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Europe Report

SCIENCE AND TECHNOLOGY

FRG GOVERNMENT PROPOSAL FOR 1987 RESEARCH BUDGET EXAMINED

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EUROPE REPORT

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FRG GOVERNMENT PROPOSAL FOR 1987 RESEARCH BUDGET EXAMINED

Bonn TECHNOLOGIE NACHRICHTEN-PROGRAMM INFORMATIONEN in German
No 383/384, 5 Sep 86 pp 2-24

[Article: "Government Proposal for 1987 Federal Research Budget"]

[Text] Government Restraint Offers Opportunities To Private Enterprise. The share of R&D expenditures financed by German firms themselves has increased constantly by more than a third since 1982, that is from DM 24.5 to DM 32.8 billion. With the private sector currently contributing just about 60 percent of the total budget, the FRG is at the top along with the major industrialized countries. Only in Japan is the portion borne by the private sector higher. The total research expenditures of the Federal Republic of Germany in 1986 will probably rise to about DM 55 billion, of which private firms will contribute about DM 33 billion, whereas the BMFT [Federal Ministry of Research and Technology] budget will amount to DM 7.5 billion (see graph 1). In 1987, when the BMFT budget will increase by a moderate 2 percent, this ratio will probably change further with greater expenditures by the private sector.

An improved operating environment, promotion and facilitation of research, and not least a significant increase of efforts from private companies, will lead to success. In the long run, the international competitiveness of our country can be assured with new technology only in this way, and not through the exclusive and predominant expansion of government-supported research.

New Profile of BMFT Subsidies

The higher dynamism of research in the private sector offers opportunities to the BMFT research budget which can be exploited for government purposes in basic research, research in preventive measures, and in other fields. Subsidies for applied technologies have been reduced in comparison with other objects of research subsidies, which is absolutely clear: from almost 60 percent of the 1982 BMFT budget to the expected 43.3 percent in 1987. The overall BMFT budget has risen by almost DM 600 million in the same period (see graph 2).

Decrease in Direct Project Subsidies to Private Industry

The trend is the same even for the direct project subsidies, which clearly decreased (from about DM 4 billion in 1982, which corresponded to a budget

share of about 57 percent, to under DM 3.5 billion in the past fiscal year 1985, which equals about 47 percent of the budget). The importance of commercial companies as recipients of direct project subsidies diminished while universities and other research institutions received more (see graph 3). Project subsidies to the private sector for commercial technology now amounts to only DM 1.88 billion, that is a 29 percent reduction since 1982. (See graph 3.)

Growing Share of Basic Research

Funds which became available by reducing research subsidies to the private sector were allocated mainly to basic research. Taken together, basic research at the Max Planck Institute, the large equipment for basic research, and (applications-oriented) basic research, all of which are subsidized in the framework of specific BMFT programs, meant that basic research, which had amounted to about 26 percent in the 1982 budget, increased to 33.7 percent at the end of fiscal 1985. In fiscal 1987 it will increase again slightly to about 36 percent. (See graph 4)

The Most Important Rearrangement Since 1982

Where specifically were savings obtained and which fields were taken more into consideration? If you look at the main fields in which a reorientation has occurred since 1982 (see graph 5), it is absolutely clear: cutbacks have occurred in fields whose research problems are no longer considered a priority. This, in particular, was the case in the energy field when demonstration plans for new reactor concepts were phased out, but also in the field of road and rail traffic. More support has been given to those fields which will be very important for the future either as new key technologies, such as biotechnology and information technology, or in which present research problems require governmental support, such as in research on forest damage and climate, ecological research and pollution control technology, as well as health research.

A significant role is played by the increase in measures supporting, above all, small- and medium-sized companies in building up research capabilities and in exploiting newly acquired knowledge. For such indirect measures (TOU [Technology-oriented business], commissioned research, increase of research personnel, cooperation in research), funding has increased more than tenfold, from DM 20 million in 1982 to DM 214 million. Even the share of indirect-specific subsidies, in which small- and medium-sized companies participate on a large scale, will double from DM 83 million in 1982 to DM 187 in 1987. Cutbacks in commercial fields have also offered opportunities to the necessary expansion of aerospace research. This research field offers promising future perspectives for basic research, industrial exploitation (today already in telecommunications), preventive tasks (climate research, pollution control) and international cooperation. The federal government has made long-term decisions due to the importance of aerospace research:

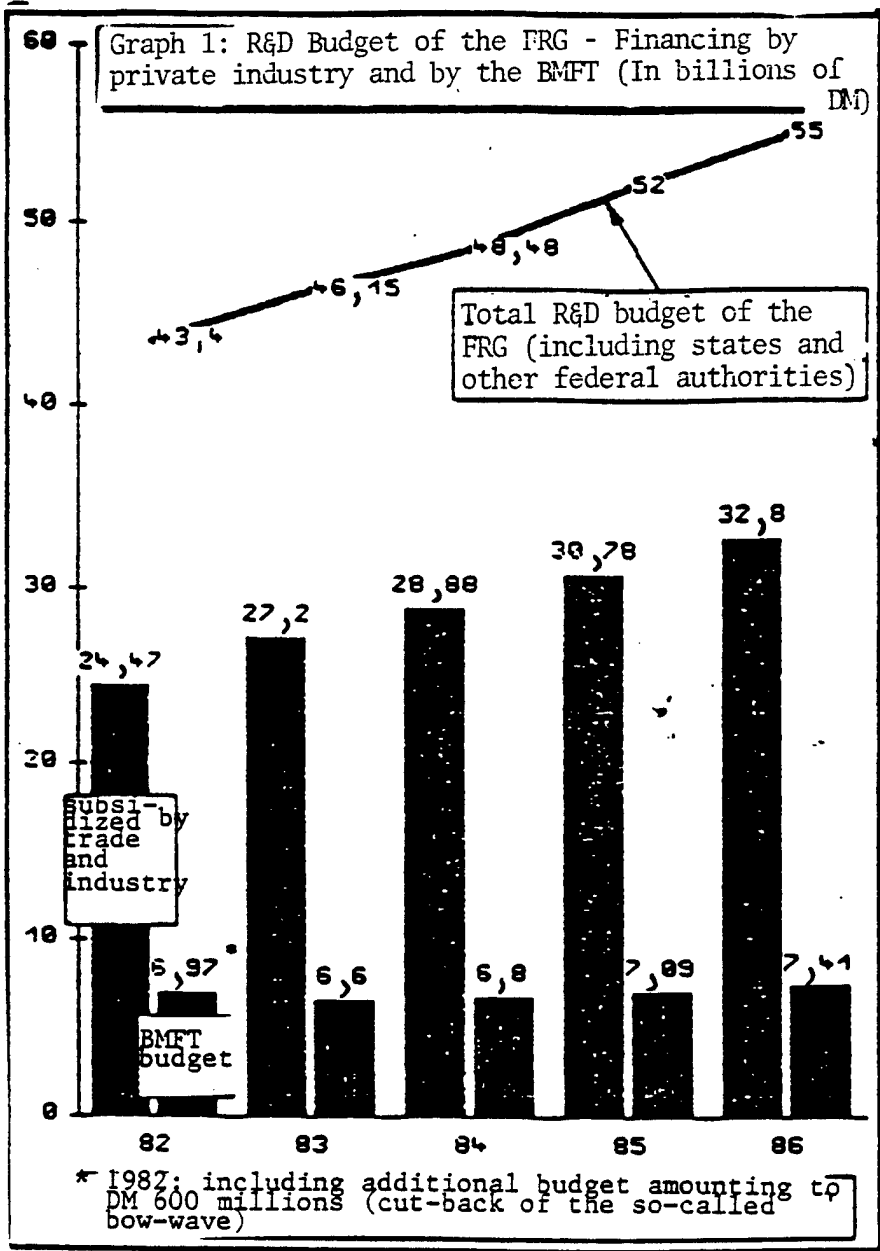
- participation in the further development of the European launcher system ARIANE V;

