits	269 669 506	335 787 140	364 164 190	349 107 556	315 188 853	282 764 336	256 879 418	230 179 810
Discounted costs	520 874 825	339 299 119	339 919 403	252 110 466	147 513 260	82 474 761	142 114 311	110 384 964
Net discounted benefits	(251 205 319)	(3 511 980)	24 244 787	96 997 090	167 675 593	200 289 574	114 765 107	119 794 846
Net present value (NPV)	1 039 517 003							
Benefit-cost ratio	1,43							
Intangible benefits	Decreased soil, surface and ground water pollution							
	Decreased costs of water treatment							
	Increased opportunities to use the resource							
Intangible costs	Environmental impacts of construction activities, of waste management (excluding sludge)							

FORESTRY

Benefits

Yield of Polish forests

Price of sold wood (2001 PLN)	120,00
Yearly forest productivity, m3 per ha	6
Unit production (per ha)	720,00

Number of ha restored, total

Reforestation	15 000
Reconstruction of forest populations	8 750

Completion rate of investments

	2002	2003	2004	2005	2006	2007	2008	2009
Reforestation	3,5%	6,9%	10,4%	13,9%	17,3%	27,3%	37,2%	47,1%
Reconstruction of forest populations	14,6%	29,3%	43,9%	58,6%	73,2%	75,9%	78,6%	81,2%

Number of ha restored per year

Reforestation	520	1 041	1 561	2 081	2 601	4 091	5 580	7 070
Reconstruction of forest populations	1 281	2 562	3 844	5 125	6 406	6 640	6 875	7 109

Benefits of these two sub-components (inferior limit)

Reforestation	374 601	749 203	1 123 804	1 498 406	1 873 007	2 945 455	4 017 902	5 090 350
Reconstruction of forest populations	922 477	1 844 955	2 767 432	3 689 909	4 612 387	4 781 148	4 949 909	5 118 671

Terminal value

Total	1 297 079	2 594 157	3 891 236	5 188 315	6 485 394	7 726 603	8 967 811	10 209 020
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Benefits of CO₂ retention

Number of additional tons	170 000							
Number of additional tons per year	19 406	38 812	58 219	77 625	97 031	97 508	102 061	109 205
Benefit per ton (2001 PLN)	138,19							

Benefits from CO₂ retention	2 681 694	5 363 389	8 045 083	10 726 778	13 408 472	13 474 328	14 103 582	15 090 740
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Terminal value

Total benefits	3 978 773	7 957 546	11 936 320	15 915 093	19 893 866	21 200 931	23 071 393	25 299 760
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FORESTRY

Benefits

Yield of Polish forests

Price of sold wood (2001 PLN)
Yearly forest productivity, m3 per ha
Unit production (per ha)

Number of ha restored, total

Reforestation
Reconstruction of forest populations

Completion rate of investments

Reforestation
Reconstruction of forest populations

Number of ha restored per year

Reforestation
Reconstruction of forest populations

Benefits of these two sub-components (inferior limit)

Reforestation
Reconstruction of forest populations
Terminal value

Benefits of CO₂ retention

Number of additional tons
Number of additional tons per year
Benefit per ton (2001 PLN)

Benefits from CO₂ retention

Terminal value

Total benefits

	2010	2011	2012	2013	2014	2015	2016	
Completion rate of investments								
Reforestation	57,1%	67,0%	73,6%	80,2%	86,8%	93,4%	100,0%	
Reconstruction of forest populations	83,9%	86,6%	89,3%	92,0%	94,6%	97,3%	100,0%	
Number of ha restored per year								
Reforestation	8 559	10 049	11 039	12 029	13 020	14 010	15 000	
Reconstruction of forest populations	7 344	7 578	7 812	8 047	8 281	8 516	8 750	
Benefits of these two sub-components (inferior limit)								
Reforestation	6 162 797	7 235 245	7 948 196	8 661 147	9 374 098	10 087 049	10 800 000	77 941 259
Reconstruction of forest populations	5 287 432	5 456 193	5 624 955	5 793 716	5 962 477	6 131 239	6 300 000	69 242 900
Terminal value							113 299 245	113 299 245
Total	11 450 229	12 691 438	13 573 150	14 454 863	15 336 575	16 218 288	130 399 245	260 483 404
Benefits of CO ₂ retention								
Number of additional tons								
Number of additional tons per year	118 096	128 222	136 165	144 351	152 740	161 299	170 000	
Benefit per ton (2001 PLN)								
Benefits from CO₂ retention	16 319 412	17 718 737	18 816 255	19 947 553	21 106 805	22 289 452	23 491 875	222 584 157
Terminal value							198 791 911	198 791 911
Total benefits	27 769 641	30 410 175	32 389 406	34 402 416	36 443 381	38 507 740	352 683 032	681 859 473

FORESTRY

Costs

	2002	2003	2004	2005	2006	2007	2008	2009
Investment costs								
Reforestation	2 835 077	2 835 077	2 835 077	2 835 077	2 835 077	8 116 552	8 116 552	8 116 552
Reconstruction of forest populations	11 081 189	11 081 189	11 081 189	11 081 189	11 081 189	2 027 233	2 027 233	2 027 233
Retention reservoirs	2 446 397	2 446 397	2 446 397	2 446 397	2 446 397	2 514 988	2 514 988	2 514 988
Drainage and irrigation	4 526 978	4 526 978	4 526 978	4 526 978	4 526 978	4 526 978	4 526 978	4 526 978
Protection against erosion	2 286 353	2 286 353	2 286 353	2 286 353	2 286 353	2 286 353	2 286 353	2 286 353
Research and monitoring	777 360	777 360	777 360	777 360	777 360	411 543	411 543	411 543
Total	23 953 353	23 953 353	23 953 353	23 953 353	23 953 353	19 883 646	19 883 646	19 883 646
Share of salaries in investment costs								
Reforestation	1 984 554	1 984 554	1 984 554	1 984 554	1 984 554	5 681 586	5 681 586	5 681 586
Reconstruction of forest populations	7 756 832	7 756 832	7 756 832	7 756 832	7 756 832	1 419 063	1 419 063	1 419 063
Retention reservoirs	489 279	489 279	489 279	489 279	489 279	502 998	502 998	502 998
Drainage and irrigation	905 396	905 396	905 396	905 396	905 396	905 396	905 396	905 396
Protection against erosion	1 143 176	1 143 176	1 143 176	1 143 176	1 143 176	1 143 176	1 143 176	1 143 176
Research and monitoring	310 944	310 944	310 944	310 944	310 944	164 617	164 617	164 617
Total	12 590 181	12 590 181	12 590 181	12 590 181	12 590 181	9 816 836	9 816 836	9 816 836
Share paid to previously unemployed	12,99%							
Investment costs adjusted for social benefit of job creation								
Reforestation	2 577 206	2 577 206	2 577 206	2 577 206	2 577 206	7 378 293	7 378 293	7 378 293
Reconstruction of forest populations	10 073 275	10 073 275	10 073 275	10 073 275	10 073 275	1 842 841	1 842 841	1 842 841
Retention reservoirs	2 382 821	2 382 821	2 382 821	2 382 821	2 382 821	2 449 629	2 449 629	2 449 629
Drainage and irrigation	4 409 332	4 409 332	4 409 332	4 409 332	4 409 332	4 409 332	4 409 332	4 409 332
Protection against erosion	2 137 810	2 137 810	2 137 810	2 137 810	2 137 810	2 137 810	2 137 810	2 137 810
Research and monitoring	736 956	736 956	736 956	736 956	736 956	390 153	390 153	390 153
Total	22 317 399	22 317 399	22 317 399	22 317 399	22 317 399	18 608 057	18 608 057	18 608 057
Operating costs - parameters								
O&M costs - 2001 CAD per m ³	20,00							
Exchange rate	2,60							
O&M costs - 2001 PLN per m ³	52,09							
of which: salaries	26,04							
O&M costs excluding salaries	26,04							
Annual amount of m ³ harvested	10 809	21 618	32 427	43 236	54 045	64 388	74 732	85 075
O&M costs excluding salaries	281 494	562 988	844 482	1 125 976	1 407 469	1 676 838	1 946 207	2 215 576

