



COURSE REPORT

**Two Weeks Training for
National Disaster Response Force - 10th Battalion,
Vijayawada
on
“Forest Fire Prevention & Mitigation Strategies”
(06.02.2023 to 18.02.2023)**



**Central Academy for State Forest Service
Coimbatore
Directorate of Forest Education
Ministry of Environment, Forests & Climate Change
Government of India**

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EXECUTIVE SUMMARY

Fires are integral to forests since ancient times as they have shaped their structure, composition and functions. More than 95% of Forest fires in India are man-made and pose enormous threats with colossal negative consequences on the survival of natural flora and fauna and subsequently human beings themselves.

Prevention and control of forest fire assumes an important aspect in management of forests. Forest fires are traditionally managed by State Forest Departments by involving the forest personnel, seasonal fire watchers and local communities. With increasing frequency and duration of forest fires, it becomes imperative to develop a comprehensive forest fire strategy so as to transform forest fire management of our Country's diverse forests - more resilient to the threats and impact of forest fires in the future.

As a part of this strategy, The National Disaster Management Authority (NDMA), Ministry of Home Affairs, Govt. of India, in collaboration with the Ministry of Environment, Forest & Climate Change (MoEF&CC), Govt. of India devised a specialised training programme to train the National Disaster Response Force (NDRF) Battalions of the Country in Forest Fire Prevention and Mitigation Strategies and engage them for Forest Fire control measures in future. The Central Academy for State Forest Service (CASFOS), Coimbatore under the aegis of the MoEF&CC has been assigned the responsibility of conducting a specialized Two-Weeks training to NDRF 10th Battalion, Vijayawada to this effect from 6th - 18th February, 2023.

This training program was customised over consultations with the NDRF to best suit the training needs of the battalion workforce in terms of imparting basic understanding of forest fire, science and management of forest fires, operational strategies, techniques, and use of tools, together with hands-on practice and field demonstrations and rounds of mock-drills (both day and night mock drills). During the first week, classroom-based lecture sessions coupled with field visits and demonstration sessions were conducted in Coimbatore and Nilgiris Districts followed by a weeklong mock field drills at Tirunelveli District.

The training program was inaugurated thru a common program organized at CASFOS, Dehradun on hybrid mode in which Director-IGNFA, Director-Directorate of Forest Education, DG-NDRF, PCCF- Uttarakhand and Principal-CASFOS spoke on the importance of Forest Fire mitigation and the need for the training program. This was followed by a brief inaugural program at CASFOS Coimbatore presided over by Principal, CASFOS Coimbatore.

Fifty NDRF personnel from their 10th battalion, Vijayawada attended the training Program. The participants included Officers from various Ranks such as Two from Assistant Commandant, Six from Inspector, One from Assistant Sub-Inspector, Eight from Head Constable and Thirty-three from Constable ranks.

The topics covered during the first week of the training program i.e from 6-12 Feb, 2023 were *Organization structure in Forest Department, Forest Fire Scenario in India, Understanding Forest Fire regime in different forest types of India, Influence of Weather on Forest Fire and Forest Fire behavior, Forest Types in India, Introduction to various modern fire-fighting tools & equipment, Forest Fire Management System in India: Current Scenario, FSI – Forest Fire Alert System, Utility of UAV / Drones in Forest Fire Management, Fire Hazard and safety measures, Forest Fire Danger rating and monitoring, Forest Fire and Jhum cultivation in North East and Case study of one major forest fire incident: Handling of a Forest Fire Crisis.* It also included a field exercise at Mettupalayam Forest range on map reading and use of GPS for navigation inside the forests, Visits to Tropical deciduous forests and High altitude Coniferous forests at Mudumalai and Nilgiris, respectively. The Participants were given hands-on training on Forest Fire line creation works, Fire control methods with use of traditional brooms and modern equipment during the field visits.

The week-long field exercises from 13.2.23 to 18.2.23 included field visits to Kurangani Hill Forest, Theni Forest division where a major fire broke out during the year 2018. The trainees were apprised about the cause of the major forest fire, circumstances that led to loss of many human lives and important learnings from the incident during the visit. An interaction program with Villagers about involvement of communities in Forest Fire Control at Melamavadi Village, Map reading and Trekking exercise at Agalisastha Beat to the forest area which was burnt during last

fire season and Creation of Fire Line (12 Mts& 6 Mts width) exercises, Forest Fire Fighting mock drill exercises (both day and night drills) at the Parandamalai Hillock, Tirunelveli District. The utility of Firelines, the direct attack& counter fire burning operations in restricting the spread of Forest Fire were imparted during the field exercises.

