Government of India

R F D

(Results-Framework Document)
for

Ministry of Earth Sciences

(2014-2015)

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Section 1:
Vision, Mission, Objectives and Functions

Vision

To excel as knowledge and technology enterprise in the realm of earth sciences for socio-economic benefit of the society

Mission

To conduct scientific and technical activities related Earth System Science for improving forecasting of weather, monsoon, climate and hazard, exploration of polar regions, high seas and seas around India and develop technology for exploration and sustainable utilization of ocean resources .

Objectives

1 To improve weather forecast and provide advisory to agriculture, aviation, shipping, sports including the extended , Long Range Seasonal Monsoon forecast

2 To provide a wide range of ocean information advisories including fishery information

3 To improve the understanding of Polar Science and its implications for climate change

4 To conduct survey for assessing non-living resources

5 To developing technology for harnessing marine resources

6 To asses coastal marine productivity and Marine Ecosystems

7 To improve understanding of Climate Change Science

8 To provide early warning of natural hazards viz. cyclone, tsunami, sea level rise.

9 To conduct research in Seismology and Geoscience

10 To promote basic research including Capacity building in the Earth System Science

11 To promote awareness and educate the public by extending support to seminars, symposia, conferences and conduct workshops with stakeholders

Functions

1 To augment and sustain long term observations of atmosphere, ocean, cryosphere and solid earth to record the vital signs of Earth System and changes

2 To develop forecasting capability of atmosphere and oceanic phenomena through dynamical models and assimilation techniques and to build prediction system for weather climate and hazards.

3 To understand interaction between components of Earth Systems and human systems at various spatial and temporal scales

4 Exploration of polar and high seas regions for discovery of new phenomenon and resources

Section 1:
Vision, Mission, Objectives and Functions

5 To translate knowledge and insight themes gained into services for societal, environmental and economic

Section 2:
Inter se Priorities among Key Objectives, Success indicators and Targets

Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
						100%	90%	80%	70%	60%
[1] To improve weather forecast and provide advisory to agriculture, aviation, shipping, sports including the extended , Long Range Seasonal Monsoon forecast	21.00	[1.1] Integrated Agro Advisory Services	[1.1.1] Number of Districts covered by Agro Advisory	number	2.00	622	621	620	605	600
			[1.1.2] Grameen Krishi Mausam Seva (SMS)	number in Million	1.50	45	43	42	41	40
			[1.1.3] Economic Output of the Agro Advisory to the Farmers from Rs. 50,000 Cr. to Rs..2,11,000 Cr.	%	1.50	34	32	30	28	26
		[1.2] Improve Operational Weather Services	[1.2.1] Augmentation of High Performance Computing system (Tera flops from 115 to 600)	number	3.00	790	710	630	500	470
			[1.2.2] Strengthening of Observational Network(AWS, ARGs)	number	4.00	2025	1950	1875	1800	1725
			[1.2.3] Quality Research Publications (Impact Factor) operational services	number	2.50	350	315	280	245	210
			[1.2.4] Operationalize higher resolution Global Numerical Models	Horizontal resolution (km)	2.50	18	19	20	21	22

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Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
						100%	90%	80%	70%	60%
			[1.2.5] Completion of Admission process of the Fourth batch of students for the advanced training program in Earth System Sciences & Climate	number	3.00	20	18	16	14	12
			[1.2.6] Research Publications for operational forecast	number	1.00	140	126	112	98	84
[2] To provide a wide range of ocean information advisories including fishery information	10.00	[2.1] Potential Fishing Zone Advisory Services	[2.1.1] Potential Fishing Zone Advisory	number	2.00	300	270	240	210	160
			[2.1.2] Economic Output of the Advisories to the fishermen from Rs.34,000 Cr. to Rs. 50,000 Cr.	%	2.00	72	70	68	66	64
		[2.2] Ocean State Forecast and Global Ocean Analysis Services	[2.2.1] Ocean State Forecast and Global Ocean Analysis Services	number	3.00	365	328	292	255	219
		[2.3] Strengthening of Ocean Observational network	[2.3.1] Number of deployments	number	3.00	250	225	200	175	150
[3] To improve the understanding of Polar Science and its implications for climate change	12.00	[3.1] Planning, Coordination and implementation of Indian Antarctic Program	[3.1.1] Launching of the 34th Expedition	Date	3.00	20/11/2014	01/12/2014	15/12/2014	31/12/2014	15/01/2015
			[3.1.2] Completion of targeted scientific & logistic tasks	Date	1.00	10/10/2014	15/10/2014	20/10/2014	25/10/2014	31/10/2014

Section 2:
Inter se Priorities among Key Objectives, Success indicators and Targets

Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
						100%	90%	80%	70%	60%
			and return of members of last expedition							
			[3.1.3] Publication of results in peer-reviewed journals	number	0.50	15	13	12	10	9
			[3.1.4] Completion of Analysis of data collected during previous expedition and submission of reports	Date	0.50	--	--	--	--	--
		[3.2] Planning, Co-ordination and implementation of the Scientific Expeditions to the Arctic	[3.2.1] Launching of the 8th Expedition in the Arctic region during the summer (S) and winter (W)	Date	1.00	15/06/2014	20/06/2014	25/06/2014	30/06/2014	04/07/2014
			[3.2.2] Completion of targeted scientific & logistic tasks and return of members of last expedition	Date	1.00	10/10/2014	15/10/2014	20/10/2014	25/10/2014	31/10/2014
			[3.2.3] Publication of results in peer-reviewed journals	number	0.50	6	5	4	3	2
			[3.2.4] Completion of Analysis of data collected during previous expedition and submission of reports	Date	0.50	--	--	--	--	--

