

CERN-RRB-2007-022



Status of ATLAS Resources

Presentation to RRB 24.04.2007

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ATLAS Resources Coordination

Introduction to Funding Agency Tables

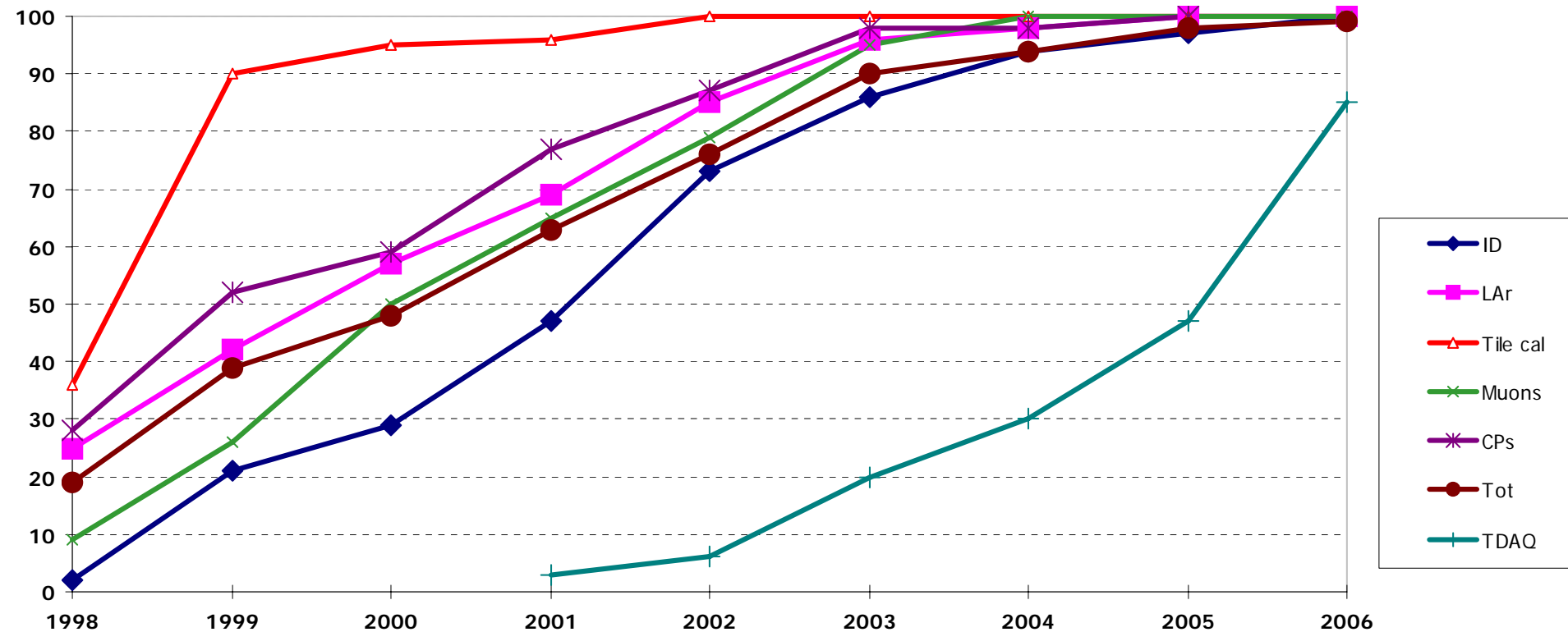


- To remind, the primary purpose of the Funding Agency (FA) tables is to show received or planned income
- The M&O, C&I and CC tables also show the total payments made by the Project
- Cost to Completion (CtC) = Commissioning & Integration (C&I) + Construction Completion (CC)
 - Category A = Common items
 - Category B = System-specific items
- To read the tables
 - Baseline and CC-A
 - ‘Contributions by Funding Agencies’ = income received from FAs
 - ‘Commitments’ by FAs = commitments requested from the FAs, also beyond the budget year, including deferrals
 - M&O, CtC (=C&I+CC)
 - ‘Contributions by Funding Agencies’ = income received from FAs
 - ‘Other income’ = contribution advancements for the future; deferral funds; contributions, transfers from baseline
 - ‘Total (actual) payments’ = payments made by the Project
 - ‘Balance’ = total contributions + other income – total payments
 - The Table numbering refers to those in Documents CERN-RRB-2007-018 and 019, respectively

