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(Results-Framework Document)
for

Ministry of Earth Sciences

(2013-2014)

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Section 1:
Vision, Mission, Objectives and Functions

Vision

To excel as knowledge and technology enterprise in the earth system science realm towards 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, seas around India and develop technology for exploration and exploitation of ocean resources (living and ocean and non-living), ensuring their sustainable utilization.

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 assess coastal marine productivity and Marine Ecosystem

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 Promote basic and applied research schemes relating to the meteorology, seismology, oceanography, ocean resources, polar science, cryosphere and geo sciences not specifically allocated to any other Department or Ministry

2 Generate and disseminate information advisories to various sectors and public at large;

3 Conduct marine surveys for mapping, locating and assessing the living and non-living marine resources and assessing marine environment and exploration of oceans;

Section 1:
Vision, Mission, Objectives and Functions

4	Develop technology for harnessing marine resources
5	Preservation, conservation and protection of marine resources
6	Conduct experiments for understanding of atmospheric processes including atmospheric chemistry
7	Explore cryosphere regions and understanding of cryosphere processes;
8	Monitor earthquakes, understanding of earthquake processes and modeling
9	Interaction of atmospheric, ocean, geosphere, biosphere and cryospheric processes and development of earth system models;
10	International collaboration and cooperation and participation in inter-governmental forums including UN
11	Development of appropriate skills and manpower

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	620	610	600	575	550
			[1.1.2] Grameen Krishi Mausam Seva (SMS)	Number	3.00	3700000	3500000	3400000	3300000	3100000
		[1.2] Improve Operational Weather Services	[1.2.1] Augmentation of High Performance Computing system (Tera flops from 115 to 600)	number	3.00	600	540	480	420	360
			[1.2.2] Strengthening of Observational Network(AWS, ARGs)	number	4.00	2025	1825	1650	1500	1350
			[1.2.3] Quality Research Publications (Impact Factor) operational services	number	2.50	240	216	192	168	144
			[1.2.4] Operationalize higher resolution Global Numerical Models	Horizontal resolution (km)	2.50	22	25	28	30	35
			[1.2.5] Completion of Admission process of the third batch of students for the advanced training program	number	1.50	25	20	13	11	9

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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%
			in Earth System Sciences & Climate							
			[1.2.6] Research Publications for operational forecast	number	2.50	120	108	96	84	72
[2] To provide a wide range of ocean information advisories including fishery information	10.00	[2.1] Strengthening of Ocean Observational network	[2.1.1] Number of deployments	number	3.00	250	200	175	125	100
		[2.2] Potential Fishing Zone Advisory Services	[2.2.1] Potential Fishing Zone Advisory	number	3.00	250	240	230	220	210
		[2.3] Ocean State Forecast Services	[2.3.1] Ocean State Forecast	number	4.00	365	328	292	255	219
[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 33rd Expedition	Date	4.60	20/11/2013	01/12/2013	15/12/2013	31/12/2013	15/01/2014
			[3.1.2] Submission of reports of 32nd expedition	Date	0.39	10/10/2013	15/10/2013	20/10/2013	25/10/2013	31/10/2013
			[3.1.3] Publication of results in peer-reviewed journals	number	0.56	15	13	12	10	9
		[3.2] Planning, Co-ordination and implementation of the Scientific Expeditions to the Arctic	[3.2.1] Launching of the 7th Expedition in the Arctic region during the summer (S) and winter (W) 2013-14	Date	2.10	06/06/2013	20/06/2013	25/06/2013	30/06/2013	07/07/2013
			[3.2.2] Submission of 6th Expedition to the Arctic	Date	0.39	10/10/2013	15/10/2013	20/10/2013	25/10/2013	31/10/2013