- participation in the planned space station COLUMBUS;
- measures for the reinforcement of European autonomy in aerospace research within ESA (European Space Agency).

The federal government is presently examining if and to what extent German participation in the planned space shuttle project HERMES, under French centralized control, is meaningful. A decision will be made, as agreed with the French president, in the fall of 1986. (See graph 5)

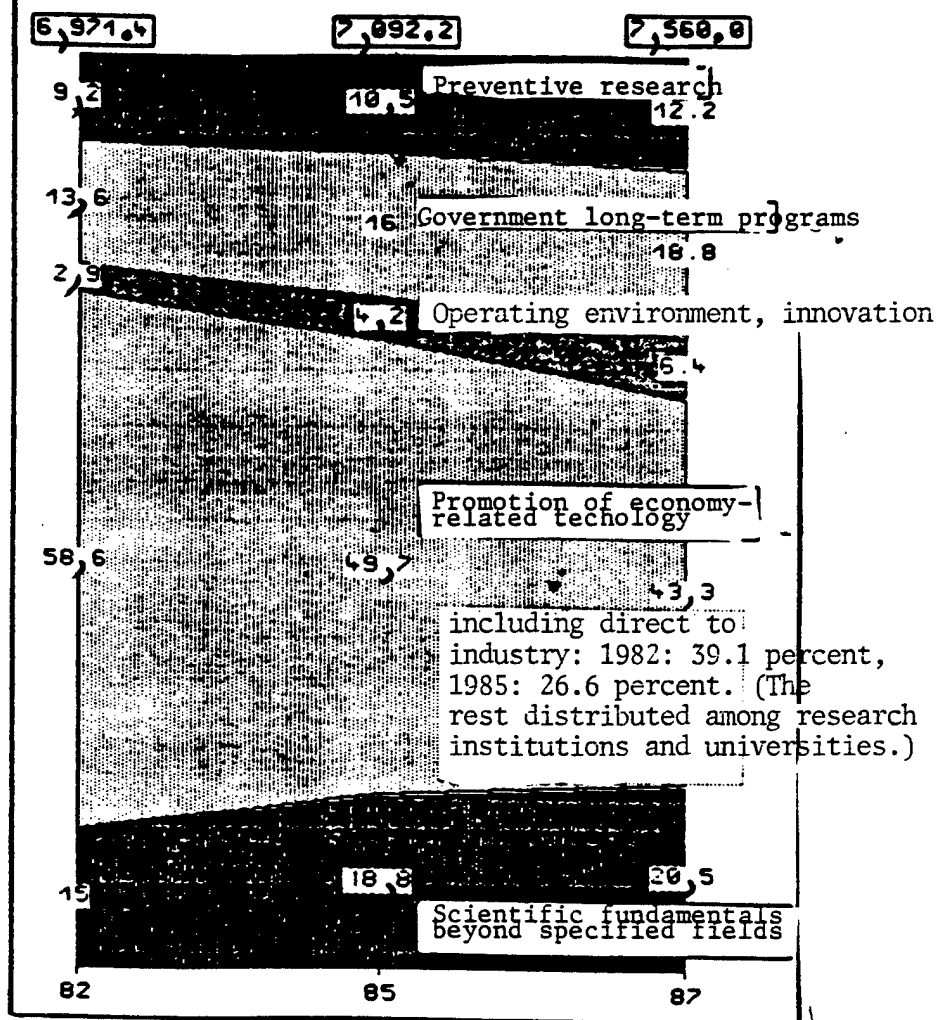
Government Proposal of 1987 Reinforces the Direction Taken

The contents of the 1987 budget continue the policy started in 1982 to create new priority areas by selected and efficient use of resources (see graph 6). Emphasized once again are research in preventive measures with notable increases in climate research (+27.9percent), ecological research (9.6percent), and health research (+9.5percent). The increases in the cross-sectional activities are due to the creation of the Israel endowment and the reinforcement of the international exchange of scientists, and the new "leading-edge research" program. In subsidies to commercial technologies, the further reduction in the area of nuclear energy research is obvious. The resources saved here will go to preventive research as well as to the selected subsidy of new key technologies in biology and laser research.

