

**CHAPTER
11**

HUMAN RESOURCE DEVELOPMENT AND INFRASTRUCTURE



11.1 MANPOWER AUGMENTATION

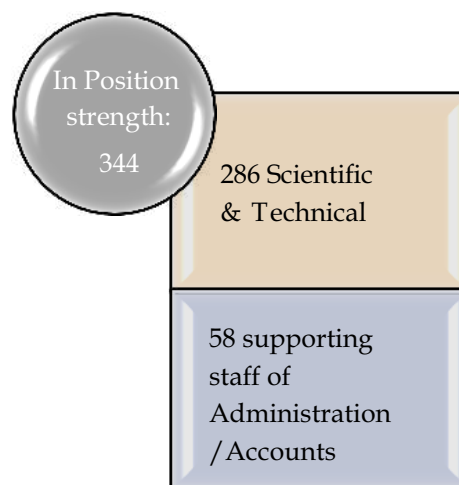
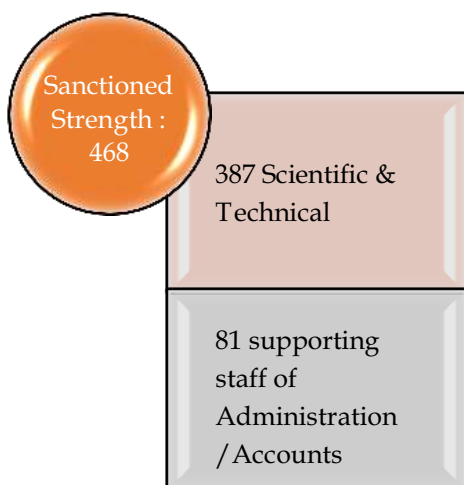
AERB manpower is being augmented at various levels and through various channels in view of the expanding nuclear power programme and increasing number of radiation facilities in the country. This is being done through fresh recruitments, transfer of experienced personnel from operating plants and R&D institutes like BARC and IGCAR and induction of Graduate Trainees from Orientation



Course for Engineering Graduates and Science Postgraduates (OCES) of DAE Units and induction of postgraduates through AERB Graduate Fellowship Scheme (AGFS) from IIT Bombay and IIT Madras.

Total sanctioned strength in AERB as on December 31, 2020 was 468. In-position strength is 344 comprising 286 Scientific & Technical and 58 supporting staff of Administration/ Accounts / Auxiliary. During the year 2020, AERB recruited 6 personnel, of which 5 officials through BARC and IGCAR training schools in the Grade of Scientific Officer (C). One candidate joined AERB as upper division clerk (UDC).

The manpower Status is as Follows;



11.2 IMPLEMENTATION OF PERSONS WITH DISABILITIES (EQUAL OPPORTUNITIES, PROTECTION OF RIGHTS AND FULL PARTICIPATION) ACT, 1995 AND RESERVATION POLICY FOR SCHEDULED CASTES / TRIBES / OBC

There is one backlog vacancy in 'Person with Disabilities Quota' due to resignation of a Lower Division Clerk (LDC) on July 31, 2017. Rosters are maintained as per the orders on the subject. The backlog vacancies are being worked out and periodic reports and returns are sent to DAE.

11.3 INFRASTRUCTURE DEVELOPMENT

11.3.1 Information and Communication Technology (I&CT)

The functioning of organisation in normal and COVID-19 pandemic situation required seamless management of all I&CT services and upgradation of associated resources. To meet the requirements in special situations, I&CT infrastructure had to be monitored remotely and maintained on-premise using the essential human resource even when majority of the organisational activities were being carried out through work from home concept.

Workload on the employees and support persons during pandemic situation was much above average as conversion from normal on-site activities to remote online activities suddenly demanded extra man-hours of I&CT personnel. Towards maintaining and improving I&CT infrastructure and services, organisation has performed the following activities:

(i) IT Infrastructure and Services

(a) HCI-Nutanix : Procurement, installation and implementation of the state of the art HCI (Hyper-converged Infrastructure) viz. Nutanix was completed at the on-premise data centre in Mumbai. Major DMZ and LAN servers, storage and network resources have been migrated to this virtual infrastructure. The main advantages are simplicity, ease of deployment & operations and cost saving.