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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%
			[3.2.3] Publication of results in peer-reviewed journals	number	0.27	6	5	4	3	2
		[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	2.78	15/01/2014	25/01/2014	05/02/2014	10/02/2014	15/02/2014
			[3.3.2] Completion of analytical work of data collected during the previous expedition and submission	Date	0.64	15/11/2013	18/11/2013	22/11/2013	30/11/2013	15/12/2013
			[3.3.3] Publication of results in peer-reviewed journals	number	0.27	8	6	5	4	2
[4] To conduct survey for assessing non-living resources	6.00	[4.1] Survey, exploration for Hydrothermal sulphides,	[4.1.1] Deployment of ResearchVessel-data collection	Sq. km.	0.51	10000	9000	8000	7000	6000
			[4.1.2] Completion of processing, analysing and interpretation of data collected	Date	0.85	27/03/2014	28/03/2014	29/03/2014	30/03/2014	31/03/2014
		[4.2] Survey, exploration for Exclusive Economic Zone	[4.2.1] Deployment of ResearchVessel-data collection	Sq. km.	0.35	150000	140000	130000	120000	110000
			[4.2.2] Completion of processing, analysing and interpretation of data collected	Date	0.51	27/03/2014	28/03/2014	29/03/2014	30/03/2014	31/03/2014

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%
		[4.3] Survey, exploration for CLCS	[4.3.1] Conduct geophysical survey	line km.	0.86	5000	4000	3000	2000	1000
			[4.3.2] Completion of report for partial claim	Date	0.35	23/03/2014	25/03/2014	29/03/2014	30/03/2014	31/03/2014
		[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	1.53	30/06/2013	31/07/2013	31/08/2013	30/11/2013	31/03/2014
		[4.5] GEOID	[4.5.1] Workshop to proper seismic plan	Date	0.70	30/09/2013	31/10/2013	30/11/2013	31/12/2013	31/01/2014
		[4.6] Publications	[4.6.1] Publication of results in peer-reviewed journals	Number	0.34	10	8	6	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] Sea trials of Autonomous Coring System (ACS) at 1500 m depth	Date	7.00	30/09/2013	31/12/2013	31/01/2014	28/02/2014	31/03/2014
		[5.2] Development of Deep-sea Mining Equipment for 6000 m –Phase-I	[5.2.1] Realization of large Bentonite tank test set up and under carriage testing. Deep-sea	Date	5.00	15/02/2014	28/02/2014	15/03/2014	28/02/2014	31/03/2014

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%
			subsystems testing for higher pressure.							
[6] To assess coastal marine productivity and Marine Ecosystem	4.00	[6.1] Establishment of Indian Ocean 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	Number	1.00	20	17	14	12	10
			[6.2.2] Dissemination of Water quality status to costal State Pollution boards	Number	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)	Number	1.00	2045	2035	2025	2020	2015
			[7.1.2] Cumulative Impact Factor of the Research Papers	Number	2.00	60	54	48	42	36
			[7.1.3] Number of the Research Papers	Number	1.00	30	27	24	21	18
		[7.2] To acquire airborne platforms for studying montoring upper air parameters	[7.2.1] Obtaining the approval of EFC	Date	1.00	30/09/2013	31/10/2013	01/12/2013	28/02/2014	31/03/2014
[8] To provide early warning of natural hazards viz. cyclone, tsunami, sea level rise.	5.00	[8.1] Issues of Earthquake bulletin	[8.1.1] Timely release of EQ Bulletin - within 12	Minutes	2.50	12	15	18	20	25