Section 2:
Inter se Priorities among Key Objectives, Success indicators and Targets

Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
						100%	90%	80%	70%	60%
		[3.3] Planning, Co-ordination and implementation of the Scientific studies in the Indian Ocean sector of the Southern Ocean.	[3.3.1] Launching of 7th Southern Ocean Expedition (2013-14)	Date	2.50	31/12/2014	10/01/2015	15/01/2015	31/01/2015	05/02/2015
			[3.3.2] completion of targeted scientific and logistics tasks and return of last expedition	Date	0.50	15/11/2014	18/11/2014	22/11/2014	30/11/2014	15/12/2014
			[3.3.3] Publication of results in peer-reviewed journals	number	0.50	8	6	5	4	2
			[3.3.4] Completion of Analysis of data collected during previous expedition and submission of reports	Date	0.50	--	--	--	--	--
[4] To conduct survey for assessing non-living resources	6.00	[4.1] Survey, exploration for Hydrothermal sulphides,	[4.1.1] Acquisition of data	Sq. km.	1.00	2000	1800	1600	1500	1200
			[4.1.2] Completion of processing, analysing and interpretation of data collected	Date	0.85	27/03/2015	28/03/2015	29/03/2015	30/03/2015	31/03/2015
		[4.2] Survey, exploration for Exclusive Economic Zone	[4.2.1] Acquisition of data	Sq. km.	0.70	100000	90000	80000	70000	60000
			[4.2.2] Completion of processing, analysing and interpretation of data collected	Date	0.53	27/03/2015	28/03/2015	29/03/2015	30/03/2015	31/03/2015

Section 2:
Inter se Priorities among Key Objectives, Success indicators and Targets

Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
						100%	90%	80%	70%	60%
		[4.3] Survey, exploration for CLCS	[4.3.1] Acquisition of data	line km.	0.86	6500	4000	3000	2000	1000
			[4.3.2] Completion of processing, analysing and interpretation of data collected	Date	0.35	20/03/2015	22/03/2015	25/03/2015	28/03/2015	31/03/2015
		[4.4] Integrated Ocean Drilling Program (IODP)	[4.4.1] Expert review and response to the Indian IODP proposal, Participation of Indian scientists in IODP expeditions, Liaisoning with international program agency towards IODP activities	Date	1.37	01/01/2015	04/01/2015	12/01/2015	25/01/2015	01/02/2015
		[4.5] Publications	[4.5.1] Publication of results in peer reviewed journals	Number	0.34	7	6	5	4	2
[5] To developing technology for harnessing marine resources	12.00	[5.1] Technology Development for Gas Hydrates-Development of Autonomous Coring System and Sea trials	[5.1.1] Core sampling by Autonomous coring System (ACS) at Gas Hydrate location	Date	7.00	30/11/2014	31/12/2014	31/01/2015	28/02/2015	31/03/2015
		[5.2] Development of Deep-sea Mining Equipment for 6000 m –Phase-I	[5.2.1] Configuration and handling studies of flexible rises system	Date	5.00	30/11/2014	31/12/2014	31/01/2015	28/02/2015	31/03/2015

Section 2:
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Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
						100%	90%	80%	70%	60%
[6] To asses coastal marine productivity and Marine Ecosystems	4.00	[6.1] Establishment of Indian Ocean biogeographical Information System (IndOBIS)	[6.1.1] No. of records.	number	2.00	6000	4000	3000	2000	1000
		[6.2] Monitoring of levels of marine pollution at 20 locations along Indian coast	[6.2.1] Data on all pollution parameters		1.00	20	17	14	12	10
		[6.3] Dissemination of water quality status to coastal State Pollution Boards	[6.3.1] Dissemination of water quality status to coastal State Pollution Boards		1.00	12	11	10	9	8
[7] To improve understanding of Climate Change Science	5.00	[7.1] To set up Centre for Climate Change Research (CCCR) at IITM with dedicated research facilities	[7.1.1] Regional Climate Projections (Scenarios)	Year	1.00	2075	2065	2055	2045	2035
			[7.1.2] Cumulative Impact Factor of the Research Papers	Number	2.00	100	90	80	70	60
			[7.1.3] Number of the Research Papers	Number	2.00	50	45	40	35	30
[8] To provide early warning of natural hazards viz. cyclone, tsunami, sea level rise.	5.00	[8.1] Tsunami Advisory Services	[8.1.1] Issue of Earthquake bulletin with minimum time lag after the earth quake on sea-bed	Minutes after the quake	2.50	12	15	18	20	25
			[8.1.2] Issue of Tsunami warning with minimum time lag after the earth	Minutes of warning	2.50	30	35	40	45	50