Baseline Commitments Evolution (%)

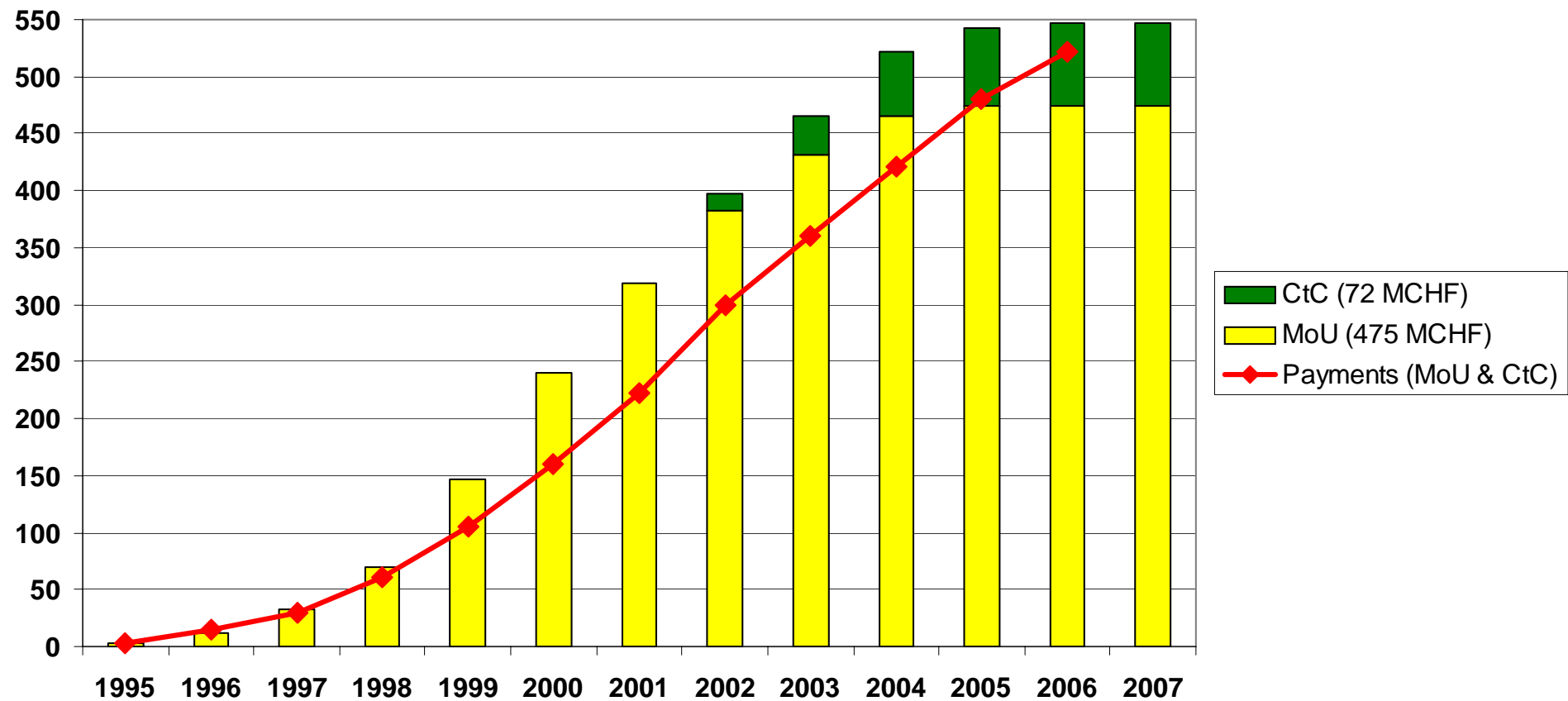


Percentage Completed

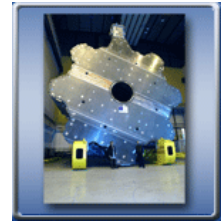


Note: TDAQ re-baselined in accordance with CERN-RRB-2004-017 (initial detector)