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%
			minutes after the earthquake							
		[8.2] Issue of Tsunami Warning	[8.2.1] Timely release of Tsunami Bulletins issued within 30 minutes after the earthquake	Minutes	2.50	30	35	40	45	50
[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	40	39	38	37	36
		[9.2] To setup a National Centre for Seismology	[9.2.1] Obtain the approval and launch of the programe of NCS	Date	1.50	31/10/2013	30/11/2013	31/12/2013	31/01/2014	28/02/2014
		[9.3] Understanding of seismic process	[9.3.1] Preparation of DPR and circulation EFC for Deep bore hole drilling in Koyna region	Date	1.00	15/04/2013	30/04/2013	31/05/2013	30/06/2013	31/07/2013
[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	2.50	40	35	30	24	20
		[10.2] To set training centres in the field of Operational Oceanography, Meteorology	[10.2.1] Award of Construction of the hostel & Procurement of training equipment, e-classrooms	Date	1.50	01/10/2013	01/11/2013	01/12/2013	01/01/2014	01/02/2014
[11] To promote awareness and educate the public by extending support to	2.00	[11.1] Recieving Proposals	[11.1.1] No. of proposals supported	Number	2.00	10	9	8	7	6

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%
seminars, symposia, conferences and conduct workshops with stakeholders										
* Efficient Functioning of the RFD System	3.00	Timely submission of Draft RFD 2014-15 for Approval	On-time submission	Date	2.0	05/03/2014	06/03/2014	07/03/2014	08/03/2014	11/03/2014
		Timely submission of Results for 2012-13	On-time submission	Date	1.0	01/05/2013	02/05/2013	03/05/2013	06/05/2013	07/05/2013
* Improving Internal Efficiency/Responsiveness/ Transparency/Service delivery of Ministry/Department	6.00	Independent Audit of implementation of Citizens'/Clients' Charter (CCC)	% of implementation	%	2.0	100	95	90	85	80
		Independent Audit of implementation of Public Grievance Redressal System	% of implementation	%	2.0	100	95	90	85	90
		Update departmental strategy to align with 12th Plan priorities	Timely updation of the strategy	Date	2.0	10/09/2013	17/09/2013	24/09/2013	01/10/2013	08/10/2013
* Administrative Reforms	6.00	Implement mitigating strategies for reducing potential risk of corruption	% of implementation	%	1.0	100	95	90	85	80
		Implement ISO 9001 as per the approved action plan	% of implementation	%	2.0	100	95	90	85	80
		Implement Innovation Action Plan (IAP)	% of milestones achieved	%	2.0	100	95	90	85	80
		Identification of core and non-core activities of the Ministry/Department as per 2nd ARC recommendations	Timely submission	Date	1.0	01/10/2013	15/10/2013	30/10/2013	10/11/2013	20/11/2013

* Mandatory Objective(s)

Section 3:
Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 11/12	Actual Value for FY 12/13	Target Value for FY 13/14	Projected Value for FY 14/15	Projected Value for FY 15/16
[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	560	575	610	630	640
		[1.1.2] Grameen Krishi Mausam Seva (SMS)	Number	3000000	3500000	3500000	4000000	4500000
	[1.2] Improve Operational Weather Services	[1.2.1] Augmentation of High Performance Computing system (Tera flops from 115 to 600)	number	115	115	540	800	1000
		[1.2.2] Strengthening of Observational Network(AWS, ARGs)	number	1000	1675	1835	2025	2025
		[1.2.3] Quality Research Publications (Impact Factor) operational services	number	220	216	216	168	144
		[1.2.4] Operationalize higher resolution Global Numerical Models	Horizontal resolution (km)	22	25	23	30	35
		[1.2.5] Completion of Admission process of the third batch of students for the advanced training program in Earth System Sciences & Climate	number	10	20	20	25	30