The valedictory program was conducted at Valliyoor through hybrid mode. The Principal, CASFOS presided over the function at and it was co-presided by Eco-development Officer, KMTR. The Director-IGNFA and Director-Directorate of Forest Education participated from Dehradun through online mode.

The trainees were provided with a user-friendly **“Field manual on Forest Fire Prevention and Mitigation Strategies”** which was prepared based on the inputs provided during the training along with the Copies of presentation made by experts.

COURSE REPORT

MoEF's /DFE's letter number and date		IGNFA's Letter No.2092/NFA-2023/80.02/NPFFM dt.09.01.2023.
Institute's reference number		233/2023/CASFOS/Steno/NDRF – Trg Dt:10.01.2023
1	Name and complete address of the Institute(including phone, fax and e-mail)	Central Academy for State Forest Service Post Box No. 1130, Coimbatore – 641 002 0422 – 2450313, 2451605, casfos-coimbatore@gov.in
2	Title of the course	Two-weekstraining for NDRF 10 th Battalion on "Forest Fire Prevention & Mitigation Strategies" (Physical mode).
3	Duration & period of the Course	Two Weeks From 06.02.2023 to 18.02.2023
4	Name & designation of the Course Director	Dr. C. Vidhyasagar, IFS Lecturer
5	Number of officers participated	Details at Appendix IV.
6.1	(a)Did the institute get in touch in advance with the participants of the course?	Yes, The institute was in touch with the Head Quarters NDRF 10 th Battalion through phone, mail, and Whatsapp communications
	(b) If yes, when (mention the date of communication to the officers)?	Soon after receiving the nomination.
	(c)Details of nomination received from States prior to the Course	Nomination received form NDRF 10 th Battalion Hqrts, Vijayawada for 50 Participants.
	(d) How many officers received the intimation?	Communicated through the Head Quarters NDRF 10 th Battalion.
	(e) How many officers responded?	Communication received from Head Quarters NDRF 10 th Battalion.
6.2	(a)Were the course expectations of the participants ascertained by the institution?	Yes.
	(b) If yes, how and when (dates)?	Yes, well ahead of the workshop.

7.1	(a) Was the course conducted at the institution's campus? If no, where?	Yes through Physical Mode. First week in the Campus followed by second week Field Exercises at Tirunelveli.
	(b) Whether the course was "residential" or non-residential. If residential, whether the residential facilities were provided in the institution's own hostel or in a hotel etc.?	Residential (Physical Mode)
7.2	(a) Total no. of working days in the course	13 days
	(b) Total no. of sessions planned/convened in the course	29 sessions (including inaugural and valediction sessions)
	(c) No. of sessions, which could not be conducted as planned with reasons	Nil
		Nil
	(d) Internal faculty hours	04 sessions
	(e) Guest faculty hours	25 sessions
	(f) No. of days / hours spent on field visit(s), if any	10 days
Enclosure (2 copies each): <ul style="list-style-type: none"> - Final course time-table - List of faculty (both in-house and guest faculty(Appendix - III) - Final list of participants - The background material supplied to the participants 		
8	(a) Had the same or similar course been conducted earlier under the sponsorship of the MoEF/Department of Personnel and Training (Government of India)?	This specialized training for NDRF Battalion was sponsored by NDMA. The trainings were conducted for the first time for 10 th and 15 th NDRF Battalions, simultaneously at CASFOS Coimbatore and Dehradun, respectively.
	(b) What changes, on the basis of the feedback received in the previous course were made in the current course?	This was the First ever training program.