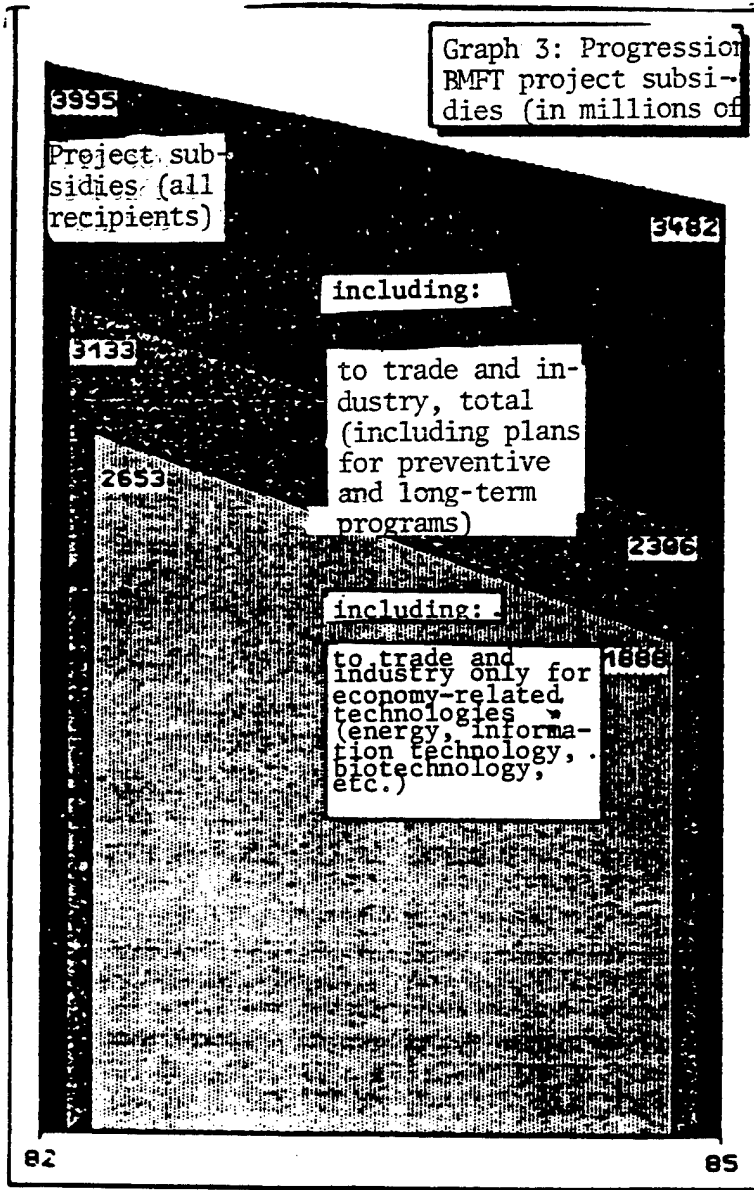


Graph 2: Research subsidies of the BMFT in 5 priority areas.

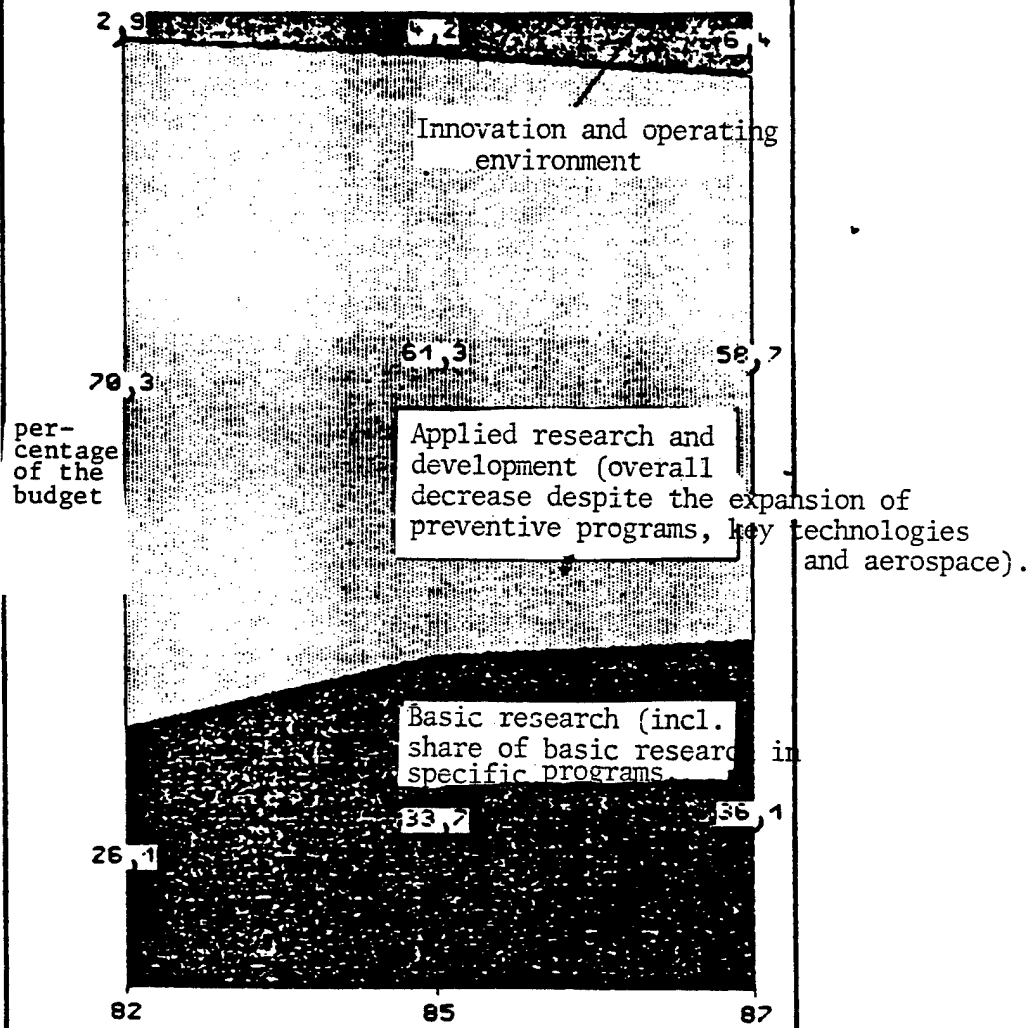
(sums in millions:)