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Section 3:
Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 11/12	Actual Value for FY 12/13	Target Value for FY 13/14	Projected Value for FY 14/15	Projected Value for FY 15/16
		[1.2.6] Research Publications for operational forecast	number	92	95	108	120	150
[2] To provide a wide range of ocean information advisories including fishery information	[2.1] Strengthening of Ocean Observational network	[2.1.1] Number of deployments	number	250	270	200	250	200
	[2.2] Potential Fishing Zone Advisory Services	[2.2.1] Potential Fishing Zone Advisory	number	206	250	240	250	250
	[2.3] Ocean State Forecast Services	[2.3.1] Ocean State Forecast	number	365	328	328	365	365
[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 33rd Expedition	Date	20/11/2013	01/12/2013	01/12/2013	31/12/2013	15/01/2014
		[3.1.2] Submission of reports of 32nd expedition	Date	01/05/2011	01/10/2012	12/04/2013	10/10/2014	10/10/2015
		[3.1.3] Publication of results in peer-reviewed journals	number	9	7	13	15	15
	[3.2] Planning, Co-ordination and implementation of the Scientific Expeditions to the Arctic	[3.2.1] Launching of the 7th Expedition in the Arctic region during the summer (S) and winter (W) 2013-14	Date	16/05/2011	01/06/2012	20/06/2013	15/06/2015	15/06/2015
		[3.2.2] Submission of 6th Expedition to the Arctic	Date	12/10/2011	15/10/2012	15/10/2013	10/10/2014	10/10/2015

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Section 3:
Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 11/12	Actual Value for FY 12/13	Target Value for FY 13/14	Projected Value for FY 14/15	Projected Value for FY 15/16
		[3.2.3] Publication of results in peer-reviewed journals	number	5	5	5	6	6
	[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	25/12/2011	11/01/2013	25/01/2014	15/01/2015	16/01/2016
		[3.3.2] Completion of analytical work of data collected during the previous expedition and submission	Date	31/12/2011	31/10/2012	18/11/2013	15/11/2014	15/11/2015
		[3.3.3] Publication of results in peer-reviewed journals	number	4	2	5	8	8
[4] To conduct survey for assessing non-living resources	[4.1] Survey, exploration for Hydrothermal sulphides,	[4.1.1] Deployment of ResearchVessel- data collection	Sq. km.	0	10000	1800	5000	2000
		[4.1.2] Completion of processing, analysing and interpretation of data collected	Date	01/03/2012	31/03/2013	28/03/2014	31/03/2015	31/03/2016
	[4.2] Survey, exploration for Exclusive Economic Zone	[4.2.1] Deployment of ResearchVessel- data collection	Sq. km.	80000	80000	140000	100000	100000
		[4.2.2] Completion of processing, analysing and	Date	31/03/2012	--	28/03/2014	31/03/2015	31/03/2016

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Section 3:
Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 11/12	Actual Value for FY 12/13	Target Value for FY 13/14	Projected Value for FY 14/15	Projected Value for FY 15/16
		interpretation of data collected						
	[4.3] Survey, exploration for CLCS	[4.3.1] Conduct geophysical survey	line km.	0	0	4000	0	0
		[4.3.2] Completion of report for partial claim	Date	--	--	25/03/2014	--	--
	[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	01/01/2012	01/02/2013	01/02/2014	01/02/2015	--
	[4.5] GEOID	[4.5.1] Workshop to proper seismic plan	Date	--	--	31/07/2013	--	--
	[4.6] Publications	[4.6.1] Publication of results in peer-reviewed journals	Number	2	3	8	8	8
[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] Sea trials of Autonomous Coring System (ACS) at 1500 m depth	Date	--	--	31/12/2013	--	--
	[5.2] Development of Deep-sea Mining Equipment for 6000 m	[5.2.1] Realization of large Bentonite tank test set up and under	Date	--	--	28/02/2014	--	--