Section 2:
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Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
						100%	90%	80%	70%	60%
			quake on sea-bed							
[9] To conduct research in Seismology and Geoscience	4.00	[9.1] Strengthening of Seismic Observational Network	[9.1.1] Deployment of Broadband seismographs	Number	1.50	50	45	40	35	30
		[9.2] To setup a National Centre for Seismology	[9.2.1] To initiate construction of building	Date	1.50	31/05/2014	30/06/2014	31/07/2014	31/08/2014	30/09/2014
		[9.3] Understanding of seismic process	[9.3.1] Completion of prepartory phase of Koyna investigation	Date	1.00	30/09/2014	31/10/2014	30/11/2014	31/12/2014	15/01/2015
[10] To promote basic research including Capacity building in the Earth System Science	4.00	[10.1] Develop new project in Earth System	[10.1.1] Projects supported Science	Number of Projects	1.00	40	35	30	24	20
		[10.2] To set training centres in the field of Operational Oceanography,Meteorology	[10.2.1] Successful conduct of short term (1-2 weeks) training courses	Number of persons-days	3.00	500	450	400	350	300
[11] To promote awareness and educate the public by extending support to seminars, symposia, conferences and conduct workshops with stakeholders	2.00	[11.1] Recieving Proposals	[11.1.1] No. of proposals supported	Number	2.00	100	90	80	70	60
* Efficient Functioning of the RFD System	3.00	Timely submission of Draft RFD for 2015-2016 for Approval	On-time submission	Date	2.0	05/03/2015	06/03/2015	09/03/2015	10/03/2015	11/03/2015
		Timely submission of Results for 2013-2014	On-time submission	Date	1.0	01/05/2014	02/05/2014	03/05/2014	06/05/2014	07/05/2014

* Mandatory Objective(s)

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Objective	Weight	Action	Success Indicator	Unit	Weight	Target / Criteria Value				
						Excellent	Very Good	Good	Fair	Poor
						100%	90%	80%	70%	60%
* Enhanced Transparency / Improved Service delivery of Ministry/Department	3.00	Rating from Independent Audit of implementation of Citizens' / Clients' Charter (CCC)	Degree of implementation of commitments in CCC	%	2.0	100	95	90	85	80
		Independent Audit of implementation of Grievance Redress Management (GRM) system	Degree of success in implementing GRM	%	1.0	100	95	90	85	80
* Reforming Administration	8.00	Update departmental strategy to align with revised priorities	Date	Date	2.0	01/11/2014	02/11/2014	03/11/2014	04/11/2014	05/11/2014
		Implement agreed milestones of approved Mitigating Strategies for Reduction of potential risk of corruption (MSC).	% of Implementation	%	1.0	100	90	80	70	60
		Implement agreed milestones for implementation of ISO 9001	% of implementation	%	2.0	100	95	90	85	80
		% of Responsibility Centres with RFD in RFMS	Responsibility Centres covered	%	1.0	100	95	90	85	80
		Implement agreed milestones of approved Innovation Action Plans (IAPs).	% of implementation	%	2.0	100	90	80	70	60
* Improve compliance with the Financial Accountability Framework	1.00	Timely submission of ATNs on Audit paras of C&AG	Percentage of ATNs submitted within due date (4 months) from date of presentation of Report to Parliament by CAG during the year.	%	0.25	100	90	80	70	60

* Mandatory Objective(s)

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						Excellent	Very Good	Good	Fair	Poor
						100%	90%	80%	70%	60%
		Timely submission of ATRs to the PAC Sectt. on PAC Reports.	Percentage of ATRS submitted within due date (6 months) from date of presentation of Report to Parliament by PAC during the year.	%	0.25	100	90	80	70	60
		Early disposal of pending ATNs on Audit Paras of C&AG Reports presented to Parliament before 31.3.2014.	Percentage of outstanding ATNs disposed off during the year.	%	0.25	100	90	80	70	60
		Early disposal of pending ATRs on PAC Reports presented to Parliament before 31.3.2014	Percentage of outstanding ATRS disposed off during the year.	%	0.25	100	90	80	70	60

* Mandatory Objective(s)

Section 3:
Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 12/13	Actual Value for FY 13/14	Target Value for FY 14/15	Projected Value for FY 15/16	Projected Value for FY 16/17
[1] To improve weather forecast and provide advisory to agriculture, aviation, shipping, sports including the extended , Long Range Seasonal Monsoon forecast	[1.1] Integrated Agro Advisory Services	[1.1.1] Number of Districts covered by Agro Advisory	number	585	600	620	625	630
		[1.1.2] Grameen Krishi Mausam Seva (SMS)	number in Million	34	4000000	45	55	60
		[1.1.3] Economic Output of the Agro Advisory to the Farmers from Rs. 50,000 Cr. to Rs..2,11,000 Cr.	%	26	28	32	36	40
	[1.2] Improve Operational Weather Services	[1.2.1] Augmentation of High Performance Computing system (Tera flops from 115 to 600)	number	115	790	790	900	1000
		[1.2.2] Strengthening of Observational Network(AWS, ARGs)	number	1595	2051	2025	2025	2025
		[1.2.3] Quality Research Publications (Impact Factor) operational services	number	216	276	350	400	450
		[1.2.4] Operationalize higher resolution Global Numerical Models	Horizontal resolution (km)	25	22	18	18	18
		[1.2.5] Completion of Admission process of the Fourth batch	number	16	18	20	25	30