FORESTRY

Costs

	2010	2011	2012	2013	2014	2015	2016	Total
Investment costs								
Reforestation	8 116 552	8 116 552	5 395 792	5 395 792	5 395 792	5 395 792	5 395 792	81 737 103
Reconstruction of forest populations	2 027 233	2 027 233	2 027 233	2 027 233	2 027 233	2 027 233	2 027 233	75 678 269
Retention reservoirs	2 514 988	2 514 988	1 211 767	1 211 767	1 211 767	1 211 767	1 211 767	30 865 759
Drainage and irrigation	4 526 978	4 526 978	4 526 978	4 526 978	4 526 978	4 526 978	4 526 978	67 904 671
Protection against erosion	2 286 353	2 286 353	2 286 353	2 286 353	2 286 353	2 286 353	2 286 353	34 295 288
Research and monitoring	411 543	411 543	411 543	411 543	411 543	411 543	411 543	8 002 234
Total	19 883 646	19 883 646	15 859 665	15 859 665	15 859 665	15 859 665	15 859 665	298 483 325
Share of salaries in investment costs								
Reforestation	5 681 586	5 681 586	3 777 054	3 777 054	3 777 054	3 777 054	3 777 054	57 215 972
Reconstruction of forest populations	1 419 063	1 419 063	1 419 063	1 419 063	1 419 063	1 419 063	1 419 063	52 974 788
Retention reservoirs	502 998	502 998	242 353	242 353	242 353	242 353	242 353	6 173 152
Drainage and irrigation	905 396	905 396	905 396	905 396	905 396	905 396	905 396	13 580 934
Protection against erosion	1 143 176	1 143 176	1 143 176	1 143 176	1 143 176	1 143 176	1 143 176	17 147 644
Research and monitoring	164 617	164 617	164 617	164 617	164 617	164 617	164 617	3 200 894
Total	9 816 836	9 816 836	7 651 660	7 651 660	7 651 660	7 651 660	7 651 660	150 293 384
Share paid to previously unemployed								
Investment costs adjusted for social benefit of job creation								
Reforestation	7 378 293	7 378 293	4 905 006	4 905 006	4 905 006	4 905 006	4 905 006	74 302 524
Reconstruction of forest populations	1 842 841	1 842 841	1 842 841	1 842 841	1 842 841	1 842 841	1 842 841	68 794 785
Retention reservoirs	2 449 629	2 449 629	1 180 276	1 180 276	1 180 276	1 180 276	1 180 276	30 063 627
Drainage and irrigation	4 409 332	4 409 332	4 409 332	4 409 332	4 409 332	4 409 332	4 409 332	66 139 979
Protection against erosion	2 137 810	2 137 810	2 137 810	2 137 810	2 137 810	2 137 810	2 137 810	32 067 143
Research and monitoring	390 153	390 153	390 153	390 153	390 153	390 153	390 153	7 586 313
Total	18 608 057	18 608 057	14 865 417	14 865 417	14 865 417	14 865 417	14 865 417	278 954 371
Operating costs - parameters								
O&M costs - 2001 CAD per m ³								
Exchange rate								
O&M costs - 2001 PLN per m ³								
of which: salaries								
O&M costs excluding salaries								
Annual amount of m ³ harvested	95 419	105 762	113 110	120 457	127 805	135 152	142 500	
O&M costs excluding salaries	2 484 945	2 754 314	2 945 664	3 137 015	3 328 365	3 519 716	3 711 066	

ENVIRONMENTAL PROTECTION

Cost-benefit analysis

	2002	2003	2004	2005	2006	2007	2008	2009
Investment costs	28 372 345	28 372 345	35 167 562	15 956 620	15 956 620	12 161 608	12 161 608	12 161 608
O&M (excluding salaries)	-	-	-	-	-	-	-	-
Total costs	28 372 345	28 372 345	35 167 562	15 956 620	15 956 620	12 161 608	12 161 608	12 161 608
Discount rate	11,82%	11,82%	11,82%	11,82%	11,82%	11,82%	11,82%	11,82%
Discount factor	1,118	1,250	1,398	1,563	1,748	1,955	2,186	2,444
Discounted costs	25 373 838	22 692 225	25 154 462	10 207 152	9 128 418	6 222 094	5 564 517	4 976 436
Present value of costs	129 473 316							

Intangible benefits

- Increased knowledge base, planning and management capabilities
- Improved health and biodiversity of ecosystems
- Increased international visibility and credibility on environmental issues