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Section 3:
Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 11/12	Actual Value for FY 12/13	Target Value for FY 13/14	Projected Value for FY 14/15	Projected Value for FY 15/16
	–Phase-I	carriage testing. Deep-sea subsystems testing for higher pressure.						
[6] To assess coastal marine productivity and Marine Ecosystem	[6.1] Establishment of Indian Ocean Ocean Biogeographical Information System (IndOBIS)	[6.1.1] No. of records	Number	5000	40000	40000	60000	70000
	[6.2] Monitoring of levels of marine pollution at 20 locations along Indian coast	[6.2.1] Data on all pollution parameters	Number	17	17	17	18	20
		[6.2.2] Dissemination of Water quality status to costal State Pollution boards	Number	12	11	10	9	8
[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)	Number	2024	2030	2035	2075	2095
		[7.1.2] Cumulative Impact Factor of the Research Papers	Number	15	0	54	30	40
		[7.1.3] Number of the Research Papers	Number	0	0	27	0	0
	[7.2] To acquire airborne platforms for studying montoring upper air parameters	[7.2.1] Obtaining the approval of EFC	Date	--	15/12/2012	31/10/2013	31/12/2014	31/03/2015
[8] To provide early warning of natural hazards viz. cyclone,	[8.1] Issues of Earthquake bulletin	[8.1.1] Timely release of EQ Bulletin -	Minutes	--	--	15	--	--

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Section 3:
Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 11/12	Actual Value for FY 12/13	Target Value for FY 13/14	Projected Value for FY 14/15	Projected Value for FY 15/16
tsunami, sea level rise.		within 12 minutes after the earthquake						
	[8.2] Issue of Tsunami Warning	[8.2.1] Timely release of Tsunami Bulletins issued within 30 minutes after the earthquake	Minutes	--	--	35	--	--
[9] To conduct research in Seismology and Geoscience	[9.1] Strengthening of Seismic Observational Network	[9.1.1] Deployment of Broadband seismographs	Number	1.0	0	80	40	38
	[9.2] To setup a National Centre for Seismology	[9.2.1] Obtain the approval and launch of the programe of NCS	Date	--	--	31/10/2012	31/10/2013	01/05/2014
	[9.3] Understanding of seismic process	[9.3.1] Preparation of DPR and circulation EFC for Deep bore hole drilling in Koyna region	Date	--	--	15/09/2012	31/03/2013	--
[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	40	35	35	24	20
	[10.2] To set training centres in the field of Operational Oceanography, Meteorology	[10.2.1] Award of Construction of the hostel & Procurement of training equipment, e-classrooms	Date	--	--	01/11/2012	01/10/2013	01/05/2014
[11] To promote awareness and educate the public by extending support to seminars, symposia,	[11.1] Recieving Proposals	[11.1.1] No. of proposals supported	Number	10	9	9	7	6

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Section 3:
Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 11/12	Actual Value for FY 12/13	Target Value for FY 13/14	Projected Value for FY 14/15	Projected Value for FY 15/16
conferences and conduct workshops with stakeholders								
* Efficient Functioning of the RFD System	Timely submission of Draft RFD 2014-15 for Approval	On-time submission	Date	--	--	06/03/2014	--	--
	Timely submission of Results for 2012-13	On-time submission	Date	--	--	02/05/2013	--	--
* Improving Internal Efficiency/Responsiveness/ Transparency/Service delivery of Ministry/Department	Independent Audit of implementation of Citizens'/Clients' Charter (CCC)	% of implementation	%	--	--	95	--	--
	Independent Audit of implementation of Public Grievance Redressal System	% of implementation	%	--	--	95	--	--
	Update departmental strategy to align with 12th Plan priorities	Timely updation of the strategy	Date	--	--	17/09/2013	--	--
* Administrative Reforms	Implement mitigating strategies for reducing potential risk of corruption	% of implementation	%	--	--	95	--	--
	Implement ISO 9001 as per the approved action plan	% of implementation	%	--	--	95	--	--
	Implement Innovation Action Plan (IAP)	% of milestones achieved	%	--	--	95	--	--
	Identification of core and non-core activities of the Ministry/Department as per 2nd ARC recommendations	Timely submission	Date	--	--	15/10/2013	--	--

* Mandatory Objective(s)

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Section 3:
Trend Values of the Success Indicators

Objective	Action	Success Indicator	Unit	Actual Value for FY 11/12	Actual Value for FY 12/13	Target Value for FY 13/14	Projected Value for FY 14/15	Projected Value for FY 15/16