MoU & CtC Payments Evolution (MCHF), EoY 2006



2006 Baseline & CC-A Payments (Tables 2 - 5), MCHF



	Inner Det.	LAr Cal.	Tile Cal.	Muon Cham.	TDAQ/ DCS	Common Projects	total
commitments		1.5		0.5	10.8	7.7	20.5
total contributions	1.0	1.7		0.5	4.5	16.2	23.9
total payments	1.0	1.7		0.5	4.5	19.8	27.6
balance						-3.6	-3.6

Note: For global budget balance, see Table 17

Common Projects include CC-A

2006 C&I Income & Payments (Table 7)



(kCHF)	Cat. A	Pixel	SCT	TRT	ID	Gen	LAr	TileC	Muon	Cat. B	A+B
total contributions	2220	0	0	38	443	522	349	159	1511	3731	
total payments	352	0	0	115	924	133	417	388	1977	2329	
balance											1402

Note: Global budget position shown in Table 17.

2006 CC-B Income & Payments (Table 9)



(kCHF)	Pixel	SCT	TRT	IDGen	LAr	TileC	Muon	Cat. B
total contributions	242	73	67	125	741	37	345	1630
total payments	634	114	15	362	235	500	82	1942
balance								-312

Note: Balance achieved by using cash deferrals within global cash-flow management shown in Table 17.

2007 Baseline & CC-A (Tables 11 - 13), MCHF



	Inner Det.	LAr Cal.	Tile Cal.	Muon Cham.	TDAQ/ DCS	Common Projects	total
commitments		0.5			8.1	8.1	16.7
total contributions		0.5			5.4	14.5	20.4
total payments		0.5			5.4	10.9	16.8
balance						3.6	3.6

Note:

- 1) The above assumes all due contributions from 2006 will be paid in 2007. In reality, a funding gap of up to 10 MCHF is projected at this point in time
- 2) ATLAS is not requesting extended member fees in 2007 (2.1 MCHF)
- 3) The global budget position is summarized in Table 17.

2007 C&I Income & Payments (Table 14)



(kCHF)	Cat. A	Pixel	SCT	TRT	DGE	LAr	TileC	Muon	Cat. B	A+B
total contributions	1437	0	0	0	29	350	0	167	546	1983
total payments	0	0	0	0	242	245	38	401	926	926
balance										1057

Note: Global budget position shown in Table 17.

2007 CC-B Income & Payments (Table 15)



(kCHF)	Pixel	SCT	TRT	IDGen	LAr	TileC	Muon	Cat. B
total contributions	64	13	0	27	309	37	167	617
total payments	0	498	0	0	1552	327	692	3069
balance								-2452

Note: Balance achieved by using cash deferrals within global cash-flow management shown in Table 17.

Status of Remaining Contributions (Annex 2, February 28, 2007), kCHF

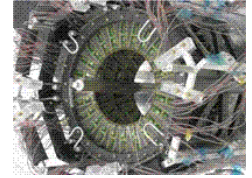


Construction MoU obligations (kCHF)					CC + C&I accepted (kCHF)			Total
	detectors		CF					
total	remaining	remaining	remaining	total	total	remaining	total	
paid	deliverables	deferrals	contrib.	CMoU	paid	contrib.	committed	
444,796	8,121	4,883	9,660	467,460	55,224	6,980	62,204	529,664
	<i>of which for CtC</i>			<i>(5,967)</i>			<i>5,967</i>	
Available for payments Baseline & CtC(1)				461,494			68,170	529,664
Available for payments CtC(2)				-	4,400		4,400	4,400
TOTAL AVAILABLE								534,064

Note:

- 1) The remaining 30 MCHF assumes all expected contributions are received
- 2) The additional cost of + 4.4 MCHF CtC(2) is attributed to the extra contribution originally made by CERN

Why These Budget/Cashflow Problems?