WATERWAY TRANSPORTATION

Benefits

Forecast of tonnage growth in inland transportation

	2002	2003	2004	2005	2006	2007	2008	2009
Base-case scenario	8 500	8 281	8 067	7 859	7 656	7 458	7 266	7 079
Navigation days, base-case scenario	100,0							
Navigation days (upon completion of investments)	258,3							
Completion percentage of investments	6,3%	13,7%	27,3%	39,7%	52,0%	64,4%	74,0%	82,2%
Cumulative increase in days	10,0	21,6	43,1	62,9	82,4	102,0	117,1	130,2
Total days	110,0	121,6	143,1	162,9	182,4	202,0	217,1	230,2
Corresponding increase in tonnage	10,0%	21,6%	43,1%	62,9%	82,4%	102,0%	117,1%	130,2%
Diverted volume	852	1 790	3 481	4 943	6 308	7 609	8 511	9 214
Induced volume	561	604	693	768	838	904	947	978
Total volume with Programme (000 tkm)	9 913	10 675	12 241	13 570	14 802	15 972	16 723	17 270
Increase due to Programme	1 413	2 394	4 174	5 711	7 146	8 513	9 457	10 191
Conversion in tons-km								
Average km per ton	122,6	128,2	133,9	140,0	146,3	152,8	159,7	166,9
Base-case scenario (000 tkm)	1 042 472	1 061 272	1 080 412	1 099 896	1 119 732	1 139 926	1 160 484	1 181 412
Total volume with Programme (000 tkm)	1 215 784	1 368 151	1 639 380	1 899 250	2 164 822	2 441 089	2 670 956	2 882 306
Increase due to Programme (000 tkm)	173 312	306 879	558 968	799 354	1 045 089	1 301 163	1 510 473	1 700 894

Value per additional ton-km

Source: ODRATRANS	Revenues (PLN)	Price index	Revenues (1998 PLN)	Tons	Tons-km	1998 PLN / t	1998 PLN / tkm
1996	43 511 926	1,135	49 388 212	4 397 936	434 168 082	11,23	0,114
1997	47 193 079	1,050	49 552 733	4 309 301	405 530 376	11,50	0,122
1998	53 970 476	1,000	53 970 476	4 274 224	494 616 839	12,63	0,109
1999	66 505 649	0,932	61 981 033	4 768 224	529 527 391	13,00	0,117
2000	69 794 667	0,869	60 620 958	5 270 527	600 602 300	11,50	0,101

From this information, the regressions of the prices on their respective quantities were performed. The resulting demand function was significant for tkm (R²=64,6 %, t=-2,339)

Origin	0,154
Coefficient	-8,315E-11

Forecast of prices (2001 PLN)

	2002	2003	2004	2005	2006	2007	2008	2009
Price decrease due to Programme	0,0170	0,0302	0,0549	0,0785	0,1027	0,1278	0,1484	0,1671
Annual decrease in price	0,0170	0,0131	0,0248	0,0236	0,0241	0,0252	0,0206	0,0187
Resulting benefit (decrease in price * additional quantity)	20 703 070	17 954 834	40 605 314	44 857 915	52 268 460	61 418 227	54 929 413	53 926 882
Terminal value								
Total benefits	20 703 070	17 954 834	40 605 314	44 857 915	52 268 460	61 418 227	54 929 413	53 926 882

WATERWAY TRANSPORTATION

Benefits

Forecast of tonnage growth in inland transportation

	2010	2011	2012	2013	2014	2015	2016	Total
Base-case scenario	6 896	6 718	6 545	6 376	6 211	6 051	5 895	106 856
Navigation days, base-case scenario								
Navigation days (upon completion of investments)								
Completion percentage of investments	85,2%	88,2%	90,9%	93,6%	95,9%	98,0%	100,0%	
Cumulative increase in days	134,9	139,7	143,9	148,1	151,8	155,1	158,3	
Total days	234,9	239,7	243,9	248,1	251,8	255,1	258,3	
Corresponding increase in tonnage	134,9%	139,7%	143,9%	148,1%	151,8%	155,1%	158,3%	
Diverted volume	9 304	9 385	9 418	9 445	9 429	9 384	9 331	108 404
Induced volume	972	966	958	949	938	926	914	12 916
Total volume with Programme (000 tkm)	17 172	17 069	16 921	16 770	16 578	16 361	16 140	228 176
Increase due to Programme	10 276	10 351	10 376	10 394	10 367	10 310	10 245	121 320
Conversion in tons-km								
Average km per ton	174,4	182,3	190,5	199,0	208,0	217,3	227,1	
Base-case scenario (000 tkm)	1 202 718	1 224 409	1 246 490	1 268 970	1 291 855	1 315 153	1 338 871	
Total volume with Programme (000 tkm)	2 994 958	3 110 981	3 222 729	3 337 750	3 448 113	3 556 106	3 665 801	4,2%
Increase due to Programme (000 tkm)	1 792 240	1 886 573	1 976 239	2 068 780	2 156 258	2 240 954	2 326 930	5,4%

Value per additional ton-km

Source: ODRATRANS

1996
1997
1998
1999
2000

From this information, the regressions of the prices on their respective qua

Origin
Coefficient

Forecast of prices (2001 PLN)

Price decrease due to Programme	0,1761	0,1854	0,1942	0,2033	0,2119	0,2202	0,2286	
Annual decrease in price	0,0090	0,0093	0,0088	0,0091	0,0086	0,0083	0,0084	
Resulting benefit (decrease in price * additional quantity)	26 879 988	28 834 214	28 392 457	30 348 509	29 636 697	29 592 537	30 966 938	551 315 455
Terminal value							379 937 072	
Total benefits	26 879 988	28 834 214	28 392 457	30 348 509	29 636 697	29 592 537	410 904 010	