9	Evaluation Report received from current course participants in terms of:	
	(*1.1, 2.1, shown below refer to question number in Part C or Part E of the Evaluation Report.)	
9.1	Course Content and Structure (CCS)	The course content and structure was reported to be very relevant and highly appreciated by the participants with the rating of 93.50 . The course has met the expectations of the participants as per their feedback.
9.2	Training Faculty (TF)	The participants have given Training faculty a rating of 91.96 . The Lectures were highly appreciated by the participants.
9.3	Usefulness of the course (UOC)	The participants through their feedback stated that the training course is highly useful and gave a rating of 92.00 .
9.4	Overall impression about the Course (OIC)	The overall impression about the course was rated at 93.50 .
9.5	Participants' views about the strengths and weaknesses as well as other aspects pertaining to the course	The training received a positive appreciation from the participants. Suggestions made by them and comments by Course director are attached at Appendix - I.
	(Please attach summary as Appendix-I.)	
9.6	Logistics (including Workshop from home, Experience in online platform, Classroom online, connectivity, comfort in online and Time management etc.)	The internet connectivity was very good throughout the training program and was rated as 92.25 .
9.7	Weighted Average	The Weighted Average of the course has been given a rating of 92.70 .
	(Please attach summary as Appendix-II)	
10	General remarks of the Course Director on the nature and extent of participant's involvement in the course including attendance punctuality and interest evinced	The participants showed keen interest and attended the sessions with due punctuality.

Weighted Average Calculation

APPENDIX II

For calculation of numerical value of feedback, each factor is valued as percentage value to the top grade given to the factor. If no answer is provided, it is excluded from calculation. (cf; where number of grade is 4, percentage value be 100, 75, 50, 25). Average of numerical value of factors consisting of the element is a numerical value of the element.

1. Course Content & Structure (CCS) =	93.50
1(1) Course aim met	93.00
1(2) Increase of knowledge	96.00
1(3) Relevance of content	90.50
1(4) Reading Material	94.50

2. Training Faculty (TF) =	91.96
2(1) Assessment of the Course content/ topics =	91.92
a. Contents	92.80
b. Presentation	92.54
c. Quality of Discussion/ Interaction	91.68
d. Meet for Objectives	90.64
2(1) Assessment of the Field Visit =	92.00
a. Contents	96.47
b. Meet for Objectives	94.91

3. Usefulness of the Course (UOC) =	92.00
3(1) How useful to you immediately	92.00
3(2) How useful to be for your future jobs	92.00

4. Overall Impression about the Course (OIC) =	93.50
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5. Logistics (L) =	92.25
4(1). Residential Accommodation	92.10
4(2). Food Quality	89.40
4(3). Class room facility	94.90
4(4). Field Exercises	94.10
4(5). Recreation facility	91.40
4(6). Time management	91.60

Weighted Average for the Course:	92.70
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For calculation of Weighted Average (WA), following formula is used.

$$WA = (CCS (100\%) + TF (100\%) + UOC (75\%) + OIC (100\%) + L (75\%)) * 100/450$$

APPENDIX - IV

List of Officials Nominated for the Two Weeks Training for NDRF 10th Battalion, Vijayawada on
“Forest Fire Prevention & Mitigation Strategies” through physical mode
from 06.02.2023 to 18.02.2023.

S. NO	FORCE NO.	RANK	NAME
1	8510	AC	SH. DAMODAR SINGH
2	9452	AC	PAWAN YADAV
3	95024469	INSP/GD	THONGAM BITEN SINGH
4	31506841	INSP/GD	BABLU BISWAS
5	120480115	INSP/GD	P.ROBIN KUMAR
6	1384561	INSP/GD	RAJIB DARIPA
7	95020632	{NSP/GD	MITHLESH YADAV
8	131470071	INSP/GD	KRISHNAVATAR
9	41631886	HC/GD	USHANT K.T
10	41697069	HC/GD	R. PARTHIBAN
11	41564914	HC/GD	M.C. GOVIND RAO
12	95001931	HC/GD	RAJESH KUMAR MEENA
13	65040182	HC/GD	R.SURESH
14	41631556	HC/GD	BIJAYA KR. PARIDA
15	41584719	HC/RO	C. VENKATA RAO
16	50050535	HC/RO	P. SURESH
17	65143836	CT/GD	E.K. NAIK
18	145143976	CT/GD	THEETLA SUMANTH
19	140800281	CT/GD	B. SANDEEP KUMAR REDDY
20	145031242	CT/GD	MAGULURI VEKATESWARLU
21	135310994	CT/GD	NAND KUMAR YADAV
22	145271466	CT/GD	RANJITH KUMAR
23	95143441	CT/GD	C. VENKATESWARLU
24	75271257	CT/GD	M. ESWARA RAO
25	105273416	CT/GD	P. ASHOK
26	135174655	CT/GD	SURAJ KUMAR
27	75210257	CT/GD	BAWANE MANOHAR
28	105182153	CT/GD	SHYAM SUNDER
29	75277275	CT/GD	TIRUPATI RAO.M
30	105252989	CT/GD	DESAI DADAJI
31	65142198	CT/GD	T.SIVA SATYA NARAYANA
32	75211245	CT/GD	PRAFULA BHANSE
33	145032471	CT/GD	P. SHANKAR RAO
34	75271248	CT/GD	VEERA RAGHAVA MUKHI
35	75275254	CT/GD	R.APPALA RAJU
36	75276037	CT/GD	R. RAVI NAIK
37	95142925	CT/GD	B. VENKATESWRLU
38	75220387	CT/GD	RAVINDRA BANKER
39	55034359	CT/GD	K. RAVI KUMAR