– Baseline & Common Fund

- Some requested baseline & CF contributions did not arrive in 2006
 - Russia + JINR 3.0 MCHF (partially in progress of being paid)
 - Canada 1.5 MCHF
 - US 2.2 MCHF (in progress of being paid)
 - Japan 0.6 MCHF (in 2008)
 - Israel 0.5 MCHF (in progress of being paid)
 - China 0.3 MCHF (request under review)
 - Due MS fees 0.2 MCHF

– Today also an integral problem

- 2.7 MCHF of CtC remains unpledged for
 - ATLAS and CERN Managements continue working with the Funding Agencies to obtain them
 - Meanwhile, FAs having completed their present obligations are invited to make additional, voluntary contributions towards this missing amount to avoid future cash flow problems (credited against the future)

Projected Budget Balance (Table 17)



PAYMENTS	95-01	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
Baseline + CC(A)	231	71	56	52	43	29	22	3	2	1	509
<i>of which deferrals</i>					-3	-2	-3	-2			-11
C&I (A+B)		1	3	4	9	2	1				21
CC (B)		1	1	1	4	2	3				12
TOTAL	231	73	61	57	54	30	23	1	2	1	531
INCOME	95-01	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
Baseline + CC(A)	252	65	55	54	33	15	15	2	2	2	494
C&I (A+B)		1	9	3	4	4	2				23
CC (B)		2	4	2	1	2	1				11
TOTAL	252	68	68	59	38	20	18	2	2	2	528
BUDGET BALANCE	21	-5	7	2	-15	-11	-5	2	1	1	-3
CUMULATIVE	21	15	23	25	9	-1	-7	-5	4	-3	



Table 1 Final 2006 M&O-A Payments (kCHF)

Item & Cost Driver (by RRB SG Headings)	Cat. A M&O
Detector related costs Cryogenics operations Detector operations	3,863
Secretariat 1.5 FTE charged to ATLAS Publications, consumables	240
Collaborative tools GSM phones Computer network connections Videoconferencing, archiving	70
Core computing (infrastr. & services) Software process service Central production & operation	1,445
On-line computing Detector controls Software licences	795
Test beams, facilities Magnet Cryo Op. in B180 On-line computing support TDAQ common electronics	315
Laboratory operations Assembly areas, workshops TDAQ laboratory equipment	90
General services Heavy handling Technical support, storage Survey Outreach Energy	2,157
TOTAL	8,975
Hired manpower at CERN (in kCHF)	incl. above
Institute manpower (in FTE)	0
TOTAL M&O FOR A (kCHF)	8,975

– Category A (9.0 MCHF)

- Cost drivers
 - Technical services (3.9 MCHF)
 - Magnet operation (2.2 MCHF)
 - Core computing I&S (1.4 MCHF)
 - On-line computing (1.0 MCHF)
 - Energy NMS (0.4 MCHF)



Table 1 Final 2006 M&O-B Payments (kCHF)

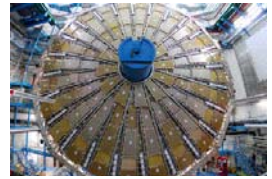
Pixel	SCT	TRT	ID	Gen	LAr	Tile	C	Muon	Comp.	Cat. B M&O	Item & Cost Driver (by RRB SG Headings)
-	-	200	324	3	-	159				686	Mechanics & Gas & Cooling & Cryogenics Gases (ID, Tiles, Muons)
5	2	75	15	176	88	20				381	Standard electronics Crates, electronics pool rentals
-	-	-	22	3	6	-				31	Detector controls
-	-	10	44	-	5	-				59	Areas SR1-operations (ID), system tests, lab op
-	-	-	3	2	3	-				8	Communications
304	165	90	48	80	31	186				904	Store items
-	-	-	-	-	-	-				0	Sub-detector spares (incl. b-layer replacement)
309	167	375	456	264	133	365				2,069	(Excluding hired manpower for Category B)
120	210	85	536	198	226	80				1,455	Hired manpower (kCHF) at CERN
6	9	3	2	5	1	23		81		130	Institute manpower (FTE)
429	377	460	992	462	359	445				3,524	TOTAL M&O FOR B