WATERWAY TRANSPORTATION

Costs

	2002	2003	2004	2005	2006	2007	2008	2009
Investment costs (initial scenario)								
Water step Malzyce	30 309 174	35 212 997	47 265 768	41 593 876	41 357 547	44 288 025	29 541 105	23 632 884
Weir Lipki	1 050 482	1 063 480	590 822	-	-	-	-	-
Weir Chroscice	-	-	590 822	590 822	708 987	590 822	590 822	-
Weir Nysa outlet	-	-	-	-	-	-	590 822	590 822
Weir Olawa	-	-	-	-	-	-	-	-
Modernization of Gliwice Channel	-	-	9 453 154	9 453 154	9 453 154	8 271 509	8 271 509	8 271 509
Modernization of channelised Oder	-	-	9 453 154	10 162 140	9 453 154	8 271 509	8 271 509	8 271 509
Engineering of environmental mitigation measures	940 790	1 088 294	2 020 612	1 854 000	1 829 185	1 842 656	1 417 973	1 223 002
Total	32 300 445	37 364 771	69 374 332	63 653 992	62 802 027	63 264 521	48 683 740	41 989 726
Operating costs - parameters								
			Number of employees					
Operating costs - mechanical (% inv.)	4,0%							
Operating costs - structural (% inv.)	1,5%							
Malzyce - % mechanical (hyp.)	45%		15,0					
Malzyce - % structural (hyp.)	55%							
Weirs - % mechanical	50%		7,5					
Weirs - % structural	50%							
Locks - % mechanical	40%		7,5					
Locks - % structural	60%							
O&M costs (= % completion * operating costs)								
Water step Malzyce	795 616	1 719 957	2 960 683	4 052 523	5 138 158	6 300 719	7 076 173	7 696 536
Weir Lipki	28 888	58 134	74 382	74 382	74 382	74 382	74 382	74 382
Weir Chroscice	-	-	16 248	32 495	51 992	68 240	84 488	84 488
Weir Nysa outlet	-	-	-	-	-	-	16 248	32 495
Weir Olawa	-	-	-	-	-	-	-	-
Modernization of Gliwice Channel	-	-	141 797	141 797	141 797	124 073	124 073	124 073
Modernization of channelised Oder	-	-	141 797	152 432	141 797	124 073	124 073	124 073
Total	824 504	1 778 091	3 334 907	4 453 629	5 548 127	6 691 486	7 499 435	8 136 046
Of which: salary costs								
Water step Malzyce	37 277	80 584	138 715	189 871	240 735	295 204	331 536	360 601
Weir Lipki	7 003	14 092	18 030	18 030	18 030	18 030	18 030	18 030
Weir Chroscice	-	-	3 467	6 935	11 095	14 563	18 030	18 030
Weir Nysa outlet	-	-	-	-	-	-	2 576	5 151
Weir Olawa	-	-	-	-	-	-	-	-
Modernization of Gliwice Channel	-	-	-	-	-	-	-	-
Modernization of channelised Oder	-	-	-	-	-	-	-	-
Total	44 279	94 676	160 213	214 835	269 861	327 797	370 172	401 813
O&M Costs excluding salaries	780 225	1 683 415	3 174 695	4 238 794	5 278 266	6 363 689	7 129 263	7 734 233

WATERWAY TRANSPORTATION

Costs

Investment costs (initial scenario)	2010	2011	2012	2013	2014	2015	2016	Total
Water step Malzyce								293 201 375
Weir Lipki	-	-	-	-	-	-	-	2 704 784
Weir Chroscice	-	-	-	-	-	-	-	3 072 275
Weir Nysa outlet	708 987	768 069	768 069	708 987	-	-	-	4 135 755
Weir Olawa	-	-	590 822	708 987	827 151	827 151	590 822	3 544 933
Modernization of Gliwice Channel	7 089 865	7 089 865	5 908 221	5 908 221	4 726 577	4 726 577	4 726 577	93 349 892
Modernization of channelised Oder	7 089 865	7 089 865	5 908 221	5 908 221	5 908 221	4 726 577	4 726 577	95 240 522
Engineering of environmental mitigation measures	446 661	448 434	395 260	397 032	343 858	308 409	301 319	14 857 486
Total	15 335 378	15 396 233	13 570 593	13 631 447	11 805 807	10 588 714	10 345 295	510 107 021
Operating costs - parameters								
Operating costs - mechanical (% inv.)								
Operating costs - structural (% inv.)								
Malzyce - % mechanical (hyp.)								
Malzyce - % structural (hyp.)								
Weirs - % mechanical								
Weirs - % structural								
Locks - % mechanical								
Locks - % structural								
O&M costs (= % completion * operating costs)								
Water step Malzyce	7 696 536	7 696 536	7 696 536	7 696 536	7 696 536	7 696 536	7 696 536	
Weir Lipki	74 382	74 382	74 382	74 382	74 382	74 382	74 382	
Weir Chroscice	84 488	84 488	84 488	84 488	84 488	84 488	84 488	
Weir Nysa outlet	51 992	73 114	94 236	113 733	113 733	113 733	113 733	
Weir Olawa	-	-	16 248	35 745	58 491	81 238	97 486	
Modernization of Gliwice Channel	106 348	106 348	88 623	88 623	70 899	70 899	70 899	
Modernization of channelised Oder	106 348	106 348	88 623	88 623	88 623	70 899	70 899	
Total	8 120 094	8 141 215	8 143 136	8 182 130	8 187 152	8 192 174	8 208 421	
Of which: salary costs								
Water step Malzyce	360 601	360 601	360 601	360 601	360 601	360 601	360 601	
Weir Lipki	18 030	18 030	18 030	18 030	18 030	18 030	18 030	
Weir Chroscice	18 030	18 030	18 030	18 030	18 030	18 030	18 030	
Weir Nysa outlet	8 242	11 591	14 939	18 030	18 030	18 030	18 030	
Weir Olawa	-	-	3 005	6 611	10 818	15 025	18 030	
Modernization of Gliwice Channel	-	-	-	-	-	-	-	
Modernization of channelised Oder	-	-	-	-	-	-	-	
Total	404 904	408 252	414 606	421 303	425 510	429 717	432 722	
O&M Costs excluding salaries	7 715 190	7 732 963	7 728 530	7 760 827	7 761 642	7 762 457	7 775 700	

PARAMETERS

Estimation of the discount rate

A. Estimation of risk-free interest rate (real terms)

	Real rate (%)	Weight	Weighted rate
1997	2,93%	10%	0,29%
1998	5,94%	20%	1,19%
1999	3,28%	30%	0,98%
2000	5,13%	40%	2,05%
			4,52%