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Section 4:
Acronym

SI.No	Acronym	Description

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	Number of districts	Nil
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	Number of Observation Platforms	Nil
5	[1.2.5] Completion of Admission process of the third batch of students for the advanced training program in Earth System Sciences & Climate	Completion of Admission process of the third batch of ten students for the advanced training program in Earth System Sciences & Climate	Completion of Admission process of the third batch of ten students for the advanced training program in Earth System Sciences & Climate	Number of Students	Nil

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

SI.No	Success indicator	Description	Definition	Measurement	General Comments
6	[1.2.6] Research Publications for operational forecast	[1.2.6] Research Publications for operational forecast	[1.2.6] Research Publications for operational forecast	Number of Forecast	Nil
7	[2.1.1] 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	Nil
8	[2.2.1] 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	Number of Advisory	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
9	[2.3.1] Ocean State Forecast	Advisories through installation of electronic boards	Advisories through installation of electronic boards	Number of forecast	Nil
10	[3.1.1] Launching of the 33rd Expedition	Actual completion of all targeted scientific data collection;Launching and return of the expedition as per schedule.	Launching of Annual Expedition to Antarctica, Pre-construction and construction stage activities at the site of the new station, and completion of targeted scientific and logistics activities	Number of Expedition	Nil
11	[3.1.2] Submission of reports of 32nd expedition	Actual completion of all targeted scientific data collection; Launchingand return of the expedition as perSchedule.	Launching of Southern Ocean Expedition, and completion of all targeted scientific activities	Amount of Work	Nil
12	[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
13	[3.2.1] Launching of the 7th Expedition in the Arctic region during the summer (S) and winter (W) 2013-14	Launching of Summer & Winter phases of the studies in the Arctic, and completion of all targeted scientific	Launching of Summer & Winter phases of the studies in the Arctic, 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
13	[3.2.1] Launching of the 7th Expedition in the Arctic region during the summer (S) and winter (W) 2013-14	activities	Launching of Summer & Winter phases of the studies in the Arctic, and completion of all targeted scientific activities	Date	nil
14	[3.2.1] Launching of the 7th Expedition in the Arctic region during the summer (S) and winter (W) 2013-14	Launching of Summer & Winter phases of the studies in the Arctic, and completion of all targeted scientific activities	Launching of Summer & Winter phases of the studies in the Arctic, and completion of all targeted scientific activities	Date	nil
15	[3.2.2] Submission of 6th Expedition to the Arctic	Actual completion of all targetedscientific data collection; Launching and return of the expedition as per Schedule.	Launching of Summer & Winter phases of the studies in the Arctic, and completion of all targeted scientific activities	Date	Nil
16	[3.2.3] Publication of results in peer-reviewed journals	Actual completion of all targetedscientific data collection; Launching and return of the expedition as per Schedule.	Launching of Summer & Winter phases of the studies in the Arctic, and completion of all targeted scientific activities	Number	Nil
17	[3.3.1] Launching of 7th Southern Ocean Expedition (2013-14)	Actual completion of all targeted scientific data collection; Launchingand return of the expedition as perSchedule.	Launching of Southern Ocean Expedition, and completion of all targeted scientific activities	Date	Nil

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

SI.No	Success indicator	Description	Definition	Measurement	General Comments
18	[3.3.2] Completion of analytical work of data collected during the previous expedition and submission	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	Nil
19	[3.3.3] Publication of results in peer-reviewed journals	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	Number	Nil
20	[4.1.1] Deployment of ResearchVessel- data collection	Major part of Gas hydrates project in the 11th plan is the exploration and ground truthing at Gas hydrate site. A potential GH site is identified. Deployment of ACS at this site completes the objectives of the project. Hence, time is given as the unit.	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.	Sq. Km.	Nil
21	[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	Nil