– Category B (3.5 MCHF)

- Cost drivers

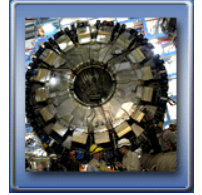
- Technical services, manpower (1.5 MCHF)
- Consumables (repairs, cables, connectors; 0.9 MCHF)
- Gases, coolants (0.7 MCHF)
- 130 FTE of detector and core computing effort as in-kind from Institutes

Status of Due M&O-A Contributions (<2007)



- The following M&O-A contributions are due for 2006 (or earlier) by February 28, 2007:
 - Armenia 27 kCHF
 - Azerbaijan 20 kCHF
 - Belarus 122 kCHF
 - Brazil 2 kCHF
 - China 100 kCHF
 - Georgia 28 kCHF
 - Italy 71 kCHF
 - Morocco 33 kCHF
 - Portugal 83 kCHF (paid 11.04.07)
 - Romania 85 kCHF (paid 12.03.07)
 - JINR 19 kCHF
 - Russia 764 kCHF (partial payments expected soon)
 - TOTAL: 1355 kCHF
- Negotiations on-going with the Funding Authorities to make recovery plans

Status of Due M&O-B Contributions (<2007)



- The following M&O-B contributions are due for 2006 (or earlier) by February 28, 2007:
 - Armenia 6 kCHF
 - China 7 kCHF
 - Greece 20 kCHF (being settled)
 - Morocco 2 kCHF
 - Portugal 28 kCHF
 - Romania 7 kCHF (paid 12.03.07)
 - JINR 142 kCHF
 - Russia 411 kCHF
 - TOTAL: 623 kCHF
- Negotiations on-going with the Funding Authorities to make recovery plans

Item & Cost Driver (by RRB SG Headings)	Cat. A M&O
Detector related costs Cryogenics operations Detector operations	5,838
Secretariat 1.5 FTE charged to ATLAS Publications, consumables	295
Collaborative tools GSM phones Computer network connections Videoconferencing, archiving	120
Core computing (infrastr. & services) Software process service Central production & operation	1,475
On-line computing Detector controls Software licences	2,475
Test beams, facilities Magnet Cryo Op. in B180 On-line computing support TDAQ common electronics	90
Laboratory operations Assembly areas, workshops TDAQ laboratory equipment	75
General services Heavy handling Technical support, storage Survey Outreach Energy	3,470
TOTAL	13,838
Hired manpower at CERN (in kCHF)	incl. above
Institute manpower (in FTE)	0
TOTAL M&O FOR A (kCHF)	13,838



Table 4

2008 M&O-A Budget Estimates (kCHF)

– Category A (13.8 MCHF)

- Cost drivers
 - Technical services (4.6 MCHF)
 - Magnet operation (2.8 MCHF)
 - On-line comp. (2.7 MCHF)
 - Core computing I&S (1.5 MCHF)
 - Energy (2.2 MCHF)
- Cost estimates being updated



Pixel	SCT	TRT	IDGen	LAr	TileC	Muon	Comp.	Cat. B M&O	Item & Cost Driver (by RRB SG Headings)
-	200	-	45	90	15	175		525	Mechanics & Gas & Cooling & Cryogenics Gases (ID, Tiles, Muons)
200	240	100	45	350	120	200		1,255	Standard electronics Crates, electronics pool rentals
-	20	20	5	30	15	5		95	Detector controls
85	100	100	320	50	110	-		765	Areas SR1-operations (ID), system tests, lab oper.
-	-	-	5	5	5	30		45	Communications
100	100	110	40	50	25	110		535	Store items
200	-	300	-	350	-	-		850	Sub-detector spares (incl. b-layer replacement)
585	660	630	460	925	290	520	-	4,070	(Excluding hired manpower for Category B)
350	211	180	445	600	205	330		2,322	Hired manpower (kCHF) at CERN
5	5	5	11	-	6	13	98	143	Institute manpower (FTE)
935	871	810	905	1,525	495	850	-	6,392	TOTAL M&O FOR B