B. Country risk premium

7,30%

C. Discount rate (A + B)

11,82%

Deflators for conversion of investment values into 1998 PLN

	1998	1999	2000	2001
Price deflators	1,000	1,080	1,129	1,182

ECONOMICS

	Years							Growth rates						
	1988	1990	1995	1996	1997	1998	1999	2000	% of total	1990-1995	1995-1999	Other	Period	Chosen
GDP (current PLN)			308 103,7	387 826,6	472 350,4	553 560,1	617 040,4				19,0%			
Gross value added			268 289,1	336 853,5	412 870,4	485 177,0	535 701,2		100,0%		18,9%			
Agriculture, fisheries, forestry			18 428,4	21 497,4	22 611,2	22 930,9	20 150,3		3,8%		2,3%			
Industry			84 961,5	101 283,2	121 025,2	133 962,9	148 180,1		27,7%		14,9%			
Mining and quarrying			11 100,5	12 759,4	14 631,1	13 897,0	14 309,1		2,7%		6,6%			
Manufacturing			63 322,1	75 787,8	92 321,3	104 339,5	114 134,7		21,3%		15,9%			
Electricity, gas, water supply			10 538,9	12 736,0	14 072,8	15 726,4	19 736,3		3,7%		17,0%			
Construction			19 505,5	25 048,7	32 769,2	41 988,8	47 584,2		8,9%		25,0%			
Trade and repairs			53 576,0	70 477,3	86 766,9	100 339,1	115 791,3		21,6%		21,2%			
Other production			91 817,7	118 546,9	149 697,9	185 955,3	203 995,3		38,1%		22,1%			
Net taxes (taxes minus subsidies)			39 814,6	50 973,1	59 480,0	68 383,1	81 339,2		15,2%		19,6%			
GDP deflator (prev. year=100)			107,0	106,0	106,8	104,8	104,1				-0,7%			-0,7%
Gross value added			106,7	105,3	106,4	104,7	103,9				-0,7%			-0,7%
Agriculture, fisheries, forestry			110,4	102,4	101,1	105,9	98,0				-2,9%			-2,9%
Industry			110,4	107,6	110,3	104,3	104,6				-1,3%			-1,3%
Mining and quarrying			101,5	104,7	95,7	89,2	102,6				0,3%			0,3%
Manufacturing			113,7	108,8	114,4	107,5	104,4				-2,1%			-2,1%
Electricity, gas, water supply			102,1	103,5	100,6	98,8	108,2				1,5%			1,5%
Construction			105,8	102,8	113,6	109,3	103,7				-0,5%			-0,5%
Trade and repairs			105,0	106,1	108,1	105,0	107,3				0,5%			0,5%
GDP (constant 1998 PLN)			365 540,3	434 080,4	495 023,2	553 560,1	592 738,1				12,8%			12,8%
Gross value added			314 716,6	375 257,5	432 275,3	485 177,0	515 593,1		100,0%		13,1%			13,1%
Agriculture, fisheries, forestry			20 203,9	23 016,2	23 945,3	22 930,9	20 561,5		4,0%		0,4%			0,4%
Industry			105 170,6	116 519,1	126 229,3	133 962,9	141 663,6		27,5%		7,7%			7,7%
Mining and quarrying			9 921,2	10 892,0	13 050,9	13 897,0	13 946,5		2,7%		8,9%			8,9%
Manufacturing			84 726,4	93 203,8	99 245,4	104 339,5	109 324,4		21,2%		6,6%			6,6%
Electricity, gas, water supply			10 841,5	12 658,7	13 903,9	15 726,4	18 240,6		3,5%		13,9%			13,9%
Construction			24 897,1	31 101,7	35 816,7	41 988,8	45 886,4		8,9%		16,5%			16,5%
Trade and repairs			64 520,9	79 995,3	91 105,2	100 339,1	107 913,6		20,9%		13,7%			13,7%
Other production			99 924,2	124 625,3	155 178,8	185 955,3	199 568,0		38,7%		18,9%			18,9%
Net taxes (taxes minus subsidies)			50 823,7	58 822,9	62 747,9	68 383,1	77 145,1		15,0%		11,0%			11,0%
Major price indexes (previous year = 100)														
GDP Deflator			107,0	106,0	106,8	104,8	104,1				-0,7%			-0,7%
Gross disposable income			106,0	104,8	107,1	104,6					-0,4%	1995-1998		-0,4%
Inflation rate (households of employees and self-employed)			128,0	119,9	115,1	111,2	107,4				-4,3%			-4,3%
In %			28,0%	19,9%	15,1%	11,2%	7,4%	8,5%						
Average pay increase			131,6	126,5	121,9	115,7	111,1				-4,1%			-4,1%
Real annual pay increase			2,8%	5,5%	5,9%	4,0%	3,4%				5,2%			5,2%
Personal income (current PLN)														
Gross income (excluding non-earners)			194 404	242 712	297 562	349 154					21,6%	1995-1998		
% of GDP			63,1%	62,6%	63,0%	63,1%								
Average income per worker			11 433	14 274	17 338	20 345					21,2%	1995-1998		
Income tax			20 927	25 636	30 768	36 999					20,9%	1995-1998		
Net transfers to "earning" individuals			(1 980)	(770)	315	1 070					-181,4%	1995-1998		
Total fiscal burden of "earning" individuals			22 908	26 406	30 453	35 930					16,2%	1995-1998		
Average rate of taxation			11,8%	10,9%	10,2%	10,3%								
Personal income (constant PLN, 1998=100)														
Gross income (excluding non-earners)			228 238	271 902	311 250	349 154					15,2%	1995-1998		15,2%
Average income per worker			13 423	15 990	18 136	20 345					14,9%	1995-1998		14,9%
Income tax			24 570	28 719	32 184	36 999					14,6%	1995-1998		
Net transfers to "earning" individuals			(2 325)	(862)	329	1 070					-177,2%	1995-1998		
Total fiscal burden of "earning" individuals			26 895	29 581	31 854	35 930					10,1%	1995-1998		10,1%