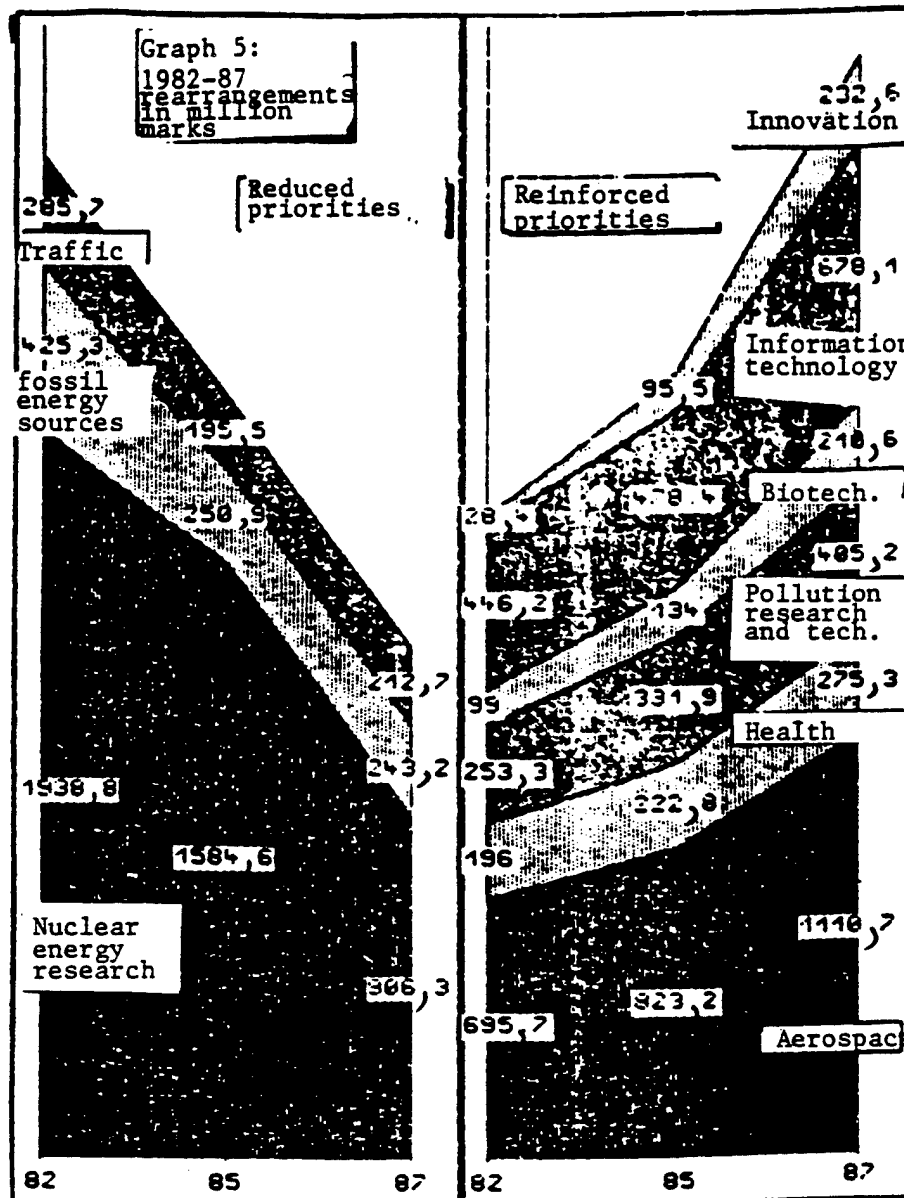


Graph 3: Progression of
BMFT project sub-
sidies (in millions of DM)



Graph 4: increase in basic research and promotion of innovation

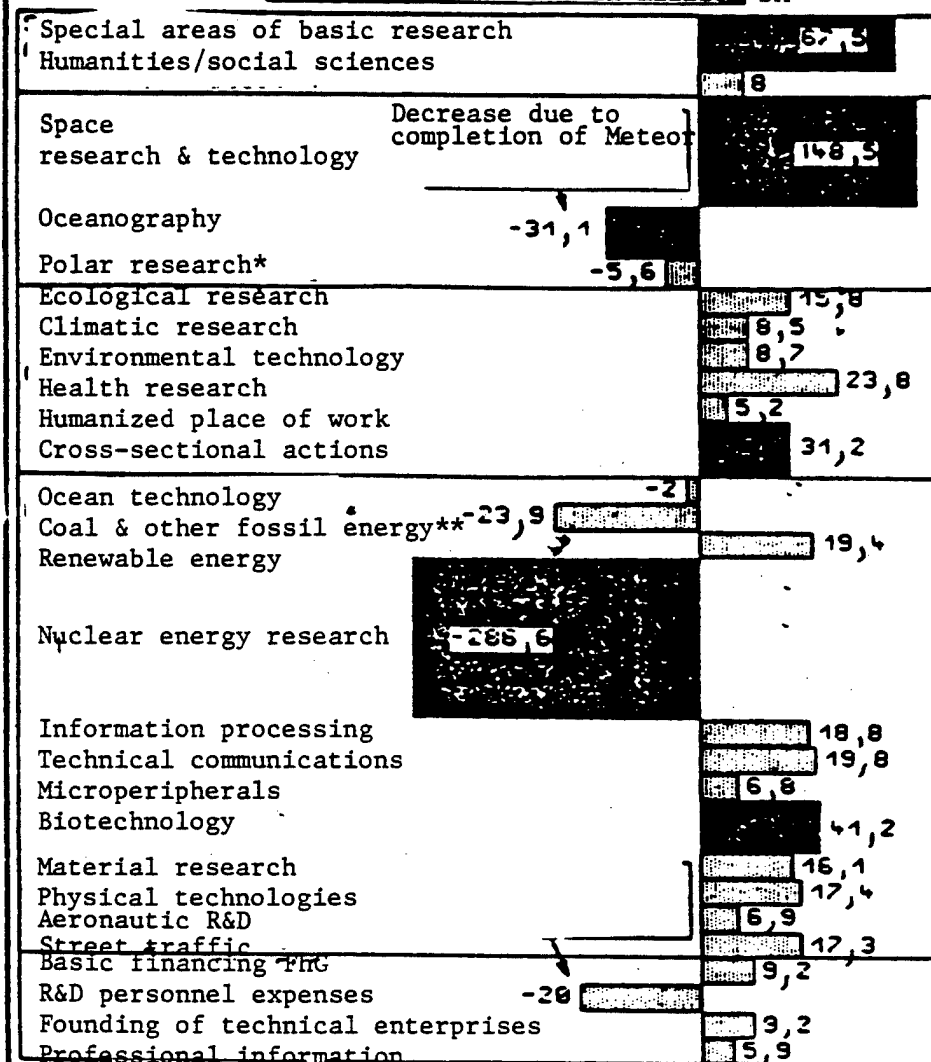




(Same scale for both graphs)

Graph 6:

BMFT budget 1987: changes
as compared to 1986 in million DM



* Construction of AWI and polar station completed 1986

** 1986 budget contained contributions of third parties
which were managed via the BMFT budget

1987 Government Proposal for Unified Plan 30

Profile Subsidized field/ Priority	Gov't 87 budget 87 Mil.DM	portion of single plan percent	Increase 87/86 percent	Plan 86 Mil. DM	Actual 85 Mil. DM
Total unified plan 30	7,560.0	100.0	2.0	7,410.8	7,092.2
1. Scientific fundamentals	1,552.3	20.5	5.9	1,465.8	1,332.0
Basic financing MPG (Max Planck Association)	430.3	5.7	2.2	421.1	405.1
Special areas of basic research (especially large equipment)	1,016.2	13.4	7.1	948.7	846.9
Geo sciences (especially deep drilling)	28.0	0.4	7.7	26.0	20.0
Humanities, social sciences	77.9	1.0	11.4	69.9	59.9

2. Government long-term projects	1,417.5	18.7	8.9	1,301.4	1,131.7
Oceanography	62.9	0.8	-33.1	94.0	82.1
Polar research	62.4	0.8	-8.2	68.0	62.0
Space research and space technology	1,110.7	14.7	15.4	962.2	823.2
Nuclear fusion research	181.5	2.4	2.4	177.2	164.3
3. Living conditions (research in preventive measures)	924.8	12.2	10.5	837.0	742.1
Ecological research	180.6	2.4	9.6	164.8	139.7
Environmental preservation & protection technologies	156.5	2.1	5.9	147.8	129.3
Water research	20.0	0.3	-14.8	23.5	28.2
Climate research	39.0	0.5	27.9	30.5	25.8
Safety research & safety technology	9.0	0.1	-10.0	10.0	9.0
R&D in the service of health	275.3	3.6	9.5	251.5	222.8
R&D to humanize the working life	111.8	1.5	4.9	106.6	96.8
Construction research & technology	33.0	0.4	-2.9	34.0	32.2
Cross-sectional activities (including assessment of the consequences of technology)	99.6	1.3	45.6	68.4	58.4

4. Commercial technology subsidies	3,271.1	43.3	-4.0	3,408.9	3,523.0
Ocean technology	81.8	1.1	-2.4	83.8	75.8
Coal & other fossil energy sources	243.2	3.2	-8.9	267.1	250.9
Renewable energy sources; efficient use of energy	212.7	2.8	10.0	193.3	206.1
Nuclear energy research (in- cluding reactor safety)	906.3	12.0	-24.0	1,192.9	1,584.6
Information processing	203.1	2.7	10.2	184.3	146.3
Technical communication	154.3	2.0	14.7	134.5	103.4
Electronic components	239.0	3.2	1.9	234.5	169.9
Use of micro- electronics: microperipherals	81.8	1.1	9.1	75.0	58.9
Manufacturing technology	161.3	2.1	3.2	156.2	141.7
Biotechnology	210.6	2.8	24.4	169.4	134.0
Material research	201.5	2.7	8.7	185.4	151.6
Chemical process- ing technology	16.8	0.2	-2.3	17.2	16.6
Physcial technologies	118.7	1.6	17.2	101.3	78.7
Aeronautical R&D	203.9	2.7	3.5	197.0	172.3
Research & tech- nology for land transportation & traffic	212.7	2.8	8.9	195.4	195.5

Raw materials supply	23.5	0.3	7.8	21.8	36.8
5. Operating environment, infra-structures	487.1	6.4	1.8	478.4	301.2
Basic financing FHG (Fraunhofer Association)	134.2	1.8	7.4	125.0	114.9
Indirect subsidy of R&D personnel in industry and trade	80.0	1.1	-20.0	100.0	1.9
Enhancement of technology & knowledge transfer	72.6	1.0	6.5	68.2	51.7
Subsidy for the foundation of technology oriented companies	80.0	1.1	13.0	70.8	41.9
Professional information	120.3	1.6	5.1	114.4	90.8
Overall savings: planning reserve	-150.0	-2.0	11.1	-135.0	0.0
Federal ministry	57.2	0.8	5.5	54.2	62.2
Category Function	Purpose		Amt 87 1000 DM	Amt 86 1000 DM	Amt 85 1000 DM
Administrative income					
113 01	011	Income from sale of objects worth up to 10,000 DM individually	1	1	4
119 01	013	Income from publications	8	8	6
119 99	011	Combined income	45,000	45,000	43,746
132 01	011	Income from the sale either of movables worth more than 10,000 DM individually or from cars	21	22	15

		Other Income			
162 02	179	Other domestic interest	10,000	12,000	9,190
182 02	179	Amortization of loans, mortgages and such	25,000	25,000	22,342
282 02	011	Subsidy contributions of third parties	8,600	8,600	0
		Total Income	88,430	90,631	76,268

30 01 Federal ministry for research and technology

		Expenses			
Category	Function	Purpose	Amt. 87	Amt. 86	Amt. 85
			1000 DM	1000 DM	1000 DM
		Personnel expenses			
421 01	011	Salary of the Federal minister and of the parliamantary secretary of state	457	418	417
422 01	011	Salaries of civil servants	27,970	26,829	26,397
422 02	011	Salaries of official auxiliary personnel	940	878	905
425 01	011	Salaries of employees	10,777	10,385	10,442
426 01	011	Worker's pay	1,776	1,696	1,504
427 01	011	Compensations & pay of auxiliary personnel with a work contract limited to maximum 18 months	2,948	2,948	2,865
441 01	940	Subsidies on the basis of subsidy laws	1,500	1,360	1,454
442 01	940	Subsidies on the basis of subsidy laws	4	4	0
443 01	940	Welfare measures	5	5	12
443 01	254	Costs for the use of intercompany medical & technical safety services (centers) as well as con-	65	20	13

tracted medical doctors
according to the law for
safety in the working place

453 01	011	Separation money, rent compensation, compensation for car expenses and com- pensation for moving expenses	600	500	652
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Administrative Expenses

511 01	011	Stationery, books, newspapers	670	615	591
513 01	011	Fees for mail, telephone radio and TV	1,300	1,214	1,284
514 01	011	Expenses for official cars	108	108	124
515 01	011	Equipment, furnishings, fixtures as well as machines for administrative purposes	350	309	392
516 01	011	Service uniforms and protective clothings, personal kits	21	21	18
517 01	011	Management of real estate, buildings and premises	740	700	622
518 01	011	Rents and leases	340	367	312

30 01 Federal ministry of research and technology

Expenses

Category	Function	Purpose	Amt. 87 1000 DM	Amt. 86 1000 DM	Amt. 85 1000 DM
519 01	011	Maintenance of real estate and buildings	148	138	559
526 01	011	Legal and similar costs	20	20	16
526 02	011	Costs for experts	280	275	228
526 01	011	Costs for members of professional commissions and similar associations	235	230	230