Table 4

2008 M&O-B Budget Estimates (kCHF)

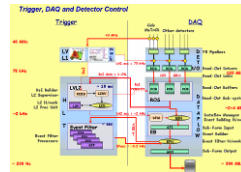
- Category B (6.4 MCHF)
 - Cost drivers
 - Technical services, manpower (2.3 MCHF)
 - Electronics replacements, rental (1.3 MCHF)
 - System tests (0.8 MCHF)
 - Critical spares amortization (0.8 MCHF)
 - 143 FTE of detector and core computing effort as in-kind
 - Cost estimates being updated
- Sharing proposed to be changed based on authors, modulated by CORE

Proposed New Sharing of M&O-B

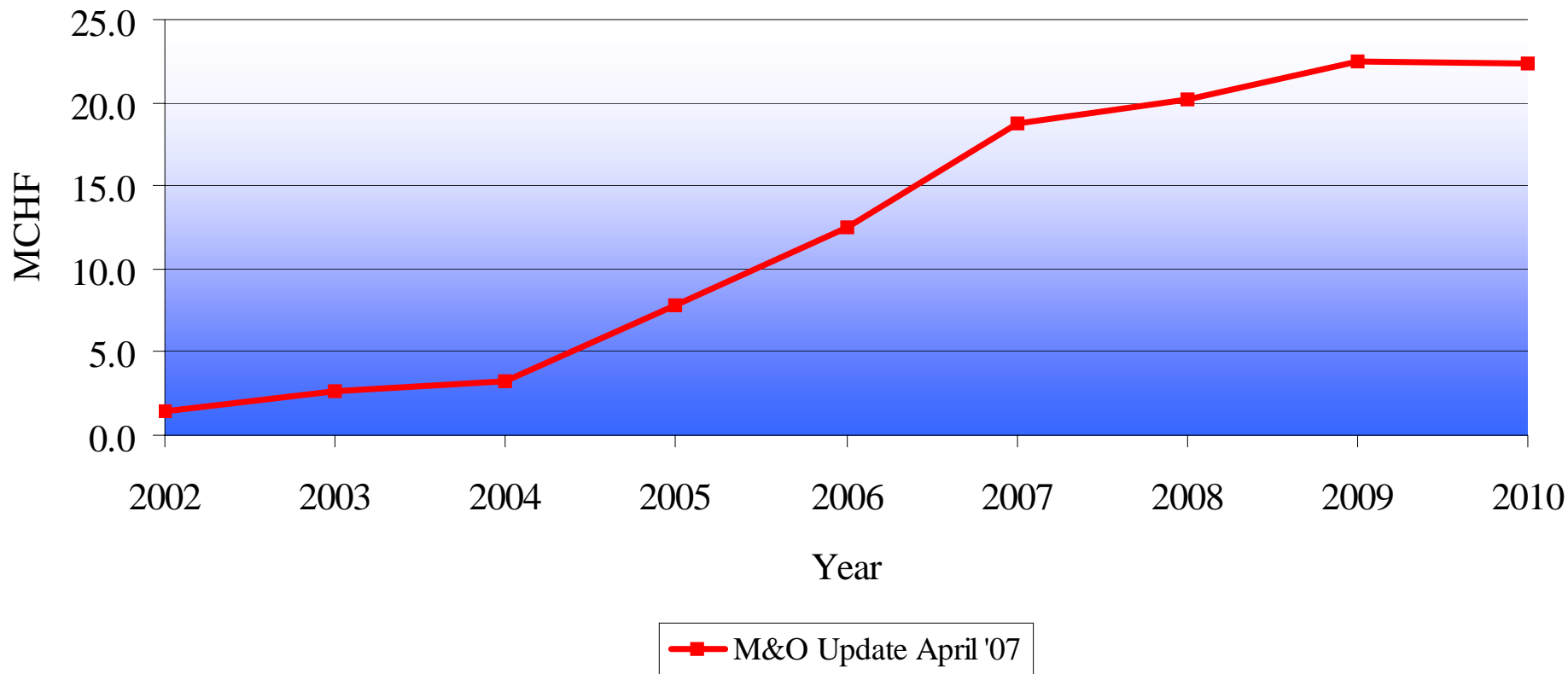


- According to Article 9.5 of the M&O MoU (CERN-RRB-2002-035), the sharing of the Category-B costs is proposed by the Collaboration
- In 2002, ATLAS proposed using construction MoU responsibilities as the basis for sharing, up to the end of the construction period
- Following an internal ATLAS working group (OTSMOU) on Operation Tasks and updated M&O-B sharing, the Collaboration proposes to move towards authors-based sharing, modulated by construction MoU responsibilities (CORE)
 - ATLAS institutes grouped based on their original CORE responsibilities
 - New joining institutes contribute based on their available resources
 - New scheme valid until 2012 (M&O MoU expiration date)
- It is emphasized that due contributions are not forgotten

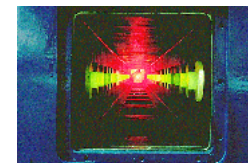
Evolution of M&O 2002 – 2010, MCHF



Evolution of M&O Plans (MCHF)

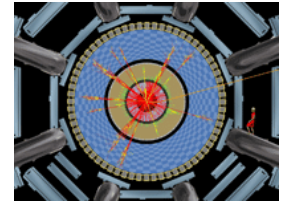


Funding Agency	Signed Date	Signed by
Argentina		
Armenia	02.09.2002	H. Asatryan
Australia	17.10.2003	A. Williams