ECONOMICS

	Years							Growth rates						
	1988	1990	1995	1996	1997	1998	1999	2000	% of total	1990-1995	1995-1999	Other	Period	Chosen
Labour market														
Population 15 years and older			29 106 000			30 061 000	30 388 000		100,0%		1,1%			1,1%
Active population			17 004 000			17 162 000	17 214 000		56,6%		0,3%			0,3%
Employed			14 771 000			15 335 000	14 573 000		48,0%		-0,3%			-0,3%
Unemployed			2 233 000			1 827 000	2 641 000		8,7%		4,3%			4,3%
Inactive			12 102 000			12 899 000	13 174 000		43,4%		2,1%			2,1%
Activity rate			58,4%			57,1%	56,6%				-0,8%			-0,8%
Employment rate			86,9%			89,4%	84,7%				-0,6%			-0,6%
Unemployment rate			13,1%			10,6%	15,3%				4,0%			4,0%
Population based on balances		38 119 000	38 588 000			38 666 000	38 654 000		100,0%	0,2%	0,0%			0,0%
Urban areas		23 536 000	23 874 000			23 931 000	23 908 000		61,9%	0,3%	0,0%			0,0%
Rural areas		14 583 000	14 714 000			14 735 000	14 746 000		38,1%	0,2%	0,1%			0,1%
% urban		61,7%	61,9%			61,9%	61,9%			0,0%	0,0%			0,0%
% rural		38,3%	38,1%			38,1%	38,1%			-0,1%	0,0%			0,0%
Interest rates														
Average interest rate on personal deposits					18,23%	17,41%	10,73%	13,67%						
Average interest rate on commercial deposits					17,83%	16,88%	10,48%	13,45%						
Average interest rate on deposits					18,03%	17,14%	10,68%	13,63%						
Real interest rate (nominal rate minus inflation)					2,93%	5,94%	3,28%	5,13%						
State budget			91 169,7			139 751,5	138 401,2		100,0%	11,0%				11,0%
Allocations and subsidies for self-government			31 657,1			50 928,0	72 878,5		52,7%	23,2%				23,2%
Benefits to individuals			7 875,0			12 657,8	11 861,1		8,6%	10,8%				10,8%
Budget expenditures			31 134,8			46 216,9	25 809,5		18,6%	-4,6%				-4,6%
of which: Wages and salaries			14 788,5			20 044,5	11 001,4		7,9%	-7,1%				-7,1%
of which: Social security, Labour Fund			5 122,3			6 060,9	1 671,5		1,2%	-24,4%				-24,4%
Settlements with banks			2 016,0			2 601,6	1 685,6		1,2%	-4,4%				-4,4%
Debt service			14 359,7			17 911,1	18 777,8		13,6%	6,9%				6,9%
Investment expenditure			4 018,6			9 348,1	7 395,5		5,3%	16,5%				16,5%
Other property expenditure			2 124,5			2 689,6	1 678,8		1,2%	-5,7%				-5,7%
Self-government						65 845,9			100,0%					
Allocations						6 243,0			9,5%					
Benefits to individuals						4 988,7			7,6%					
Budget expenditures						41 580,2			63,1%					
of which: Wages and salaries						22 363,6			34,0%					
of which: Social security, Labour Fund						4 332,0			6,6%					
Settlements with banks						-			0,0%					
Debt service						-			0,0%					
Investment expenditure						12 306,8			18,7%					
Other property expenditure						727,2			1,1%					
Share of wages and salaries in budget expenditure														
State government			47,5%			43,4%	42,6%							
Self-government							53,8%							
Total government sector							49,5%							
Wages in self-government (gminas, powiats, voivoydships)														
Total average employment in thousand							142 754		100,0%					
employed in intervention and public works							14 581		10,2%					
other employees							128 173		89,8%					
Total average monthly gross wages in PLN 1998							1 836,2							
employed in intervention and public works							609,8							
other employees							1 975,7							

ECONOMICS

	Years							Growth rates						
	1988	1990	1995	1996	1997	1998	1999	2000	% of total	1990-1995	1995-1999	Other	Period	Chosen
Consolidated expenditure of the government (current prices)			138 431		209 194	236 687			100,0%			19,6%	1995-1998	19,6%
General public services			7 286		11 241	13 037			5,5%			21,4%	1995-1998	21,4%
Housing and community amenities			11 734		18 393	19 419			8,2%			18,3%	1995-1998	18,3%
Recreation, cultural and religious			2 320		4 174	4 896			2,1%			28,3%	1995-1998	28,3%
Fuel and energy			1 149		1 007	1 006			0,4%			-4,3%	1995-1998	-4,3%
Agriculture, forestry, fishing and hunting			3 104		4 445	4 821			2,0%			15,8%	1995-1998	15,8%
Transport and communication			3 534		6 383	8 199			3,5%			32,4%	1995-1998	32,4%
All others			109 304		163 551	185 309			78,3%			19,2%	1995-1998	19,2%
Consolidated expenditure of the government (1998 prices)			164 237		219 235	236 687								
General public services			8 644		11 781	13 037								
Housing and community amenities			13 921		19 276	19 419								
Recreation, cultural and religious			2 752		4 374	4 896								
Fuel and energy			1 363		1 055	1 006								
Agriculture, forestry, fishing and hunting			3 683		4 658	4 821								
Transport and communication			4 193		6 689	8 199								
All others			129 680		171 401	185 309								
Investment outlays (public and private, current prices)			46 781			112 323	126 313		100,0%		28,2%			28,2%
Buildings and structures			22 560			55 468	64 000		50,7%		29,8%			29,8%
Machinery			17 442			43 084	46 867		37,1%		28,0%			28,0%
Transport equipment			4 500			10 501	12 236		9,7%		28,4%			28,4%
Price indexes (previous year = 100)			117,5	119,2	122,2	115,7	106,4							
Buildings and structures			107,1	112,8	122,1	112,7	106,2							
Machinery			129,4	124,8	123,2	121,5	105,7							
Transport equipment			133,2	128,5	123,3	110,4	114,4							
Investment outlays (public and private, 1998 prices)			78 840			112 323	118 715		100,0%		10,8%			10,8%
Buildings and structures			35 018			55 468	60 264		50,8%		14,5%			14,5%
Machinery			32 583			43 084	44 339		37,3%		8,0%			8,0%
Transport equipment			7 871			10 501	10 696		9,0%		8,0%			8,0%
FLOOD PROTECTION														
Land Use (thousands of ha)	31 269						31 269	31 269	100,0%		0,0%		1990-2000	0,0%
Agricultural land	18 784						18 570	18 537	59,3%		-0,1%		1990-2000	-0,1%
Forests and wooded land	8 884						9 076	9 094	29,1%		0,2%		1990-2000	0,2%
Waters	826						832	833	2,7%		0,1%		1990-2000	0,1%
Minerals	42						40	38	0,1%		-1,0%		1990-2000	-1,0%
Land - transport	990						964	959	3,1%		-0,3%		1990-2000	-0,3%
Land - residential	956						1 036	1 050	3,4%		0,9%		1990-2000	0,9%
Wasteland	504						501	499	1,6%		-0,1%		1990-2000	-0,1%
Other, not classified	283						250	259	0,8%		-0,9%		1990-2000	-0,9%
WATER TREATMENT														
Water treatment in hm3 (total)	11 368,4	9 980,9				9 843,5	9 492,2		100,0%	-2,6%	-1,2%			-1,2%
discharged directly by plants	9 054,5	8 128,5				8 188,0	7 902,3		83,3%	-2,1%	-0,7%			-0,7%
discharged through sewerage systems	2 313,9	1 852,4				1 655,5	1 589,9		16,7%	-4,4%	-3,7%			-3,7%
of which: waste water requiring treatment	4 114,7	3 019,6				2 801,9	2 664,8		28,1%	-6,0%	-3,1%			-3,1%
treated	2 772,1	2 319,4				2 377,7	2 288,4		24,1%	-3,5%	-0,3%			-0,3%
discharged by plants	1 381,1	1 061,8				1 066,3	995,7		10,5%	-5,1%	-1,6%			-1,6%
discharged from sewerage system	1 391,0	1 257,6				1 311,4	1 292,7		13,6%	-2,0%	0,7%			0,7%
mechanically	1 458,5	917,3				926,6	850,1		9,0%	-8,9%	-1,9%			-1,9%
chemically	217,8	188,0				142,5	134,6		1,4%	-2,9%	-8,0%			-8,0%
biologically	1 095,8	1 133,0				980,3	919,6		9,7%	0,7%	-5,1%			-5,1%
with increased biogene removal	-	81,1				328,2	384,2		4,0%		47,5%			47,5%
untreated	1 342,6	700,2				424,2	376,4		4,0%	-12,2%	-14,4%			-14,4%
% disch. m ³ req. treatment, meeting EEC req.	26,6%	40,2%				46,7%	48,9%			8,6%	5,0%			5,0%
% treated m ³ meeting EEC req.	39,5%	52,3%				55,0%	57,0%			5,8%	2,1%			2,1%