526 20	011	Patent applications in the public interest	5	5	0
527 01	011	Reimbursements for official travel	522	497	537
527 02	011	Reimbursements for official travel abroad	1,027	978	924
527 03	011	Reimbursements for travel as a representative of personnel and representing the interests of the handicapped	37	36	38
529 01	011	Extraordinary expenses for official matters on special occasions	30	30	29
531 01	013	Publicity work	520	520	520
531 02	169	Costs for the publication of scientific professional information	467	467	457
531 03	011	Payments for copyright claims	5	5	3
539 99	011	Miscellaneous administrative expenses	43	42	55
Payments and contributions (without investments)					
684 01	011	Contributions to domestic federations, associations, and societies	5	5	4
686 01	011	Contributions to foreign federations, associations, and societies	2	2	1
Expenses for investments					
711 01	011	Small new, modified and expanded buildings	260	80	153
711 09	011	Measures for energy savings in federal buildings	70	70	7,309
811 01	011	Purchase of official cars	125	102	103

812 01	011	Domestic purchase of equipment, fixtures and furnishings for administrative purposes	180	970	570
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30 01 Federal ministry of research and technology

Expenses

Cateogry	Function	Purpose	Amt. 87 1000 DM	Amt. 86 1000 DM	Amt. 85 1000 DM
Special financing expenses					
972 01	989	Overall expense reduction	150,000-	135,000-	0
Title group 01		Cost of data processing	(2,549)	(1,278)	(1,130)
511 42	011	Business expenditures	35	33	21
513 42	011	Cost of data transmission	33	31	15
515 44	011	Appliances, equipment & machinery	12	11	17
518 44	011	Rent of data processing installations, equipment and machines	841	832	805
526 44	011	Costs of experts and system analysis	700	344	238
532 41	011	Data collection and programming through third parties	28	27	34
812 32	011	Purchase of equipment, furnishings and fixtures	900	0	0
Title group 03		Education and continuing education, re-training	(71)	(51)	(47)
525 51	011	Education and continuing education, re-training	46	36	36
527 51	011	Official travel	25	15	11
Total Expenditures			92,828-	80,818-	62,243

30 02 General research subsidy

Expenses

Category	Function	Purpose	Amt. 87 1000 DM	Amt. 86 1000 DM	Amt. 85 1000 DM
Expenses					
Administrative expenses					
526 02	179	Subsidy for estimation of the consequences of technology & research planning	5,821	5,750	3,590
531 02	179	Participation in exhibitions and shows, both domestically and abroad	2,400	2,400	0
531 04	169	Factual instruction on research & technology	2,360	2,360	2,313
532 02	179	Competitions & prizes to subsidize research & innovation	330	330	324

30 02 General research subsidy

Expenses

Category	Function	Purpose	Amt. 87 1000 DM	Amt. 86 1000 DM	Amt. 85 1000 DM
Expenses					
Contributions and allocations (without investments)					
652 50	179	Contributions for the Kiepenheuer institute of solar physics in Freiburg i.Br.	2,054	1,785	1,681
681 05	179	Grants to subsidize the exchange of scientists	15,700	15,000	11,871
683 01	169	Subsidy for contracted R&D by companies in industry and trade	51,000	50,000	41,888
683 03	169	Research cooperation between industry & science	15,000	10,000	2,939

683 04	171	Subsidy for growth of R&D capacity in industry & trade	80,000	100,000	1,944
683 29	171	Participation in the innovation risk of developing technology-oriented products & founding companies	80,000	70,800	41,880
685 02	179	Subsidy for selected researchers & research groups	6,000	3,000	0
685 04	171	Subsidy for technology transfer	6,600	8,200	6,849
685 05	179	Subsidy for peace & conflict research	2,860	2,860	1,176
685 06	175	Subsidy for social science research	4,000	3,300	3,024
685 55	179	Contributions to the program of the Academy of sciences	15,200	15,011	13,641
685 58	179	Institutional subsidy of institutions of the humanities	13,363	12,479	9,967
685 61	179	Subsidy of projects in the humanities	4,350	4,300	3,715
685 62	179	Contributions to the Institute for Scientific films, gem. GmbH (IWF) in Gottingen	4,661	4,514	4,395
685 98	179	Contributions to the German Association for Historic Questions e.V., Erlangen, for the institute for society & science, Erlangen	2,470	2,248	2,128
686 01	179	Payments to the European Organization for Astronomical Research in the Southern	12,980	12,600	11,905

			Hemisphere (ESO) in Garching near Munich			
686 30	169		Subsidy for coop- eration with other countries and of German domestic cooperation in the area of scientific research & technological development	13,900	12,500	10,880
686 60	179		Payments for the Inter- national Institute for Applied System Analysis (IIASA) in Vienna	1,030	990	923
Title group 01			Max-Planck Association for the promotion of the sciences e.V.(MPG) in Goettingen	(430,250)	(421,118)	(405,077)
685 52	161		Operation	369,490	356,298	341,719
893 52	161		Investments	52,180	50,720	49,248
893 53	161		Investments (special financing for the new building of the institute for quantum optics in Garching)	8,580	14,100	14,110
Title group 02			Fraunhofer-association for the Promotion of Applied Science e.V. (FHG) in Munich	(134,242)	(125,000)	(116,268)
685 56	161		Operation	71,872	64,980	59,316
89356	161		Investments	63,820	61,400	56,952
980 56	990		Diminished expenses due to reimbursements from the budgets for nutrition, agriculture and forests	1,450-	1,380-	0
Title group 03			Scientific center for social research in Berlin GmbH (WZB)	(22,431)	(19,042)	(15,755)
685 57	179		Operation	13,523	12,978	12,785

893 57	179	Investments	8,908	6,064	2,970
Title group 04		German Primate Center GmbH(DPZ)in Goettingen	(3,959)	(3,761)	(3,699)
685 59	175	Operation	3,959	3,623	3,195
		Total Expenses	932,961	909,348	722,779