Details of Participants attended the Two Weeks Training for NDRF 10th Battalion,
Vijayawada on
“Forest Fire Prevention & Mitigation Strategies” through physical mode
from 06.02.2023 to 18.02.2023

All the 50 Nos. of participants nominated from 10th Battalion of NDRF, Vijayawada
attended the training program.

S. NO	FORCE NO.	RANK	NAME
1	8510	AC	SH. DAMODAR SINGH
2	9452	AC	PAWAN YADAV
3	95024469	INSP/GD	THONGAM BITEN SINGH
4	31506841	INSP/GD	BABLU BISWAS
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11	41564914	HC/GD	M.C. GOVIND RAO
12	95001931	HC/GD	RAJESH KUMAR MEENA
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32	75211245	CT/GD	PRAFULA BHANSE
33	145032471	CT/GD	P. SHANKAR RAO



Time Line for Two weeks Training of NDRF 10th Battalion on Forest Fire Prevention & Mitigation Strategies

Week 1	Session 1 10 00 – 10 45hrs	Session 2 10 45 – 11 30 hrs	Session 3 11 45 – 12 30 hrs	Session 4 1230 – 13 15 hrs		Session 5 14 15 – 15 00 hrs	Session 6 15 00 – 15 45 hrs	
Day 1 Monday 6-2-23	Inauguration (9:00 Hrs - 10:45 Hrs)	High Tea & Grp photo (10:45 Hrs– 11:15 Hrs)	Organization structure in Forest Department Shri . V. Thirunavukarasu, IFS. APCCF & Principal, CASFOS, Coimbatore. (11:15 Hrs – 12:30 Hrs)	Forest Fire Scenario in India Shri Vikram IFS, CF, Solan Circle, Govt. of HP (Online Mode)	Lunch Break	Understanding Forest Fire regime in different forest types of India Shri. Rajeev. Kr. Srivastava, IFS., (Retd.) Former PCCF, Govt. of Tamil Nadu.		
Day 2 Tuesday 7-2-23	Influence of Weather on Forest Fire and Forest Fire behavior Dr. P. Mukhopadhyay, Scientist – F, IITM-Pune (Online Mode)	Forest Types in India Shri. Anisha Kalkoor IFS., Lecturer, CASFOS, Coimbatore.	Introduction to various modern fire-fighting tools&equipments Shri V.K. Dhawan, Scientist (Retd.), ICFRE, Dehradun (Online Mode)			Forest Fire Management System in India: Current Scenario (Pre-Fire Season activities, Fire Alerts, Community Engagement, Fire watcher system and fire-fighting methods, Post fire monitoring process) Shri. V. Karthick., IFS., Lecturer, CASFOS, Coimbatore.		
Day 3 Wed 8-2-23	FSI – Forest Fire Alert System. Shri Vikas Gusain& Shri Rashpal, Technical Officers, FSI, Dehradun	Field Exercise :Practicals on GPS, Map reading, Navigations based on Forest Fire alert and Drill with Equipments. Information network (Terrain, Road network, Local Geography) Mettupalayam Range Shri Vikas Gusain& Shri Rashpal, Technical Officers, FSI, Dehradun				Field Exercise :Practicals on GPS, Map reading..... Shri Vikas Gusain& Shri Rashpal, Technical Officers, FSI, Dehradun Proceeding to MudumalaiTiger Reserve (MTR) and stay at Thappakadu		
DAY 4 Thu 9-2-23	Field Visit: Exposure to Forest Fire management activities at Mudumalai Tiger Reserve (MTR)					Field Visit: Conducting mock drills in Pine Forests at Parson’s valley/Pykara, Nilgiris and return to Coimbatore.		
Day 5 Friday 10-2-23	Lecture cum Field Demonstration: Utility of UAV/Drones in Forest Fire Management Shri. Arun Kumar, IFS, Secretary, ICFRE in association with Dr. J. Darshankumar, Asst. Professor, Dept. of Aeronautical Engineering Kumaraguru College of Technology.			Fire hazard and safety measures Shri Rajesh S. Chaudhari, DD, NFSC& NDRF Academy, Nagpur (Online Mode)		Best practices of Forest Fire Management: From Different States (15 min Presentation from different zones) Chattisgarh, Jammu & Kashmir, Karnataka, Maharashtra, Arunachal Pradesh and Odisha		
Day 6 Saturday 11-2-23	Forest Fire Danger rating and monitoring Shri Vikram IFS, CF, Solan Circle, Govt. of HP	Forest Fire and Jhum cultivation in North East Dr. C. Vidhyasagar IFS., Lecturer, CASFOS Coimbatore.	Case study of one major Forest Fire incident: Handling of a Forest Fire Crisis. Shri Rakesh Kumar Jagenia, IFS., DIGF (WL), MoE,F& CC, Govt. of India, New Delhi (Online Mode)			Field Exercise: Fire Tracing Exercise (Coimbatore Forest Division, CASFOS-Coimbatore)		