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Section 3:
Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 12/13	Actual Value for FY 13/14	Target Value for FY 14/15	Projected Value for FY 15/16	Projected Value for FY 16/17
		of students for the advanced training program in Earth System Sciences & Climate						
		[1.2.6] Research Publications for operational forecast	number	172	154	140	150	155
[2] To provide a wide range of ocean information advisories including fishery information	[2.1] Potential Fishing Zone Advisory Services	[2.1.1] Potential Fishing Zone Advisory	number	292	297	300	300	300
		[2.1.2] Economic Output of the Advisories to the fishermen from Rs.34,000 Cr. to Rs. 50,000 Cr.	%	60	65	70	74	78
	[2.2] Ocean State Forecast and Global Ocean Analysis Services	[2.2.1] Ocean State Forecast and Global Ocean Analysis Services	number	365	365	365	365	365
	[2.3] Strengthening of Ocean Observational network	[2.3.1] Number of deployments	number	324	248	250	250	250
[3] To improve the understanding of Polar Science and its implications for climate change	[3.1] Planning, Coordination and implementation of Indian Antarctic Program	[3.1.1] Launching of the 34th Expedition	Date	10/11/2012	12/11/2013	20/11/2014	20/11/2015	20/11/2016
		[3.1.2] Completion of targeted scientific & logistic tasks and return of members of last expedition	Date	03/04/2012	03/04/2013	10/04/2014	08/04/2015	08/04/2016

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Section 3:
Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 12/13	Actual Value for FY 13/14	Target Value for FY 14/15	Projected Value for FY 15/16	Projected Value for FY 16/17
		[3.1.3] Publication of results in peer-reviewed journals	number	7	14	15	15	15
		[3.1.4] Completion of Analysis of data collected during previous expedition and submission of reports	Date	15/10/2012	07/10/2013	10/10/2014	10/10/2015	10/10/2016
	[3.2] Planning, Co-ordination and implementation of the Scientific Expeditions to the Arctic	[3.2.1] Launching of the 8th Expedition in the Arctic region during the summer (S) and winter (W)	Date	01/06/2012	08/06/2013	15/06/2014	15/06/2015	15/06/2016
		[3.2.2] Completion of targeted scientific & logistic tasks and return of members of last expedition	Date	28/04/2012	15/04/2013	30/04/2014	10/04/2015	10/04/2016
		[3.2.3] Publication of results in peer-reviewed journals	number	5	4	6	6	6
		[3.2.4] Completion of Analysis of data collected during previous expedition and submission of reports	Date	15/10/2012	10/10/2013	10/10/2014	10/10/2015	10/10/2016
	[3.3] Planning, Co-ordination and implementation of the Scientific studies in the Indian Ocean	[3.3.1] Launching of 7th Southern Ocean Expedition (2013-14)	Date	11/01/2013	--	10/12/2014	16/01/2016	16/01/2017

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Section 3:
Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 12/13	Actual Value for FY 13/14	Target Value for FY 14/15	Projected Value for FY 15/16	Projected Value for FY 16/17
	sector of the Southern Ocean.							
		[3.3.2] completion of targeted scientific and logistics tasks and return of last expedition	Date	31/10/2012	--	15/11/2014	15/11/2015	15/11/2016
		[3.3.3] Publication of results in peer-reviewed journals	number	2	8	8	8	8
		[3.3.4] Completion of Analysis of data collected during previous expedition and submission of reports	Date	31/10/2012	15/11/2013	20/10/2014	15/11/2015	15/11/2016
[4] To conduct survey for assessing non-living resources	[4.1] Survey, exploration for Hydrothermal sulphides,	[4.1.1] Acquisition of data	Sq. km.	65000	0	2000	2000	--
		[4.1.2] Completion of processing, analysing and interpretation of data collected	Date	31/03/2013	30/04/2013	28/02/2015	31/03/2016	--
	[4.2] Survey, exploration for Exclusive Economic Zone	[4.2.1] Acquisition of data	Sq. km.	80000	187861	250000	350000	500000
		[4.2.2] Completion of processing, analysing and interpretation of data collected	Date	31/03/2013	31/03/2014	27/03/2015	31/03/2016	--

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Section 3:
Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 12/13	Actual Value for FY 13/14	Target Value for FY 14/15	Projected Value for FY 15/16	Projected Value for FY 16/17
	[4.3] Survey, exploration for CLCS	[4.3.1] Acquisition of data	line km.	0	0	6500	0	0
		[4.3.2] Completion of processing, analysing and interpretation of data collected	Date	--	--	28/02/2015	--	--
	[4.4] Integrated Ocean Drilling Program (IODP)	[4.4.1] Expert review and response to the Indian IODP proposal, Participation of Indian scientists in IODP expeditions, Liaisoning with international program agency towards IODP activities	Date	01/02/2013	01/01/2014	01/02/2015	01/06/2015	31/03/2017
	[4.5] Publications	[4.5.1] Publication of results in peer reviewed journals	Number	4	4	7	7	7
[5] To developing technology for harnessing marine resources	[5.1] Technology Development for Gas Hydrates-Development of Autonomous Coring System and Sea trials	[5.1.1] Core sampling by Autonomous coring System (ACS) at Gas Hydrate location	Date	--	--	31/12/2014	--	--
	[5.2] Development of Deep-sea Mining Equipment for 6000 m –Phase-I	[5.2.1] Configuration and handling studies of flexible rises system	Date	--	--	31/12/2014	--	--
[6] To asses coastal marine productivity and Marine	[6.1] Establishment of Indian Ocean	[6.1.1] No. of records.	number	40000	54000	60000	66000	72000