Austria	02.10.2002	R. Kneucker
Azerbaijan	20.03.2003	N.A.K. Guliyev
Belarus	25.03.2005	Y. Pleskachevsky
Brazil		
Canada	09.09.2002	I. Blain
China NSFC+MSTC	02.08.2002	Wang Naiyan
Czech Republic	20.01.2003	J. Niederle
Denmark	18.08.2004	J.R. Hansen
France CEA	04.09.2002	F. Goumand
France IN2P3	25.09.2002	J.J. Aubert
Georgia	22.08.2002	A.N. Tavkhelidze
Germany BMBF	12.09.2002	R. Koepke
Germany DESY	01.11.2006	R.D. Heuer, C. Scherf
Germany MPI	28.06.2002	S. Bethke
Greece	18.10.2005	I. Tsoukalas
Israel	23.08.2002	D. Horn
Italy	25.11.2002	E. Iarocci
Japan	31.03.2003	H. Sugawara
Morocco	04.02.2004	S. Belcadi
Netherlands	14.11.2002	J. Engelen
Norway	04.09.2002	O.H. Ellestad
Poland	18.10.2004	JK Frackowiak
Portugal	26.06.2002	A. Trigo de Abreu
Romania	21.04.2004	G. Popa
Russia	26.03.2006	A. Fursenko
JINR	07.08.2002	A.N. Sissakian
Serbia	12.08.2005	A. Popovic
Slovak Republic	26.11.2002	M. Fronc
Slovenia	22.04.2003	Z. Stančič
Spain	19.02.2003	P. Morenés
Sweden	25.11.2002	K. Bremer
Switzerland	02.04.2007	A. Clark
Taipei	12.07.2002	C.J. Chen
Turkey	12.03.2003	N.K. Pak
United Kingdom	24.09.2002	J.F. Down
US DOE + NSF	18.10.2002	T.B.W. Kirk
CERN	04.12.2002	D. Schlatter



- **Status of M&O Signatures (Table 6)**
April 11, 2007 update
 - 38 of 40 Funding Agencies have signed
 - Waiting for: Argentina, Brazil
 - Switzerland has signed 02.04.07

RRB Invited to



- Endorse the 2006 construction and M&O budgets
- Take note of the 2007 construction budget updates and of the preliminary 2008 construction and M&O budgets