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

SI.No	Success indicator	Description	Definition	Measurement	General Comments
22	[4.2.1] Deployment of ResearchVessel- data collection	Deployment of Research Vessel for conducting geophysical survey.	Deployment of Research Vessel for conducting geophysical survey.	Number of Sq. Kms	Nil
23	[4.2.2] 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	Nil
24	[4.3.1] Conduct geophysical survey	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 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.	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 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	line km	nil

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

SI.No	Success indicator	Description	Definition	Measurement	General Comments
24	[4.3.1] Conduct geophysical survey	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 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.	for the mooring systems at 50m water depths is proposed.	line km	nil
25	[4.3.2] Completion of report for partial claim	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	Nil

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

SI.No	Success indicator	Description	Definition	Measurement	General Comments
26	[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 geophysical data for site survey	Date	Nil
27	[4.6.1] Workshop to proper seismic plan	Literaturereview/ publications/ workshops for global scientific cooperation in such studies.	Initiate desktop studies and literature reviews about Indian Ocean Geoid Low	date	nil
28	[4.7.1] 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	nil

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

SI.No	Success indicator	Description	Definition	Measurement	General Comments
29	[5.1.1] Sea trials of Autonomous Coring System (ACS) at 1500 m depth	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
30	[5.2.1] Realization of large Bentonite tank test set up and under carriage testing. Deep-sea subsystems testing for higher pressure.	Timely completion of the demonstration of the technology in 50m depth is very important as the results will validate the levels of system integration and design capabilities in actual environmental conditions. So time of completion is indicated as the measure of success	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 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	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
30	[5.2.1] Realization of large Bentonite tank test set up and under carriage testing. Deep-sea subsystems testing for higher pressure.	Timely completion of the demonstration of the technology in 50m depth is very important as the results will validate the levels of system integration and design capabilities in actual environmental conditions. So time of completion is indicated as the measure of success	at 50m water depths is proposed	date	Nil
31	[6.1.1] No. of records	Operationalisation of Hatchery	Establishment of laboratory in Agatti for Ornamental fish culture.	number	nil
32	[6.2.1] Data on all pollution parameters	Management Plan	Development of sediment transport model for Gopalpur, Orissa	number	nil
33	[7.1.1] Regional Climate Projections (Scenarios)	Centre for conducting research in the field of climate change	Establishment of centre by inducting scientists	number	nil
34	[7.1.2] Cumulative Impact Factor of the Research Papers	Centre for conducting research in the field of climate change	Establishment of centre by inducting scientists	number	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
35	[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	nil
36	[7.2.1] Obtaining the approval of EFC	Centre for conducting research in the field of climate change	Establishment of centre by inducting scientists	date	nil
37	[9.1.1] Deployment of Broadband seismographs	Improve earthquake research	Obtain the approval and launch of the programe of NCS	number	nil
38	[9.2.1] Obtain the approval and launch of the programe of NCS	Improve earthquake research	Obtain the approval and launch of the programe of NCS	date	nil
39	[9.3.1] Preparation of DPR and circulation EFC for Deep bore hole drilling in Koyna region	Improve earthquake research	Obtain the approval and launch of the programe of NCS	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
40	[10.2.1] Award of Construction of the hostel & Procurement of training equipment, e-classrooms	Number of i) Research projects awarded ii) Academic Programmes initiated iii) Centres Established with MoES Supported(iv) collaborative projects at national and international levels Supported (iv) collaborative projects at national and International levels	Supporting research and academic programmes in Earth System Science	date	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	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) Quality of Research Publications Application of higher resolution Global Numerical Models [1.2.5] 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	Feedback and dissemination of information	To validate the forecast	50%	Project could not be implemented fully