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Section 3:
Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 12/13	Actual Value for FY 13/14	Target Value for FY 14/15	Projected Value for FY 15/16	Projected Value for FY 16/17
Ecosystems	biogeographical Information System (IndOBIS)							
	[6.2] Monitoring of levels of marine pollution at 20 locations along Indian coast	[6.2.1] Data on all pollution parameters		17	17	18	20	20
	[6.3] Dissemination of water quality status to coastal State Pollution Boards	[6.3.1] Dissemination of water quality status to coastal State Pollution Boards		12	10	11	12	12
[7] To improve understanding of Climate Change Science	[7.1] To set up Centre for Climate Change Research (CCCR) at IITM with dedicated research facilities	[7.1.1] Regional Climate Projections (Scenarios)	Year	2030	2045	2075	2080	2085
		[7.1.2] Cumulative Impact Factor of the Research Papers	Number	52	48	100	110	120
		[7.1.3] Number of the Research Papers	Number	34	24	50	55	60
[8] To provide early warning of natural hazards viz. cyclone, tsunami, sea level rise.	[8.1] Tsunami Advisory Services	[8.1.1] Issue of Earthquake bulletin with minimum time lag after the earth quake on sea-bed	Minutes after the quake	12	12	12	12	12
		[8.1.2] Issue of Tsunami warning with minimum time lag after the earth quake on sea-bed	Minutes of warning	30	30	30	30	30

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Section 3:
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Objective	Action	Success Indicator	Unit	Actual Value for FY 12/13	Actual Value for FY 13/14	Target Value for FY 14/15	Projected Value for FY 15/16	Projected Value for FY 16/17
[9] To conduct research in Seismology and Geoscience	[9.1] Strengthening of Seismic Observational Network	[9.1.1] Deployment of Broadband seismographs	Number	0	40	40	38	30
	[9.2] To setup a National Centre for Seismology	[9.2.1] To initiate construction of building	Date	--	--	31/05/2014	--	--
	[9.3] Understanding of seismic process	[9.3.1] Completion of prepartory phase of Koyna investigation	Date	--	--	30/09/2014	--	--
[10] To promote basic research including Capacity building in the Earth System Science	[10.1] Develop new project in Earth System	[10.1.1] Projects supported Science	Number of Projects	35	30	24	25	25
	[10.2] To set training centres in the field of Operational Oceanography,Meteorology	[10.2.1] Successful conduct of short term (1-2 weeks) training courses	Number of persons-days	150	200	500	600	650
[11] To promote awareness and educate the public by extending support to seminars, symposia, conferences and conduct workshops with stakeholders	[11.1] Recieving Proposals	[11.1.1] No. of proposals supported	Number	80	7	108	160	180
* Efficient Functioning of the RFD System	Timely submission of Draft RFD for 2015-2016 for Approval	On-time submission	Date	--	--	06/03/2015	--	--
	Timely submission of Results for 2013-2014	On-time submission	Date	--	30/04/2014	02/05/2014	--	--
* Enhanced Transparency / Improved Service delivery of	Rating from Independent Audit of implementation of	Degree of implementation of commitments in CCC	%	--	--	95	--	--

* Mandatory Objective(s)

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Section 3:
Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 12/13	Actual Value for FY 13/14	Target Value for FY 14/15	Projected Value for FY 15/16	Projected Value for FY 16/17
Ministry/Department	Citizens' / Clients' Charter (CCC)							
	Independent Audit of implementation of Grievance Redress Management (GRM) system	Degree of success in implementing GRM	%	--	--	95	--	--
* Reforming Administration	Update departmental strategy to align with revised priorities	Date	Date	--	--	02/11/2014	--	--
	Implement agreed milestones of approved Mitigating Strategies for Reduction of potential risk of corruption (MSC).	% of Implementation	%	--	--	90	--	--
	Implement agreed milestones for implementation of ISO 9001	% of implementation	%	--	--	95	--	--
	% of Responsibility Centres with RFD in RFMS	Responsibility Centres covered	%	--	--	95	--	--
	Implement agreed milestones of approved Innovation Action Plans (IAPs).	% of implementation	%	--	--	90	--	--
* Improve compliance with the Financial Accountability Framework	Timely submission of ATNs on Audit paras of C&AG	Percentage of ATNs submitted within due date (4 months) from date of presentation of Report to Parliament by CAG during the year.	%	--	--	90	--	--

* Mandatory Objective(s)

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Section 3:
Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 12/13	Actual Value for FY 13/14	Target Value for FY 14/15	Projected Value for FY 15/16	Projected Value for FY 16/17
	Timely submission of ATRs to the PAC Sectt. on PAC Reports.	Percentage of ATRS submitted within due date (6 months) from date of presentation of Report to Parliament by PAC during the year.	%	--	--	90	--	--
	Early disposal of pending ATNs on Audit Paras of C&AG Reports presented to Parliament before 31.3.2014.	Percentage of outstanding ATNs disposed off during the year.	%	--	--	90	--	--
	Early disposal of pending ATRs on PAC Reports presented to Parliament before 31.3.2014	Percentage of outstanding ATRS disposed off during the year.	%	--	--	90	--	--

* Mandatory Objective(s)