ECONOMICS

	Years							Growth rates						
	1988	1990	1995	1996	1997	1998	1999	2000	% of total	1990-1995	1995-1999	Other	Period	Chosen
Industrial waste water treatment plants														
Number								1 675	100,0%					
<i>Mechanical</i>								626	37,4%					
<i>Chemical</i>								130	7,8%					
<i>Biological</i>								892	53,3%					
<i>With increased biogene removal</i>								27	1,6%					
Capacity in dam³/24h								7 700	100,0%					
<i>Mechanical</i>								5 134	66,7%					
<i>Chemical</i>								1 201	15,6%					
<i>Biological</i>								1 218	15,8%					
<i>With increased biogene removal</i>								147	1,9%					
Municipal waste water treatment plants														
Number								2 209	100,0%					
<i>Mechanical</i>								140	6,3%					
<i>Chemical</i>								17	0,8%					
<i>Biological</i>								1 727	78,2%					
<i>With increased biogene removal</i>								325	14,7%					
Capacity in dam³/24h								9 383	100,0%					
<i>Mechanical</i>								1 710	18,2%					
<i>Chemical</i>								93	1,0%					
<i>Biological</i>								4 844	51,6%					
<i>With increased biogene removal</i>								2 736	29,2%					
% of population served by waste water treatment (%)								51,5%						
<i>Mechanical</i>								4,2%						
<i>Chemical</i>								0,4%						
<i>Biological</i>								31,6%						
<i>With increased biogene removal</i>								15,3%						
Towns servicing urban areas (by category of population)								875	100,0%					
<i>Less than 10 000</i>								463	52,9%					
<i>10 000 to 20 000</i>								182	20,8%					
<i>20 000 to 50 000</i>								138	15,8%					
<i>50 000 to 100 000</i>								50	5,7%					
<i>100 000 and more</i>								42	4,8%					
of which: served by waste water treatment plants								778	100,0%					
<i>Less than 10 000</i>								387	49,7%					
<i>10 000 to 20 000</i>								167	21,5%					
<i>20 000 to 50 000</i>								134	17,2%					
<i>50 000 to 100 000</i>								49	6,3%					
<i>100 000 and more</i>								41	5,3%					
Number of plants serving urban areas								943	100,0%					
<i>Less than 10 000</i>								413	43,8%					
<i>10 000 to 20 000</i>								196	20,8%					
<i>20 000 to 50 000</i>								143	15,2%					
<i>50 000 to 100 000</i>								68	7,2%					
<i>100 000 and more</i>								123	100,0%					
of which: mechanical								67	54,5%					
<i>Less than 10 000</i>								16	13,0%					
<i>10 000 to 20 000</i>								19	15,4%					
<i>20 000 to 50 000</i>								7	5,7%					
<i>50 000 to 100 000</i>								7	5,7%					
<i>100 000 and more</i>								18	14,6%					

ECONOMICS

	Years							Growth rates						
	1988	1990	1995	1996	1997	1998	1999	2000	% of total	1990-1995	1995-1999	Other	Period	Chosen
Total sold production of industry (current prices, PLN million)			244 432,7			395 544,2	430 163,3		100,0%		15,2%			15,2%
of which: mining of coal and lignite; extraction of peat			14 421,5			18 195,0	16 871,2		3,9%		4,0%			4,0%
of which: electricity, gas, steam and hot water supply			22 487,8			32 434,6	36 587,8		8,5%		12,9%			12,9%
of which: collection, purification and distribution of water			2 199,9			3 559,9	3 911,4		0,9%		15,5%			15,5%
Price indices of sold production industry (previous year=100)			109,7	108,3	111,5	103,5	104,3				-1,7%			-1,7%
of which: mining of coal and lignite; extraction of peat			109,7	108,3	116,6	110,0	102,5							
of which: electricity, gas, steam and hot water supply			109,7	108,3	110,9	109,9	109,6							
of which: collection, purification and distribution of water			109,7	108,3	116,3	110,7	110,9							
Total sold production of industry (1998 prices, PLN million)			305 494,2			395 544,2	412 428,9		100,0%		7,8%			7,8%
of which: mining of coal and lignite; extraction of peat			20 032,3			18 195,0	16 459,7		4,0%		-4,8%			-4,8%
of which: electricity, gas, steam and hot water supply			29 682,8			32 434,6	33 383,0		8,1%		3,0%			3,0%
of which: collection, purification and distribution of water			3 067,3			3 559,9	3 527,0		0,9%		3,6%			3,6%
Production of maritime ships from 100 DWT														
Units		35	33			34	28			-1,2%	-4,0%			-4,0%
Electricity in TWh		136	139			143	141			0,4%	0,4%			0,4%
The market for hard coal														
Supply and use (thousands of tons)		148 296	139 691			121 462	113 889		100,0%	-1,2%	-5,0%			-5,0%
of which: domestic consumption		119 926	108 301			92 786	85 723		75,3%	-2,0%	-5,7%			-5,7%
of which domestic consumption: thermal plants and heat		81 996	55 808			52 757	41 314		36,3%	-7,4%	-7,2%			-7,2%