30 03 Natural Science R&D

Expenses					
Category	Function	Purpose	Amt. 87 1000 DM	Amt. 86 1000 DM	Amt. 85 1000 DM
Contributions & allocations (without investments)					
683 19	175	Promotion of R&D and transfer of scientific results & connected operational experience for the improvement of the place of work	111,800	106,600	95,828
683 28	169	Subsidy of research in the area of risk in technical systems, directed development of safety technology and development of new technologies for catastrophe fighting	9,000	10,000	6,874
685 51	169	Contributions to the institute for spectro-chemistry and applied spectroscopy (ISAS) Dortmund	5,326	4,556	4,200
686 01	165	Payments to the European Organization for Nuclear Research (CERN), in Geneva	217,611	221,907	206,459
686 05	179	Payments to the European Conference &	14,060	13,400	12,665

		the laboratory for molecular biology (EMBC & EMBL) in Heidelberg			
686 08	165	German-Israel endowment for the promotion of research & technology	25,000	0	0
686 09	165	Subsidy of scientific cooperation with foreign research institutions	12,500	12,100	10,800
686 50	165	Contribution to the institute Max von Laue - Paul Langevin (III) in Grenoble (Very high flux research reactor)	27,935	28,700	26,660
Title group 01		Subsidy of material re- search in geo sciences	(166,200)	(160,950)	(143,509)
683 20	169	R&D projects for new chemical technologies	10,000	10,650	10,430
683 21	169	Geo sciences & mining technologies	26,000	24,300	20,645
683 22	169	Material research & metallurgy	130,200	126,000	97,829
Title group 02		Subsidies for ecology, medicine & biology	(458,000)	(393,950)	(311,830)
683 24	169	R&D projects for ecological research, environmental tech- nology & environmental planning	110,000	95,000	83,856
683 27	169	R&D in biotechnology	150,000	114,950	83,641
685 23	175	R&D projects for health affairs, medical re- search & medical technology	115,000	102,000	83,456
685 26	179	Projects of climate research	23,000	21,000	15,177
892 24	169	Investment contributions for ecological research & environmental technology	60,000	58,000	45,700

Title group 03		Support of water re- lated research & technology	(16,500)	(20,200)	(24,206)
683 30	169	R&D projects	11,000	11,000	12,193
892 30	169	Investment contributions	5,500	9,200	12,013
Title group 04		Subsidy of selected main efforts of basic research in natural sciences	(121,400)	(108,700)	(107,773)
685 01	165	Project	71,900	68,700	61,014
893 01	165	Investments	49,500	40,000	46,759
Title group 05		Research Institute Senckenberg of the Senckenberg Natural Science Research Association in Frankfurt (Main)	(6,242)	(5,894)	(5,631)
685 50	163	Operation	5,252	4,862	4,733
893 50	163	Investments	990	1,032	898
Title group 06		Endowment "German Cancer Research Center (DKFZ) in Heidelberg	(103,082)	(92,841)	(87,468)
685 55	175	Operation	80,647	73,041	70,331
893 55	175	Investments	22,435	19,800	17,137
Title group 07		Endowment "German Electron-Synchrotron (DESY)" in Hamburg	(329,693)	(301,554)	(216,266)
685 60	165	Operation	95,143	84,462	94,496
893 60	165	Investments	234,550	217,092	121,770
Title group 08		Association for Heavy Ion Research mbH(GSI) in Darmstadt	(125,574)	(103,054)	(80,104)

685 61	165	Operation	60,474	55,568	56,629
893 61	165	Investments	65,100	47,486	23,475
Title group 09		Hahn-Meitner Institute for Nuclear Research Berlin GmbH (HMI)	(99,877)	(96,541)	(90,203)
685 62	165	Operation	55,350	55,181	52,164
893 62	165	Investments	44,527	41,360	38,039
Title group 10		Association for Radiation & Environ- mental Research mbH in Munich	(117,930)	(110,342)	(110,310)
685 63	173	Operation	93,202	89,342	84,662
893 63	173	Investments	24,728	21,000	25,648
Title group 11		Association for Biotechnology Re- search mbH (GBF) in Braunschweig-Stockheim	(55,013)	(38,876)	(29,900)
685-64	175	Operation	30,578	26,919	22,100
893 64	175	Investments	24,435	11,957	7,800
		Total Expenses	2,022,743	1,827,165	1,570,686

30 04 Information Technologies

Expenses

Category	Function	Purpose	Amt. 87 1000 DM	Amt. 86 1000 DM	Amt. 85 1000 DM
		Administrative expenses			
531 01	169	Costs for the publication of scientific reports on results of R&D projects	680	680	447
		Payment & contributions (without investment)			
683 20	169	Subsidy of R&D in selected areas of physical technologies	18,000	17,500	14,214

683 21	168	Subsidy of R&D in selected areas of laser technology	48,400	27,000	17,614
683 23	169	Subsidy of R&D in the area of manufacturing technology	160,000	155,000	140,461
683 41	172	Subsidy of R&D in the area of technical communication	113,300	95,000	71,895
683 42	168	Subsidy of R&D in the area of information processing	127,000	107,500	85,037
Title group 01		Subsidy of R&D in the area of electronics	(276,800)	(287,500)	(223,368)
683 40	169	R&D projects	171,000	176,100	132,800
683 46	169	Subsidy of R&D in the area of microperipherals	81,800	75,000	34,432
892 40	169	Investment contributions	24,000	36,400	34,500
Title group 02		Association for mathematics and data processing mbH Bonn (GMD)	(72,702)	(73,049)	(61,538)
685 50	168	Operation	61,375	58,871	56,074
893 50	168	Investments	11,327	14,178	5,464
Title group 03		Heinrich-Hertz Institute for Telecommunications Berlin GmbH (HHI) in Berlin	(14,469)	(12,784)	(10,019)
685 59	172	Operation	8,469	8,134	7,257
893 59	172	Investments	6,000	4,650	2,762
Title group 04		Professional information, promotion of information services as well as R&D	(53,513)	(58,900)	(38,119)

30 04 Information Technologies

Expenses

Category	Function	Purpose	Amt. 87 1000 DM	Amt. 86 1000 DM	Amt. 85 1000 DM
685 60	162	Subsidy of single projects	46,013	48,500	32,985
893 60	162	Investments	7,500	10,400	5,134
Title group 05		Institutional subsidy of inter-regional information centers	(40,137)	(39,523)	(38,074)
685 61	162	Construction & operation	36,149	37,089	35,734
893 61	162	Investments	3,988	2,434	2,340
Title group 06		Society for information & documentation mbH(GID) in Frankfurt (Main)	(15,058)	(15,311)	(14,063)
685 96	162	Operation	14,208	14,823	13,754
893 96	162	Investments	850	488	309
		Total Expenses	940,059	889,747	714,849