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Section 4:
Acronym

SI.No	Acronym	Description
1	ACS	Autonomous Coring System
2	ARG	Automatic Rain Gauge
3	AWS	Automatic Weather Station
4	CCCR	Centre for Climate Change Research
5	CLCS	Commission on the Limits of the Continental Shelf
6	CPP	Complementary Project Proposal

Section 4:
Acronym

SI.No	Acronym	Description
7	EEZ	Exclusive Economic Zone
8	IITM	Indian Institute of Tropical Meteorology
9	INDoBIS	Indian Ocean Biogeographic Information System
10	IODP	Integrated Ocean Drilling Program (recently renamed as International Ocean Discovery Program)
11	Line Km	Line kilometer
12	MEA	Ministry of External Affairs

Section 4:
Acronym

SI.No	Acronym	Description
13	MOD	Ministry of Defence
14	NCAOR	National Centre for Antarctic and Ocean Research
15	SMS	Short Messaging System
16	Sq. Km.	Square Kilometer

Section 4:
Description and Definition of Success Indicators and Proposed Measurement Methodology

SI.No	Success indicator	Description	Definition	Measurement	General Comments
1	[1.1.1] Number of Districts covered by Agro Advisory	Weekly District level weather forecast &advisories to farmers in India	Weekly District level weather forecast &advisories to farmers in India	No. of Districts	
2	[1.1.2] Grameen Krishi Mausam Seva (SMS)	Dissemination of weather and climate forecast on mobile to the farmers.	Dissemination of weather and climate forecast on mobile to the farmers.	Number of mobiles of farmers	NIL
3	[1.2.1] Augmentation of High Performance Computing system (Tera flops from 115 to 600)	Computer of the order of the order of 100 – 1000 Terra Flops required for running the numerical weather Models	Computer of the order of the order of 100 – 1000 Terra Flops required for running the numerical weather models	Computing power in Terra Flops	Nil
4	[1.2.2] Strengthening of Observational Network(AWS, ARGs)	AWS= Automatic Weather Stations to acquire real-time data ARG= Automatic Rain Gauge to acquire real-time data on rainfall	AWS= Automatic Weather Stations to acquire real-time data ARG= Automatic Rain Gauge to acquire real-time data on rainfall	No. of observation platforms	
5	[1.2.3] Quality Research Publications (Impact Factor) operational services	Impact Factor is a measure reflecting the average number of citations to articles published in science and technology journals.	Impact Factor is a measure reflecting the average number of citations to articles published in science and technology journals.	Impact Factor	

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Section 4:
Description and Definition of Success Indicators and Proposed Measurement Methodology

SI.No	Success indicator	Description	Definition	Measurement	General Comments
6	[1.2.4] Operationalize higher resolution Global Numerical Models	Progressive decrease in Root Mean Square Error (RMSE) of forecast fields. (eq. 850hPa winds over the Indian region)	Progressive decrease in Root Mean Square Error (RMSE) of forecast fields. (eq. 850hPa winds over the Indian region)	Spatial Resolution	NIL
7	[1.2.6] Research Publications for operational forecast	Research Publications for operational forecast	Research Publications for operational forecast	Number of Forecast	NIL
8	[2.1.1] Potential Fishing Zone Advisory	The advisories on Potential Fishing Zone and Ocean State Forecast are provided to fishing community through the Electronic Display Boards installed at fishing harbours and fish-landing centers. More number of such boards will be installed at more locations to increase the dissemination	The advisories on Potential Fishing Zone and Ocean State Forecast are provided to fishing community through the Electronic Display Boards installed at fishing harbours and fish-landing centers. More number of such boards will be installed at more locations to increase the dissemination	No. of advisories	NIL
9	[2.2.1] Ocean State Forecast and Global Ocean Analysis Services	Advisories through installation of electronic boards	Advisories through installation of electronic boards	Number of forecast	

Section 4:
Description and Definition of Success Indicators and Proposed Measurement Methodology

SI.No	Success indicator	Description	Definition	Measurement	General Comments
10	[2.3.1] Number of deployments	Observational platforms viz Argo floats, satellite tracked drifters, current meter moorings, ADCP moorings, XBTs, etc are to be deployed to strengthen and expand the ocean observational network.	Observational platforms viz Argo floats, satellite tracked drifters, current meter moorings, ADCP moorings, XBTs, etc are to be deployed to strengthen and expand the ocean observational network.	Number of Deployments	
11	[3.1.3] Publication of results in peer-reviewed journals	Actual completion of all targeted scientific data collection; Launching and return of the expedition as per schedule.	Actual completion of all targeted scientific data collection; Launching and return of the expedition as per schedule.	Number of Journals	NIL
12	[3.2.3] Publication of results in peer-reviewed journals	Publications	Research Publications in impact fact journals	Number	Nil
13	[3.3.1] Launching of 7th Southern Ocean Expedition (2013-14)	Actual completion of all targeted scientific data collection; Launching and return of the expedition as per Schedule.	Launching of Southern Ocean Expedition, and completion of all targeted scientific activities	Date	NIL

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Section 4:
Description and Definition of Success Indicators and Proposed Measurement Methodology