(b) Web Conferencing System Implementation and Upgrade : After March 2020 most of the meetings both involving in-house as well as external agencies were held using on-premise video conferencing systems installed in three meeting rooms. After the trial run, procurement and installation of a new web conferencing on-premise system (TrueConf), and a conference booking system, the management of online meetings has become better.

For personnel attending conferences/webinars/workshop/ training courses, hosted both on-premise and external agencies such as IAEA, OECD/NEA, NIC, accessories like webcams were procured and installed on many users' machines. Laptops were issued to individuals to facilitate participation in online web conferencing from office and home and working on eLORA, CHARMS, eOffice remotely using virtual private network (VPN) service hosted on-premise. Participation in official meetings/interviews of personnel located at HQ and satellite offices were also supported using on premise web conferencing host.

(c) eMail Service Support and Upgrade: During lockdown, all email accounts of users of aerb.gov.in domain email service were configured to forward their emails to National Informatics Centre (NIC) server,

accessible to users working from home. Several NIC email account creation and mobile number change requests were forwarded to NIC for providing this service to all Scientific and Technical personnel. After concerted efforts the NIC Delegated Admin (DA) role for NIC Email Management was obtained for AERB and consequently required VPN installation was completed. This has provide the necessary rights to manage NIC email user management service from local machine connected to NIC server.

(d) Implementation of e-Office : The e-Office has been implemented in AERB with the help of NIC. Upgradation of e-Office modules was performed to incorporate changes to improve the features and performance. Towards implementation of the e-Tour module, a trial run was carried out. Corrections/changes in Leave Management System, Knowledge Management System and File Management System modules were performed. Digital certificates for individual users of e-Office FMS were renewed and installed on respective machines.

(e) Pay Roll, CHARMS/APAR System Implementation: The Payroll system software was kept up-to-date as per requirements specified by Accounts Division and suitably modified to accommodate the changes in the modules for Transport Allowance, Provident Fund, Income Tax and PRIS calculations. Modifications in the attendance management software & CHARMS/APAR systems were carried out for generating reports from RFID based attendance management system for AERB employees and towards implementation of APAR.

(f) Electronic Documents and Record Management System (EDRMS): A decision has been taken to install and implement an on-premise EDRMS in line with the Records and Information Management Policy (RIMP) with the objective of a paper-less office. Towards this a working group has been constituted for digitization of records. Development of an online system has been initiated for collection of data to identify the required quantum of scanning activity to be outsourced.

- (g) **Wi - Fi and Leased Line Upgrade:** Enhanced Wi-Fi service by installation and implementation of new broadband connection, and also upgraded the existing internet leased line connection.
- (h) **Network Security and Malware Protection:** An antivirus implementation drive for malware protection and network security was completed. Online inventory monitoring system of end-point machines for online viewing of the current status was developed and updated regularly. Antivirus server upgrade and configuration for antivirus and web-firewall Log Checks were implemented. Regular updates of the firewall, SSL VPN software, Email Gateway Software and malware protection was performed on various servers. The VPN tokens were configured and reassigned to meet the enhanced requirement during lockdown period to facilitate work from home. SSL certificates were installed and configured on all interfacing web servers.

(ii) **AERB Website Update**

AERB maintains its website (www.aerb.gov.in) as a user-friendly platform for dissemination of people-centric information towards meeting its objective of enhancing transparency and public outreach. Web-information management process ensures that the website remains rich in content from technical as well as public interest point of view.

Most of the publications made by AERB are made available for free download on its website. AERB website is updated periodically with news items such as information on registered radiation facilities, renewal of licence/ consent for Nuclear, Industrial & R&D Facilities, significant events report of NPPs, type approved equipment, Authorized Service Agencies for X-ray QA, transport package approval (Type A and B), regulatory inspections carried out, occupational exposures etc. There exists a helpdesk maintained for improvement of services to the users, obtaining feedbacks from users and providing solutions as necessary.

AERB developed and uploaded video on 'Radiation Safety in Fluoroscopy' to enhance radiation safety awareness among personnel working in Diagnostic Radiology.