NAVIGATION

Transport of goods														
In thousand of tons		1 645 542	1 380 810			1 359 199	1 329 241		100,0%	-3,4%	-0,9%			-0,9%
<i>Railway transport</i>		281 658	225 348			206 391	186 846		14,1%	-4,4%	-4,6%			-4,6%
<i>Road transport</i>		1 292 358	1 086 762			1 077 295	1 068 388		80,4%	-3,4%	-0,4%			-0,4%
<i>Pipeline transport</i>		32 995	33 353			40 742	42 849		3,2%	0,2%	6,5%			6,5%
<i>Maritime transport</i>		28 477	26 019			25 362	22 747		1,7%	-1,8%	-3,3%			-3,3%
Inland waterway transport		9 795	9 306			9 376	8 382		0,6%	-1,0%	-2,6%			-2,6%
<i>Air Transport</i>		14	22			33	29		0,0%	9,5%	7,2%			7,2%
In millions of ton-kilometres		346 232	300 807			317 052	310 698		100,0%	-2,8%	0,8%			0,8%
<i>Railway transport</i>		83 530	69 116			61 760	55 471		17,9%	-3,7%	-5,3%			-5,3%
<i>Road transport</i>		40 293	51 200			69 542	70 452		22,7%	4,9%	8,3%			8,3%
<i>Pipeline transport</i>		13 887	13 493			18 448	19 417		6,2%	-0,6%	9,5%			9,5%
<i>Maritime transport</i>		207 430	166 048			166 095	164 236		52,9%	-4,4%	-0,3%			-0,3%
Inland waterway transport		1 034	876			1 100	1 028		0,3%	-3,3%	4,1%			4,1%
<i>Air Transport</i>		57	74			107	94		0,0%	5,4%	6,2%			6,2%
Average km per transported ton														
<i>Inland waterway transport</i>		106	94			117	123		0,0%	-2,3%	6,8%			4,5%
Transport of passengers														
In thousands of passengers		2 880 730	1 601 089			1 444 032	1 400 782		100,0%	-11,1%	-3,3%			-3,3%
<i>Railway transport</i>		789 922	465 901			401 509	395 850		28,3%	-10,0%	-4,0%			-4,0%
<i>Road transport</i>		2 084 708	1 131 593			1 038 339	1 000 568		71,4%	-11,5%	-3,0%			-3,0%
<i>Maritime transport</i>		569	540			609	622		0,0%	-1,0%	3,6%			3,6%
<i>Inland waterway transport</i>		3 816	1 208			955	1 121		0,1%	-20,6%	-1,9%			-1,9%
<i>Air Transport</i>		1 715	1 847			2 620	2 621		0,2%	1,5%	9,1%			9,1%
In millions of passenger-kilometres		101 623	65 483			65 290	65 226		100,0%	-8,4%	-0,1%			-0,1%
<i>Railway transport</i>		50 373	26 635			25 664	26 198		40,2%	-12,0%	-0,4%			-0,4%
<i>Road transport</i>		46 599	34 024			34 035	33 250		51,0%	-6,1%	-0,6%			-0,6%
<i>Maritime transport</i>		193	166			172	131		0,2%	-3,0%	-5,7%			-5,7%
<i>Inland waterway transport</i>		28	25			18	18		0,0%	-2,2%	-7,9%			-7,9%
<i>Air Transport</i>		4430	4633			5401	5629		8,6%	0,9%	5,0%			5,0%

ECONOMICS

	Years						Growth rates							
	1988	1990	1995	1996	1997	1998	1999	2000	% of total	1990-1995	1995-1999	Other	Period	Chosen
Inland waterway transport fleet		1 805	1 132			1 028	891		100,0%	-8,9%	-5,8%			-5,8%
Tugs		25	12			16	8		0,9%	-13,7%	-9,6%			-9,6%
Pushers		386	327			293	251		28,2%	-3,3%	-6,4%			-6,4%
Barges		1 337	737			667	556		62,4%	-11,2%	-6,8%			-6,8%
Load capacity (tons)		619 000	352 000			336 000	280 000			-10,7%	-5,6%			-5,6%
Passenger ships		57	56			52	76		8,5%	-0,4%	7,9%			7,9%
Passenger capacity		11 167	9 168			7 903	9 272			-3,9%	0,3%			0,3%
HABITATION														
Dwelling stocks based on census data, thousand	10 717		11 056						100,0%			0,4%	1988-1995	0,4%
urban areas	7 040		7 436						67,3%			0,8%	1988-1995	0,8%
rural areas	3 677		3 620						32,7%			-0,2%	1988-1995	-0,2%
Usable floor space in inhabited dwellings, thous:	633 107		706 097						100,0%			1,6%	1988-1995	1,6%
urban areas	378 455		436 460						61,8%			2,1%	1988-1995	2,1%
rural areas	254 652		269 637						38,2%			0,8%	1988-1995	0,8%
Persons per dwelling	3,46		3,46									0,0%	1988-1995	0,0%
urban areas	3,20		3,15									-0,2%	1988-1995	-0,2%
rural areas	3,97		4,08									0,4%	1988-1995	0,4%
Average m² per dwelling	59,08		63,87									1,1%	1988-1995	1,1%
urban areas	53,76		58,70									1,3%	1988-1995	1,3%
rural areas	69,26		74,49									1,0%	1988-1995	1,0%
Average m² per person per dwelling	17,07		18,46									1,1%	1988-1995	1,1%
urban areas	16,80		18,63									1,5%	1988-1995	1,5%
rural areas	17,44		18,26									0,7%	1988-1995	0,7%
Price of heating of dwellings per m ² (PLN)			1,5100			2,4500	2,4900					13,3%		13,3%
Price of heating of dwellings per m ² (1998 PLN)			1,9931			2,4500	2,2719					3,3%		3,3%
Electricity														
Supply and use (GWh)	146 749		143 362			147 397	145 585		100,0%	-0,5%	0,4%			0,4%
Domestic production	136 311		139 006			142 789	142 094		97,6%	0,4%	0,6%			0,6%
By thermal plants	124 899		126 805			130 959	130 459		89,6%	0,3%	0,7%			0,7%
By hydro plants	3 302		3 780			4 203	4 272		2,9%	2,7%	3,1%			3,1%
Uses														
Domestic	124 711		118 134			123 978	122 492		84,1%	-1,1%	0,9%			0,9%
Pumping water in pumped-storage plants	2 614		2 761			2 806	2 868		2,0%	1,1%	1,0%			1,0%
Exports	11 478		7 157			8 082	8 426		5,8%	-9,0%	4,2%			4,2%
Total consumers	9 702					10 758	10 971		100,0%			1,4%	1990-1999	1,4%
Urban areas	7 613					8 371	8 501		77,5%			1,2%	1990-1999	1,2%
Domestic, all-day tariff per kWh (PLN)			0,1600			0,2400	0,2700					14,0%		14,0%
Domestic, all-day tariff per kWh (1998 PLN)			0,2112			0,2400	0,2464					3,9%		3,9%