30 05 Energy Research & Technology

Expenses

Category	Function	Purpose	Amt. 87 1000 DM	Amt. 86 1000 DM	Amt. 85 1000 DM
		Payments & Contributions (without investments)			
683 15	621	Risk participation of the federal government in the area of nuclear energy	28,000	30,000	0
683 26	627	Subsidy of nuclear fuel supply (including uranium enrichment)	14,500	16,000	25,344
685 07	173	Subsidy for research in the area of reactor safety & general safety	97,700	92,300	111,810

		technology in nuclear research & technology			
686 05	621	Payments to the Inter- national Atomic Energy Commission (IAEO) in Vienna	32,693	30,007	30,772
686 22	621	Contribution to the cost of the European Association for the chemical processing of irradiated nuclear fuels (Eurochemic) in Mol	9,300	15,000	8,318
Title group 01		Subsidy of non-nuclear energy research & technology	(422,000)	(428,400)	(427,077)
683 13	166	R&D for efficient energy use & new energy sources	71,500	53,500	68,214
683 16	166	R&D on coal tech- nologies & other fossil energy sources; power plant technology	59,500	59,500	55,486
892 13	166	Investments for efficient energy utilization and new energy sources	118,500	118,500	117,414
892 16	166	Investments for coal technologies and special fossil energy sources; power plant technology	108,500	110,500	85,325
892 18	166	Development of plants for coal refinement	64,000	69,200	100,638
Title group 02		Building research & technology	(33,000)	(34,000)	(32,171)
683 17	176	R&D projects	28,000	25,800	21,738
892 17	176	Investment committees	5,000	8,200	10,433
Title group 03		Subsidy of reactor development	(141,900)	(371,200)	(747,596)

683 12	165	Research & technology work for the development of high temperature reactors	45,000	0	0
683 19	165	Development of a research reactor with low-enriched fuel & concepts for the development of other reactors	1,000	700	5,700
892 11	165	Development of fast breeder reactors	95,900	335,500	480,400
Title group 04		Nuclear waste disposal	(190,000)	(228,400)	(125,001)
683 27	165	Subsidy of R&D	77,000	77,400	46,851
893 27	165	Investments	113,000	151,000	78,150
Title group 05		Nuclear research center Karlsruhe GmbH(KfK)	(464,214)	(453,640)	(449,351)
685 50	165	Operation	369,214	359,090	348,553
893 50	165	Investments	95,000	94,550	100,798
Title group 06		Nuclear research plant Juelich GmbH(KFA) in Juelich	(400,815)	(381,859)	(365,305)
685 55	165	Operation	329,814	319,359	304,240
893 55	165	Investments	71,001	62,500	61,065
Title group 07		Max-Planck institute for plasma physics (IPP) in Garching near Munich	(84,992)	(82,338)	(79,146)
685 62	165	Operation	55,202	53,898	52,646
893 62	165	Investments	29,790	28,440	26,500
Title group 08		GKSS research center Geesthacht GmbH in Geesthacht	(81,000)	(79,378)	(77,370)

685 65	165	Operation	64,404	61,378	59,988
893 65	165	Investments	16,596	18,000	17,382
		Total Expenses	2,000,114	2,242,722	2,479,261

30 06 Space research & oceanography, transportation systems

Expenses

Category	Function	Purpose	Amt. 87 1000 DM	Amt. 86 1000 DM	Amt. 85 1000 DM
		Payments & subsidies (without investments)			
683 05	167	Strategy investigation & basic technological development for the subsidy area space research & technology	9,000	2,800	1,130
685 09	167	Subsidy for the operation of experimental installations & operational installations on the ground for space flight projects & reimbursements for cooperative projects in the area space research & technology	34,600	33,700	27,669
686 01	167	Contributions or payments to the European space organization (ESA) in Paris	705,000	561,000	414,136
Title group 01		Subsidy of orbital structures, space transport systems & selected use	(125,500)	(63,500)	(119,842)
683 06	167	Preparation, development & utilization of space transport systems	3,000	18,000	2,964
683 07	167	Preparation, development, operation & utilization of orbital systems	77,500	45,500	105,137

892 13	167	Investments & investment subsidies	45,000	0	11,741
Title group 02		Planning, development, manufacture, & operational demonstrations for applications satellites & payloads	(49,000)	(75,500)	(42,190)
683 09	167	R&D projects	28,500	16,000	12,236
892 15	167	Investment subsidies	20,500	59,500	29,954
Title group 03		Subsidy of extra-terrestrial basic research	(83,800)	(98,400)	(123,601)
685 01	167	R&D projects	41,000	42,200	33,301
893 20	167	Investment subsidies	42,800	56,200	90,300
Title group 04		Institute for oceanography at the university of Kiel	(14,149)	(11,581)	(10,707)
652 50	177	Operation	9,620	9,334	9,115
882 50	177	Investments	4,529	2,247	1,592
Title group 05		Subsidy of ocean research & technology	(81,000)	(120,000)	(95,164)
683 21	177	R&D projects for ocean technology	42,500	42,500	32,146
685 26	173	R&D projects for ocean research	27,500	26,500	16,060
892 21	177	Investment subsidies for ocean technology	11,000	16,000	11,958
Title group 06		Subsidy of R&D for land transportation & traffic	(210,700)	(193,000)	(192,994)
683 23	172	R&D projects	65,000	65,000	59,421
892 23	172	Investment subsidies	145,700	128,000	133,573
Title group 07		Subsidy of aeronautics search & technology	(94,000)	(88,300)	(70,471)

685 02	172	Subsidy of individual projects	51,300	46,300	49,535
893 02	172	Investment subsidies	42,700	42,000	20,936
Title group 08		Subsidy for polar research	(5,900)	(10,750)	(10,305)
685 22	177	Individual projects	5,900	5,750	2,402
Title group 09		Endowment "Alfred Wegener Institute for Polar & Ocean Research (AWI) in Bremerhaven	(62,797)	(63,604)	(54,893)
685 50	177	Operation	47,152	45,438	38,988
893 50	177	Investments	15,645	18,166	15,905
Title group 10		German Aeronautics & Space Research & Test institution e.V. (DFVLR) in Koeln	(254,320)	(240,504)	(233,229)
685 55	167	Operation	203,479	194,904	190,864
893 55	167	Investments	50,841	45,600	42,365
		Total expenses	1,729,766	1,598,339	1,396,331

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