Week 2	Session 1 09 30 – 10 30hrs	Session 2 10 45 – 11 30 hrs	Session 3 11 45 – 12 30 hrs	Session 4 12 30 – 13 15 hrs		Session 5 14 15 – 15 00 hrs	Session 6 15 00 – 15 45 hrs
Day 7 Sunday 12-2-23	Departure to Tamil Nadu Forestry Training College, Vaigai Dam, Theni & stay.						
Day 8 Monday 13-2-23	Field visit to Kurangani Forest in which a major Forest fire broke out during 2018. Learning the Forest Fire Issues and evening travel to KMTR.						
Day 9 Tuesday 14-2-23	Starting the Program @ Thalayanai, Kalakad, Understanding the Forest Terrain of KMTR and Map Reading Exercise.			Fire Prevention, Fire Control with community Participation by ArumbugalTrust @ Thirukkurungudi Village			
Day 10 Wed 15-2-23	Hands on Training – Agalisastha Beat on Fire line Scraping Exercise.						
Day 11 Thursday 16-2-23	Demo – Fire Fight Real Time / Real Terrain@ PirandaMalai (Revenue Hillock) Social Forestry Division at Nanguneri Junction.						
Day 12 Friday 17-2-23	-do-						
Day 13 Saturday 18-2-23	-do-			Feedback & Valediction function at Rainbow Hall, Valliyoor, Thirunelveli District on 18-2-23.			

Note :The Field Exercises are proposed to be held with the assistance from Elite Force of TN Forest Department for Forest Fire Mitigation.