(iii) **Development of In-house Software Applications**

AERB has started in-house development of software applications for online management of various activities as detailed below:

- (a) **RTI and Parliamentary Questions Management Systems:** The web based software applications developed last year were reconfigured based on user feedback and the access to the same was provided to the prospective users at HQ.
- (b) **REGDOC Management System :** Web based software application has been developed to improve day-to-day internal management of development/revision of regulatory safety documents (REGDOC) published by AERB. Another module has been developed to include a feature to ease the management of comments on REGDOCs and addressing the stakeholders' feedbacks during revision of a REGDOC.
- (c) **Committees and Expert Management System:** Number of field experts are involved in safety review and document development in AERB. A web-based software application was developed for management of experts and committees to help in selection of experts and in formation of committees for AERB activities.
- (d) A web based software application to conduct an on-line survey of Safety Culture in AERB.
- (e) For proper management of virtual meetings on Trueconf, an online booking system was developed.
- (f) The system was developed for logging of weekly work done and generation of summary report w.r.t. IT. Also another system was developed for making available the troubleshooting experience to all colleagues.
- (g) A web based software application for online polling system for the internal web portal hosted in LAN. This can be used for drawing opinion on a topic in the form of answers 'Yes' or 'No' or any other two possible answers scenario. A feature to show the results online was also included.
- In addition to the above AERB has

initiated development of several other software applications like Management of AERB Board Affairs, Inspector Authorisation, Technical News Corner for Intranet website, Management of Safety Research Projects, On-line assessments on Training Programmes and Quiz and Certification.

11.3.2 Construction/Modification at AERB HQ and Regional Centres

With a view to decentralise its regulatory activities, AERB has established Regional Regulatory Centres (RRC) at Chennai, Kolkata and New Delhi. Construction of new office building also started in Niyamak Bhavan campus. The progress of work is as follows:

- ❖ Southern Regional Regulatory Centre (SRRC), Chennai is already functioning from new building, subsequently furniture and IT infrastructure being established.



Construction in progress for Niyamak Bhavan-C at Mumbai

11.4 TRAINING

As part of competence development, AERB continued to train its staff by organising training programmes, workshops, on-job training at nuclear and radiation facilities, refresher courses, technical talks, colloquia and participation in training courses conducted by other institutions. AERB also imparts training on regulatory and safety aspects with respect to nuclear and radiation facilities to other organisations on request.



Total 242 officers have been trained in MDP through 9 batches

- ❖ Civil construction of Eastern Regional Regulatory Centre (ERRC), Kolkata building is completed. Common services like roads and other activities are in progress.
- ❖ Construction activities of NB-C building remained suspended from March to August 2020 due to COVID-19 lockdown. Construction activities restarted slowly from September 2020.
- ❖ Internal modification work as well as renovation of few meeting rooms were completed.
- ❖ Execution of the WO for developing parking space adjacent to NB-C has commenced.



ERRC, Kolkata

11.4.1 Training Imparted to AERB Staff

(i) Management Development Programme

Five days residential training programme for 2nd batch on 'Management Development Programme (MDP)' for middle level officers (SO/TO-D level officers) of AERB was organized during January 6 -10, 2020 at Yashwantrao Chavan Academy of Development Administration (YASHADA), Pune. Total 30 officers participated in the programme. The topics included time and stress management, governance through management, effective communication skills, motivation meetings and report writing skills, code of ethics, human factor engineering, self-assessment and SWOT analysis, leadership skills and lateral & creative thinking.



Executive Director, AERB, Faculty and Participants of MDP at YASHADA, Pune

(ii) Workshop on 'Applications of PSA in Regulatory Processes'

by AERB in-house faculty and invited speakers from BARC.

Two days' workshop was organized for beginners on 'Applications of Probabilistic Safety Analysis (PSA) in Regulatory Processes' during February 13-14, 2020 at AERB, Mumbai. The workshop was basically aimed for AERB officers who are associated with the regulatory processes of NPPs and are not adequately acquainted with PSA/Safety Analysis and its applications in safety review processes. Lectures were delivered

(iii) Induction Training of New Recruits

An orientation training programme was organized for Trainee Scientific Officers (TSO) joined AERB after completion of BARC and IGCAR Training School. After the initial induction training course at AERB, these officers were posted to NPP sites for On-Job Training (OJT) for familiarization and practical experience in the field.



Dr. C. Senthil Kumar, Officer In-charge, SRRC, AERB and Dr. R.B. Solanki, AERB delivering talks on PSA



Participants of the Workshop



Chairman, AERB interacting with TSOs

(iv) Participation in Training/Workshop

AERB officers participated in training/workshops organized by other research organization/ institutions on the topic of interest:

- ❖ Workshop on 'Fire Research in Propulsion Systems' conducted by IIT Madras on January 23, 2020.
- ❖ 18th Course on 'Application of Remote Sensing and GIS in Mineral Exploration', during June 25 to July 10, 2020, conducted by GSITI, Hyderabad.
- ❖ Training on 'Fire Modeling using Pyrosim' conducted by IIT Roorkee during August 6-7, 2020.