SI.No	Success indicator	Description	Definition	Measurement	General Comments
14	[3.3.2] completion of targeted scientific and logistics tasks and return of last expedition	No. of samples analysed vis-à-vis the targets and the number of publications vs. targeted	completion of all targeted scientific activities and publications in peer-reviewed journals	date	
15	[3.3.3] Publication of results in peer-reviewed journals	Publications	Research Publications in impact fact journals	Number	
16	[4.1.2] Completion of processing, analysing and interpretation of data collected	Analysis of Geophysical Data for identification of sources for hydrothermal sulphide.	Analysis of Geophysical Data for identification of sources for hydrothermal sulphide.	Date	
17	[4.2.2] Completion of processing, analysing and interpretation of data collected	Development of Exploratory Mining System using subsystems used for 500 m tests of Collector/ Crusher and qualification before the indicated dates, to ensure further development of 6000 m is possible. So dates are used in definitions	Qualification of Collector, Crusher, Hydraulics, Electrical, Sensors, Electronics, Telemetry and Control Systems for operations in suspension at 2500 m or higher depths	Date	
18	[4.3.1] Acquisition of data	Suction piles are widely used in mooring applications for floating production units and find widespread applications in the offshore oil industry. Suction caissons or piles are large	Suction piles are widely used in mooring applications for floating production units and find widespread applications in the offshore oil	Line Km	

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Section 4:
Description and Definition of Success Indicators and Proposed Measurement Methodology

SI.No	Success indicator	Description	Definition	Measurement	General Comments
18	[4.3.1] Acquisition of data	cylindrical (inverted bucket type structure) open at the bottom and closed at the top. The caissons are being increasingly used these days for offshore foundations in deep waters. Development and demonstration of a methodology, design and logistics for suction pile installation and retrieval for the mooring systems at 50m water depths is proposed.	industry. Suction caissons or piles are large cylindrical (inverted bucket type structure) open at the bottom and closed at the top. The caissons are being increasingly used these days for offshore foundations in deep waters. Development and demonstration of a methodology, design and logistics for suction pile installation and retrieval for the mooring systems at 50m water depths is proposed.	Line Km	
19	[4.3.2] Completion of processing, analysing and interpretation of data collected	Analysis of Geophysical Data for identification of sources for hydrothermal sulphide	Analysis of Geophysical Data for identification of sources for hydrothermal sulphide	Date	
20	[4.4.1] Expert review and response to the Indian IODP proposal, Participation of Indian scientists in IODP expeditions, Liaisoning with international program agency towards IODP activities	Studies carried out vs. planned, the no. of publications, and the date of submission of drilling proposal to IODP and its acceptance.	Completion of targeted scientific activities, finalization and submission of response to the expert review of the Indian proposal for deep sea drilling under IODP; collection of marine	Date	

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Section 4:
Description and Definition of Success Indicators and Proposed Measurement Methodology

SI.No	Success indicator	Description	Definition	Measurement	General Comments
20	[4.4.1] Expert review and response to the Indian IODP proposal, Participation of Indian scientists in IODP expeditions, Liaisoning with international program agency towards IODP activities	Studies carried out vs. planned, the no. of publications, and the date of submission of drilling proposal to IODP and its acceptance.	geophysical data for site survey	Date	
21	[4.6.1] Publication of results in peer reviewed journals	Development of Exploratory Mining System using subsystems used for 500 m tests of Collector/ Crusher and qualification before the indicated dates, to ensure further development of 6000 m is possible. So dates are used in definitions	Development of Exploratory Mining System using subsystems used for 500 m tests of Collector/ Crusher and qualification before the indicated dates, to ensure further development of 6000 m is possible. So dates are used in definitions	Number	
22	[5.1.1] Core sampling by Autonomous coring System (ACS) at Gas Hydrate location	Development of ACS has been Completed and tested at 100 m depth. A potential Gas Hydrate site is identified at 1000m in KG Basin in Bay of Bengal. Therefore sea trials above 1000 m at Gas Hydrate site is given.	Development of ACS has been completed and tested at 100 m depth. A potential Gas Hydrate site is identified at 1000m in KG Basin in Bay of Bengal. Therefore sea trials above 1000 m at Gas Hydrate site is given.	date	nil

Section 4:
Description and Definition of Success Indicators and Proposed Measurement Methodology

SI.No	Success indicator	Description	Definition	Measurement	General Comments
23	[6.1.1] No. of records.	Operationalisation of Hatchery	Establishment of laboratory in Agatti for Ornamental fish culture.	Number	NIL
24	[6.2.1] Data on all pollution parameters	Management Plan	Development of sediment transport model for Gopalpur, Orissa	number	nil
25	[7.1.1] Regional Climate Projections (Scenarios)	Centre for conducting research in the field of climate change	Establishment of centre by inducting scientists	Number	
26	[7.1.2] Cumulative Impact Factor of the Research Papers	Research Publications	Publications in impact fact journals	number	
27	[7.1.3] Number of the Research Papers	Centre for conducting research in the field of climate change	Establishment of centre by inducting scientists	number	

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Section 4:
Description and Definition of Success Indicators and Proposed Measurement Methodology