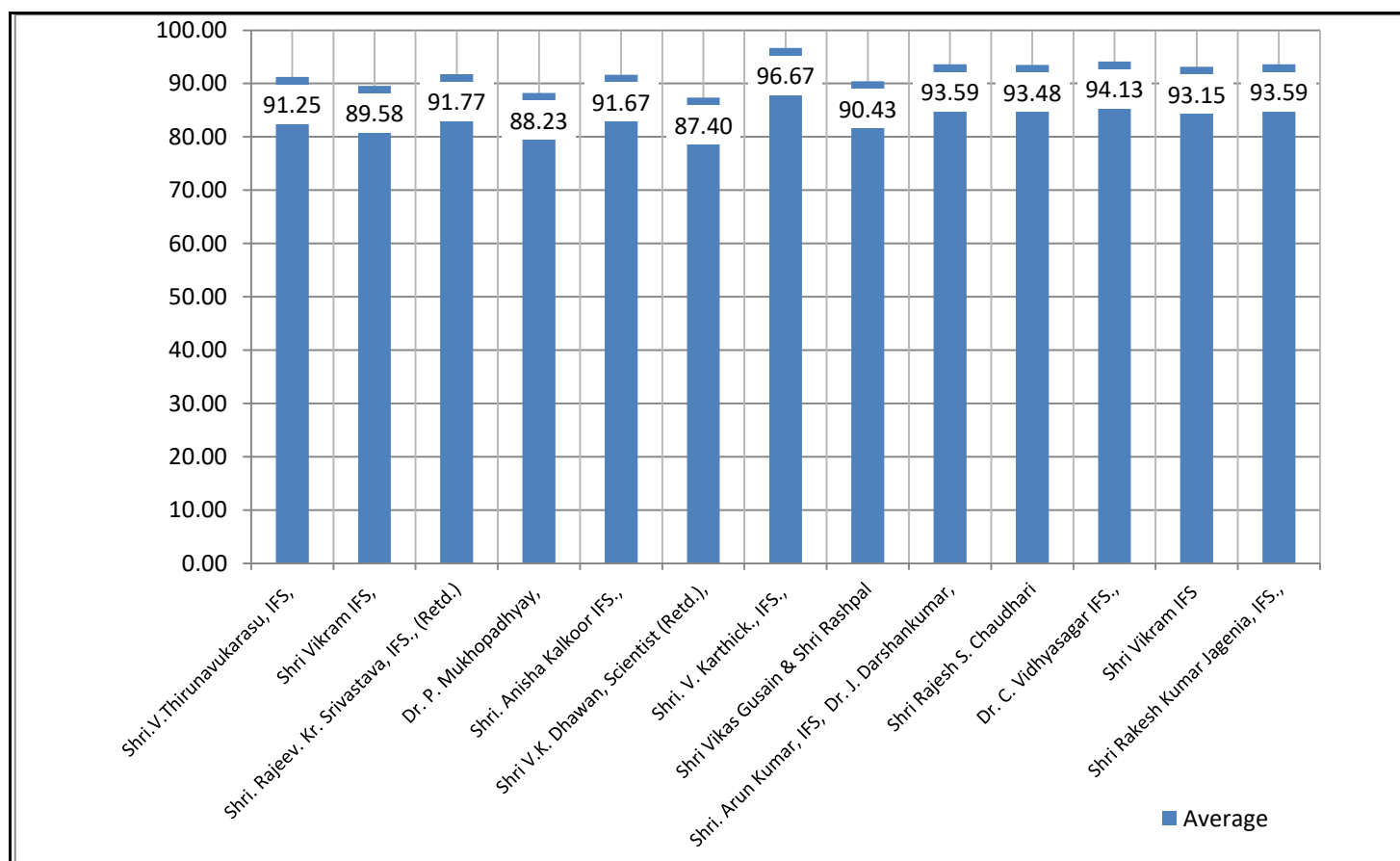
-Sd-
**Principal,
CASFOS-Coimbatore**

FEEDBACK ON RESOURCE PERSONS

The scores given to the Resource persons by the participants on four criteria and its average :-

Guest Lecturers	Contents	Presentation	Interaction	Objectives	Total	Average
Shri.V.Thirunavukarasu, IFS,	92.92	90.00	94.17	87.92	365.00	91.25
Shri Vikram IFS,	88.75	92.08	87.50	90.00	358.33	89.58
Shri. Rajeev. Kr. Srivastava, IFS., (Retd.)	93.33	91.67	91.67	90.42	367.08	91.77
Dr. P. Mukhopadhyay,	90.00	89.58	87.08	86.25	352.92	88.23
Shri. Anisha Kalkoor IFS.,	91.67	91.67	92.50	90.83	366.67	91.67
Shri V.K. Dhawan, Scientist (Retd.),	89.58	87.92	85.83	86.25	349.58	87.40
Shri. V. Karthick., IFS.,	96.67	96.67	97.50	95.83	386.67	96.67
Shri Vikas Gusain& Shri Rashpal	92.17	90.87	89.57	89.13	361.74	90.43
Shri. Arun Kumar, IFS, Dr. J. Darshankumar,	93.91	94.35	93.48	92.61	374.35	93.59
Shri Rajesh S. Chaudhari	93.04	94.35	93.04	93.48	373.91	93.48
Dr. C. Vidhyasagar IFS.,	94.78	96.09	93.91	91.74	376.52	94.13
Shri Vikram IFS	96.09	91.74	94.78	90.00	372.61	93.15
Shri Rakesh Kumar Jagenia, IFS.,	93.48	96.09	90.87	93.91	374.35	93.59

Fig.1 The overall average assessment of resource persons in Classroom lectures done by participants (Scale 0 - 100)



Photographs of the Training Programme