(v) Training Course on Containment Safety

Towards competency development / enhancement on Nuclear Power Plant Containment Safety, a four months' training course has been scheduled at AERB. The training course commenced from December 15, 2020 and will conclude in April 2021. These course comprises of 29 lectures on various topics. Total 46 officials from AERB and NPCIL are participating in the training being conducted in mixed mode (i.e. virtual and physical classes following COVID-19 precautions).

11.4.2 Technical Excellence Teams

AERB needs human resource strategies towards skill enhancement as well as development of team work spirit of young officers. Considering this human resources (HR) strategy, a programme called Technical Excellence Team (TET) has been devised. The programme primarily aims to facilitate how to work in a team to realize value added outcomes in form of projects/activities.

Main objective of the programme is to tap tacit knowledge and experience of employees and convert them into value added tangible outcomes, which can be used for bridging skill and experience gaps of young officers and also for developing resource materials on various technical / scientific matters of regulatory activities.

As of now, total seven numbers of Technical

Excellence Team (TET) meet were conducted to enhance competency among group of young officers. Total 76 junior level Scientific officers (SO/C to SO/E) participated in these meetings, which were chaired by Chairman, AERB. During the TET meetings, it was emphasized that all officers should study following IAEA Standards for regulatory bodies and identify gaps and corrective actions needed

- ❖ GSG-12 : Organization, Management and Staffing of the Regulatory Body for Safety, and
- ❖ GSG-13: Functions and Processes of the Regulatory Body for Safety.

The TET meetings were conducted in following manner:

- ❖ Identification of developmental activities and assigning certain project topics to TET participants based on their field of expertise.
- ❖ Presentation and discussion on projects made and submitted by TET.
- ❖ Discussion on individual work assignments and their involvement in divisional activities.

Various TET teams contributed and developed resource materials/monographs etc. in their domain of expertise which would be useful for AERB regulatory processes. Compilation of available Technical Excellence Resource material was done in a booklet form for presenting to Chief Guest on November 25, 2020 during a function organised on the occasion of AERB Formation Day.

11.4.3 Training Manual on Biological Effects of Radiation Exposures

A Training Manual on 'Biological Effects on Radiation Exposure (BERE)' was prepared by AERB In-House Working Group (IHWG) with Members from various divisions. Subsequently it was upgraded with major additions by Task Force. The training manual was released on AERB Formation Day organised on November 25, 2020. This training manual compiles the latest information on Biological Effects of Ionizing Radiation (BEIR) from the standard publications mainly from UNSCEAR, ICRP and IAEA.



Chairman, AERB interacting with participants in a TET Meeting

The manual covers fundamentals of ionizing radiation, quantities, units & exposure, sources of radiation exposures, cellular level effects of radiation and biological effects in human beings, internal dose evaluation models, low dose & low dose rate epidemiological studies, biological effects from major nuclear and radiological accidents and review of UNSCEAR reports.

11.5 TECHNICAL TALK/COLLOQUIUM

AERB conducts technical talks/colloquia at regular intervals for its staff for knowledge upgradation. The topics are chosen in line with the mandate and functioning of AERB, covering latest scientific and technical development worldwide in the field of nuclear and radiation industries, regulatory practices, legal aspects and aspects enhancing personal and interpersonal effectiveness etc.

Three Colloquia were conducted during the period. The talks were delivered by experts from AERB, DAE units and non-DAE organisations.



From (L to R): Shri D. K. Shukla, Executive Director, AERB, Shri S. A. Bhardwaj, Former Chairman, AERB and Shri G. Nageswara Rao, Chairman, AERB releasing the AERB Training Manual on BERE

Human Factors and Accident Analysis in Complex Safety Critical Systems
by Dr. Vivek Kant, Asst. Professor, IIT Bombay

Fast Reactor Physics Concepts for Competency Development
by Dr. H. P Gupta, -Ex BARC

Safety Culture Assessment at AERB
by Smt. Sonal Gandhi, AERB

11.6 KNOWLEDGE MANAGEMENT

11.6.1 Knowledge Portal

A 'Knowledge Portal' is functional on the internal website of AERB, as part of knowledge preservation and easy retrieval of information. Training/Refresher course/Teaching material, proceedings of Conferences and Seminars etc., are included in the portal at regular intervals. AERB Codes/Guides/Manuals are also included on the portal.