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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.
				[1.2.6] Research Publications for operational forecast				
			Departments of Space	[2.1.1] Number of deployments [2.2.1] Potential Fishing Zone Advisory [2.3.1] Ocean State Forecast	Potential Fishing Zone Advisories	Feedback and dissemination of information		
		Ministry	Ministry of Human Resource Development	Supporting research and academic programmes in Earth System Science [10.2.1] Award of Construction of the hostel & Procurement of training equipment, e-classrooms	Memorandum of Understanding	Smooth implementation of extramural; projects	60%	Deliverables could not be achieved.
			Ministry of Home Affairs	[6.1.1] No. of records [6.2.1] Data on all pollution parameters	Feedback and dissemination of information	To validate the forecast	50%	Project could not be implemented fully
				[5.1.1] Sea trials of Autonomous Coring System (ACS) at 1500 m depth	Transfer of Lakshadweep administration Bldg.	To set up Hatchery	50% of Lakshadweep Administration place.	Project gets delayed by 1-2 years

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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.
				[5.2.1] Realization of large Bentonite tank test set up and under carriage testing. Deep-sea subsystems testing for higher pressure.				
			Ministry of Planning	[3.1.1] Launching of the 33rd Expedition Completion of targeted scientific and logistics tasks and return of members of 32nd expedition [3.1.2] Submission of reports of 32nd expedition [3.1.3] Publication of results in peer-reviewed journals [3.2.1] Launching of the 7th Expedition in the Arctic region during the summer (S) and winter (W) 2013-14 Completion of targeted scientific	Mandatory ingredients for program implementation	Funds required for launching expeditions	50% In full measure	Project could not be implemented fully

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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.
				and logistics tasks and return of members of 6th expedition [3.2.2] Submission of 6th Expedition to the Arctic [3.2.3] Publication of results in peer-reviewed journals [3.3.1] Launching of 7th Southern Ocean Expedition (2013-14) Completion of targeted scientific and logistics tasks and return of 7th expedition [3.3.2] Completion of analytical work of data collected during the previous expedition and submission [3.3.3] Publication of results in peer-reviewed journals				
		others	Williamson & Associates, USA	[4.1.1] Deployment of ResearchVessel- data collection	It is a joint development with Williamson & Associates, USA and	To carry out drilling work Required for indicating	Full	Project will be delayed

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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.
		others	Williamson & Associates, USA	[4.1.1] Deployment of ResearchVessel- data collection [4.1.2] Completion of processing, analysing and interpretation of data collected [4.2.1] Deployment of ResearchVessel- data collection [4.2.2] Completion of processing, analysing and interpretation of data collected [4.3.1] Conduct geophysical survey [4.3.2] Completion of report for partial claim [4.4.1] Expert review and response to the Indian IODP proposal, Participation of Indian scientists in	timely action from their side is required, especially in drilling work. Co-ordination of NGRI and NIO scientists.	potential gas hydrates site	Full	Project will be delayed

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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.
				IODP expeditions, Liaisoning with international program agency towards IODP activities Analyses of multi-channel seismic data along Indian margins and developing integrated sub-surface geological models for SW Indian margin and Andaman Sea regions. [4.6.1] Workshop to proper seismic plan [4.7.1] Publication of results in peer-reviewed journals				

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 11/12	FY 12/13	FY 13/14	FY 14/15	FY 15/16
1 Generation of weather forecast advisory	Agriculture	Accuracy of Advisories	percenta	75	76	77	78	79
		Economic Benefits of the Services being rendered - farmers using the advisories	percenta	0	24	26	28	30
2 Generation of Ocean Information advisories	State Fishery Department Fisherman association Shipping, Ports, Navy, Coast Guard, Offshore Industry	Accuracy of Advisories Advisory	percenta	70	75	78	80	82
		Economic Benefits of the Services being rendered by the Ministry (in terms of GDP)	percenta		0.81	0.84	0.87	0.90
3 Modelling coastal area marine productivity and Marine Ecosystems, Coastal Water Quality		Dissemination of Information to the coastal pollution boards	percenta	65	70	75	77	79
4 Timely advisory and cyclone, tsunami.		Accuracy of forecasting /advisories	percenta	75				

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