SI.No	Success indicator	Description	Definition	Measurement	General Comments
28	[8.6.1] Issue of Earthquake bulletin with minimum time lag after the earth quake on sea-bed	The process of issuing the tsunami early warning involves the detection of the occurrence of earthquake its magnitude and location, assessment of tsunami genesis potential and confirmation of The generation of tsunami through the real time monitoring of sea levels at nearest sea level Gauges and bottom pressure recorders. For the warning to be effective and useful, the time lag between the occurrence of earthquake on the sea bed and the tsunami Early warning should be minimum.	Issue of Tsunami warning with minimum time lag after the occurrence of earthquake on the sea bed	Percentatge	NIL
29	[8.6.2] Issue of Tsunami warning with minimum time lag after the earth quake on sea-bed	The process of issuing the tsunami early warning involves the detection of the occurrence of earthquake its magnitude and location, assessment of tsunami genesis potential and confirmation of the generation of tsunami through the real time monitoring of sea levels at nearest sea level Gauges and bottom pressure recorders. For the warning to be effective and useful, the time lag between the occurrence	Issue of Tsunami warning with minimum time lag after the occurrence of earthquake on the sea¬bed	percentage	nil

Section 4:
Description and Definition of Success Indicators and Proposed Measurement Methodology

SI.No	Success indicator	Description	Definition	Measurement	General Comments
29	[8.6.2] Issue of Tsunami warning with minimum time lag after the earth quake on sea-bed	of earthquake on the sea bed and the tsunami Early warning should be minimum.	Issue of Tsunami warning with minimum time lag after the occurrence of earthquake on the sea¬bed	percentage	nil
30	[9.1.1] Deployment of Broadband seismographs	Improve earthquake research	Obtain the approval and launch of the programe of NCS	Number	
31	[9.2.1] To initiate construction of building	Construction of Building	Development of campus for National Centre for Seismology	Date	
32	[9.3.1] Completion of prepartory phase of Koyna investigation	Drilling of boreholes at Koyna	Drilling of boreholes at Koyna	Date	
33	[11.1.1] No. of proposals supported	conducting user oriented workshops for promoting awareness on various activities of the ministry.	conducting user oriented workshops for promoting awareness on various activities of the ministry.	Number	NIL

Section 5 :
Specific Performance Requirements from other Departments

Location Type	State	Organisation Type	Organisation Name	Relevant Success Indicator	What is your requirement from this organisation	Justification for this requirement	Please quantify your requirement from this Organisation	What happens if your requirement is not met.
Central Government		Departments	Departments of Space	[2.1.1] Potential Fishing Zone Advisory [2.2.1] Ocean State Forecast and Global Ocean Analysis Services [2.3.1] Number of deployments	Potential Fishing Zone Advisories	Feedback and dissemination of information	50%	Projectcould not be implemented fully
			Department of Agriculture and Cooperation	[1.1.1] Number of Districts covered by Agro Advisory [1.1.2] Grameen Krishi Mausam Seva (SMS) [1.2.1] Augmentation of High Performance Computing system (Tera flops from 115 to 600) [1.2.2] Strengthening of Observational Network(AWS, ARGs) [1.2.3] Quality Research Publications (Impact Factor) operational services [1.2.4] Operationalize higher resolution	Feedback and dissemination of information	To validate the forecast		

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Section 5 :
Specific Performance Requirements from other Departments

Location Type	State	Organisation Type	Organisation Name	Relevant Success Indicator	What is your requirement from this organisation	Justification for this requirement	Please quantify your requirement from this Organisation	What happens if your requirement is not met.
				Global Numerical Models Completion of Admission process of the third batch of students for the advanced training program in Earth System Sciences & Climate [1.2.6] Research Publications for operational forecast				
		Ministry	Ministry of Defence	[1.2.2] Strengthening of Observational Network(AWS, ARGs) [2.3.1] Number of deployments [4.2.1] Acquisition of data [5.1.1] Core sampling by Autonomous coring System (ACS) at Gas Hydrate location [8.6.2] Issue of Tsunami warning with minimum time lag after the earth quake on sea-bed	Security Clearance	National Security	50%	Will not be able to achieve the target.

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Section 5 :
Specific Performance Requirements from other Departments

Location Type	State	Organisation Type	Organisation Name	Relevant Success Indicator	What is your requirement from this organisation	Justification for this requirement	Please quantify your requirement from this Organisation	What happens if your requirement is not met.
				[9.1.1] Deployment of Broadband seismographs				
			Ministry of Finance	[1.2.2] Strengthening of Observational Network(AWS, ARGs) [4.1.1] Acquisition of data [4.2.1] Acquisition of data [4.3.1] Acquisition of data	adequate budget allocation			Will not be able to achieve the target

Section 6:
Outcome/Impact of Department/Ministry

	Outcome/Impact of Department/Ministry	Jointly responsible for influencing this outcome / impact with the following department (s) / ministry(ies)	Success Indicator	Unit	FY 12/13	FY 13/14	FY 14/15	FY 15/16	FY 16/17
1	Economic Benefits of the weather Services	Agriculture, Railways, Tourism and Civil Aviation	weather and climate services	days in advance	3	4	5	6	7
2	Economic Benefirts of Coastal and Ocean Services	State Fishery Department, Shipping, Navy, Offshore industry, Ports and Coast Guard, Coastal State Governments, NGOs	fishery Advisory Services, Early Warning of oceanogenic disasters viz., Cyclone, Tsunami, and Storm Surges, High waves	time in advance	1	2	5	6	6
3	State of Marine Environment and Air Quality Services	Pollution Control Boards of Coastal States and Metro Cities	Monitoring Coastal Pollution and Air Quality of Metro Cities	number	10	12	15	17	19

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