11.6.2 Scientific Information Cell

A well-equipped scientific information cell (Library) is maintained in AERB. During the year, 50 publications were uploaded in Knowledge Management System (KMS). The total collection of publications in library has gone up to 10,604. In addition, 17 Journals were subscribed during the period. Reference and information services were provided to the users and visitors of the Library. World Nuclear News, IAEA Weekly News, NEA News Bulletin etc., were circulated in digital form regularly by sending e-mails to AERB staff. Table of Contents of new issues of important journals of AERB's subject interest were also circulated regularly by email alerts.



Shri K. S. Ramprasad, Scientific Officer (H) and Head, MD&KMS, RDD has been awarded degree of Doctor of Philosophy (Ph.D.) under the Faculty of Business Administration from Sathyabama Institute of Science and Technology (SIST), Chennai for the thesis titled "Survey of Safety Culture and Development of a Management System Model for Nuclear Power Plant Construction Workforces in India" in June 2020. The degree was given in a Convocation Ceremony (virtual mode) held on September 18, 2020 at Chennai.

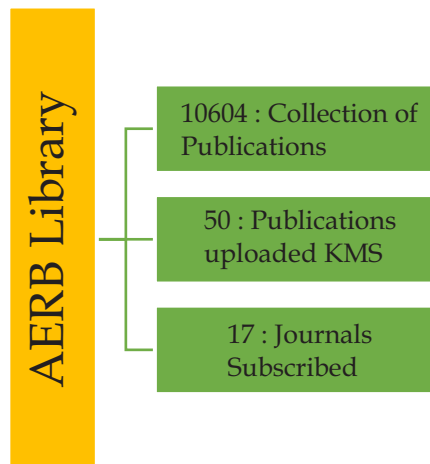
11.7 PROMOTION OF EXCELLENCE IN HUMAN RESOURCES

11.7.1 Higher Qualification

The following AERB officer acquired higher qualification during the year:

11.7.2 Promotion

During the year, 14 employees were promoted under the Merit Promotion Scheme. Also 3 employees from Administration got promoted during the year.



Shri Thokchom Dewan Singh, Scientific Officer (E), has been awarded degree of Doctor of Philosophy (Ph.D.) in Disaster Management from Jamsetji Tata School of Disaster Studies, Tata Institute of Social Science (TISS), Mumbai for the thesis titled "Understanding Risk in Radiation Practices - A study of Diagnostic Radiology and Radiotherapy Practices in North East India and Mumbai" in August 2020. The degree was given in a Convocation Ceremony (virtual mode) held on December 19, 2020 at Mumbai.

11.8 AERB FORMATION DAY

AERB was formed in November 1983, and to commemorate 37th Formation Day of AERB, a function was organized on November 25, 2020. In view of the prevailing COVID-19 pandemic, this year's programme was conducted in a mixed mode (i.e. Physical and virtual mode through video-conferencing platform).

Shri S. A. Bhardwaj, Former Chairman, AERB was the Chief Guest of the programme. Chairman, AERB, Executive Director, AERB

the Chief Guest and Members of AERB Advisory Panel, Shri S. S. Bajaj, Former Chairman, AERB, Shri S. K. Chande, Former Vice-Chairman, AERB and Shri S. K. Mehta addressed the audience.

During the function, Shri Prashant Sharma, gave a presentation on 'AERB Vision 2030 - Our Thoughts' on behalf of S/Shri Ritu Raj, Rajendra R. Shete and Smt. Purva Awasthi (the recipients of Young Scientific Officer Award-2018).



Glimpses of AERB Formation Day Programme



Glimpses of AERB Formation Day Programme



Shri S. A. Bhardwaj, Former Chairman, AERB released a Training manual on "Biological Effects of Radiation Exposure (BERE)" and Compilation of Technical Excellence Team (TET) Resource Materials during the programme.

AERB Awards for Excellence

AERB started its award scheme from the year 2012 to promote excellence among its staff and to recognise outstanding achievements of those engaged in regulatory and associated R&D activities. AERB award scheme comprises of individual awards as well as group achievement awards.

These awards are mostly presented during AERB Formation Day programme every year. However, this year due to COVID-19 pandemic, AERB has not formally awarded the staff under its award scheme. The nominations for the Awards for 2019 will be considered while giving the awards for the year 2020 next year.

11.9 WELFARE AND AWARENESS ACTIVITIES FOR AERB EMPLOYEES

(i) International Women's Day

International Women's Day is celebrated every year on March 8 worldwide, commemorating the political, social and economic achievements of

women. This year's theme was 'I am Generation Equality: Realizing Women's Rights'. Women's Day celebrations was held in AERB on March 9, 2020.

Shri G. Nageswara Rao, Chairman, AERB and Shri D. K. Shukla, Executive Director, AERB shared their views during the celebration.

On this occasion, Dr. Aswathy Pillai, Coordinator, Public Health awareness program, MERIT-FAP, Tata Institute of Social Sciences (TISS) Mumbai, delivered talks on 'Early Detection and Prevention of Cancer' and 'Awareness about Pain & Palliative Medicine'.



Dr. Aswathy Pillai delivering talk during Women's Day Celebration

A cultural programme was organized by Women employees, which included songs and dances.



Glimpses of Cultural Programme on Women's Day Celebration

(ii) Swachhata Pakhwada

As part of "Swachh Bharat Mission" launched by the Government of India, AERB celebrated 'Swachhata Pakhwada' during February 16-28, 2020. All the staff of AERB took a Swachhata Shapath (Cleanliness Pledge). Various activities such as cleaning of workplace and office premises were undertaken during this period. AERB officers and staff also performed 'Shramdaan' for an hour in the vicinity of AERB complex. Essay writing and poster making competitions on 'Swachhata' were organised for AERB employees.



Glimpses of 'Shramdaan' Programme in the vicinity of AERB Complex

For creating awareness on Swachhata, AERB officers and staff delivered talks in nearby schools on this topic, as well as organised speech and poster competitions on 'Swachhata' for Children from schools around Anushaktinagar.

An Essay writing, elocution and Cartoon/poster drawing competitions on 'Ways and Means to Eliminate Single-Use Plastic in day-to-day Life' were organized during the period. A talk was arranged in AEC Schools of Anushaktinagar and the schools located near by Anushaktinagar.



AERB Officers delivering Talks on Swachhata in Schools

(iii) Vigilance Awareness Week

As part of observation of 'Vigilance Awareness Week-2020', an essay writing competition, Cartoon/Poster Drawings competitions were organized during the month of November 2020 for all the employees of AERB.

(iv) Essay Competition on Indian Constitution

Essay writing competition on 'Salient Features of the Constitution of India' was organised in AERB on January 24, 2020 in connection with celebration of Constitution Day on November 26, 2019. AERB employees actively participated in the essay writing competition.



Participants of Hindi Essay Competitions

11.10 RETIREMENT ON SUPERANNUATION/RESIGNATION/TRANSFER

Following officials retired on superannuation, resigned/ transferred to other units during the period:

	Name	Designation	Date of Retirement	Remarks
1.	Smt. Madhavi Sadasivan	Administrative Officer (AO -III)	31-01-2020	Superannuation
2.	Shri. Devendra Upadhyaya	Scientific Officer (E)	28-02-2020	Resignation
3.	Shri N.S. Malkar	Scientific Assistant (E)	31-03-2020	Retirement under Voluntary Retirement Scheme
4.	Shri L. H. Pawar	Dy. Control of Accounts	03-07-2020	Transferred to DPS
5.	Shri Milind Edlabadkar	Pay and Accounts Officer	10-07-2020	Transferred to RRCAT, Indore on Promotion
6.	Shri J. K. More	Upper Division Clerk (UDC)	18-08-2020	Demise
7.	Shri S. A. H. Ashraf	Scientific Officer (H)	24-08-2013	Voluntary retirement service notice accepted in August 2020)
8.	Shri G. Sivaraman	Scientific Officer (E)	31-12-2020	Superannuation



Chairman, AERB; Executive Director, AERB and CAO, AERB felicitating Smt. Madhavi Sadasivan



Shri D. K. Shukla, ED, AERB presenting AERB Memento to Shri G. Sivaraman, in presence of Shri G. Nageswara Rao, Chairman, AERB