

Executive Summary

Indian Council of Medical Research (ICMR) was created in 1911 as Indian Research Fund Association. ICMR promotes biomedical research in the country through intramural research (by its own Institutes/Centres) and extramural research (through grants-in-aid given to projects through a transparent rigorous review process to non-ICMR Institutes). ICMR is now one of the constituent autonomous bodies of the Department of Health Research (DHR), created in 2007 and whose vision is “to bring modern health technology to the people through innovations related to diagnostics, treatment methods and vaccines for prevention; to translate them into products and processes and in synergy with concerned organizations to introduce these innovations into public health systems”.

The Government of India constituted Review Committees from time to time which looked into the working of the ICMR from the scientific, administrative and financial angles. The last evaluation of ICMR was done by a ‘Performance Appraisal Board’ in 2004 and its report was submitted in 2005. In December, 2012 this High Power Committee (HPC) of eminent scientists was constituted by the Ministry of Health & Family Welfare as per requirement of the Ministry of Finance while approving the continuation of XI Plan activities into XII Plan of the ICMR/DHR. This is a common requirement for all Government schemes. The HPC was given specific task to review ongoing research activities of ICMR which were initiated in XI five year plan and have been proposed to be continued to XII Plan. *The Committee’s mandate was to assess: (i) whether the ongoing schemes of the XI Plan need to be continued in XII Plan or dissolved forthwith; (ii) in case if they are to be continued then (a) need for improvement (b) phasing expenditure in XII plan for each component of the scheme (c) setting of physical and financial milestones/targets for the XII Plan for each component.*

All ICMR Institutes/Centres and Divisions of the Hqrs were asked to submit information/documents in pre-structured formats on research, training and other professional activities undertaken during XI Plan with leads that emerged and achievements made along with ongoing activities of national relevance and XII Plan proposals. The committee also consulted several documents including ICMR’s Memorandum of Association, Rules, Regulation and Bylaws, Performance Appraisal Board Report of the Indian Council of Medical Research (2005), ICMR Network document (2011), XII Plan proposals document, etc to appraise itself with the mandate of the ICMR, its rules and regulations, recent achievements and future aspirations. HPC also examined the report of the Working Group set up by the Planning Commission under the chairmanship of Dr. V M Katoch, Secretary, Department of Health Research & Director-General, ICMR with Professor M.S. Valiathan as Co-Chair with membership consisting of representatives from various scientific Ministries, educational institutions, State Governments and other stakeholders to deliberate on the strategies for the XII Plan for the Department of Health Research including ICMR. HPC also noted the challenges identified for Health Research for XII Plan.

The HPC members went through all these documents thoroughly and had personal discussions and interactions with Directors of the Institutes and Divisional Heads of the ICMR Hqrs, who also made presentations to HPC. Subject experts were also invited during these presentations as per requirements. A total of eight meetings of HPC were held between December 2012 and May 2013. In first six meetings, the HPC had detailed discussions on the basis of information thus collected and collated to enable it to formulate replies for each of the terms of reference. In last two meetings HPC finalized the report and following important observations/recommendations were made:

1. ICMR has contributed significantly towards knowledge generation about diseases and disorders, setting up of new institutes and centres, increasing interaction with State Health Departments through establishing a number of Field Units especially in less developed regions in the country in spite of being provided limited funds to the tune of Rs 2012.63 Crores in the XI Plan against initially allocated Rs.4496 crore by Planning Commission. DHR was also created in the midst of the plan period (2007) without a specific budget.
2. HPC noted that many of the ICMR Institutes are nationally or globally recognized for health related expertise and are needed for improving the health of the community through appropriate health research. This activity needs to be continued for product, technology/diagnostics/therapeutic algorithms development and their resultant use in the national programmes.
3. HPC noted several achievements of ICMR during the XI Plan including the technical contribution of ICMR to establish the activities of Department of Health Research (DHR), setting up of 3 new Institutes, starting a School of Public Health at NIE, Chennai, 9 new field stations, 12 Centre for Advanced Research, establishment of network of viral diagnostic laboratories with Asia's first BSI-4 lab at NIV, Pune and conceiving & launching of new Flagship programmes like Vector Borne Disease Science Forum, Tribal Health Research Forum, Translational Research and Special support to medical colleges, etc. A major effort of ICMR during XI plan was that ICMR continued to provide support to extramural research through funding of adhoc projects in non-ICMR institutes, medical colleges, creation of Task Forces, Centre for Advanced Research (CAR), etc. Funding for extramural research increased from Rs 52 crores in 2007-2008 to Rs 180 crores in 2011-2012. In addition, funding for research in north-east region also increased from Rs 5.82 crores to Rs 13.18 crores in the corresponding year. Human Resource Development was also given special impetus. It was also noted by the committee that ICMR institutes published over 2800 research papers with average impact factor of 2.86. Similarly extramural research work resulted in over 1100 publications with average impact factor of 3.28.
4. Ongoing activities/programmes of ICMR which need to be continued in XII Plan with budgetary requirements: A total of 2185 spill-over extramural and intramural activities which were initiated during XI Plan and continuing in XII Plan were evaluated. HPC in the process also reviewed 2271 completed programmes/activities during XI Plan, and 2300 new/programmes/activities proposed by the ICMR Institutes and Technical Divisions of the Hqrs for XII Plan. HPC noted that many of the committed extramural activities (adhoc projects, task forces and fellowships) which were sanctioned during XI Plan would complete their sanctioned duration during the XII Plan (*spill-over projects*) hence will have to be continued to fulfil the mandate and objectives of the study. HPC also noted that there are *core obligatory activities* which are long term/in continuum as well as long term projects like IDVC, NNMB, HRRC, etc will also have to be continued. Intramural research is being carried out by scientists of 32 institutes/centres and more

than 70 field stations of the ICMR. These institutes/centres undertake disease specific or region specific research. They also provide technical support to their respective state government and coordinate with the National Health Programmes. They are also involved in many statutory activities such as epidemic/outbreak investigations, diseases surveillance and disease burden studies. HPC opined that all these activities are relevant, well monitored and need to be continued to complete the objectives.

A total of Rs. 605.87 crores would be required for ongoing extramural activities during XII five year plan to complete activities of 1773 activities/programmes. A budget of Rs. 536.92 crores would be required to complete spill over intramural activities of ICMR institutes/centres including intramural projects and core obligatory activities of the ICMR Hqrs. A total of Rs. 412.22 crores would be required for ongoing capital work. Thus Rs. 1555.01 crores would be required during XII plan to complete the objectives and mandate of various activities initiated during XI plan, which has been reduced by Rs. 456.99 crores after HPC intervention resulting in pruning of some programmes and development of condensed/synergized programmes on different diseases with revised reduced estimates.

5. Ongoing activities/programmes of ICMR which need to be continued in XII Plan with improvement/modification:
 - HPC noted that many ICMR institutes are working in common disease specific areas in different geographical locations and ethnic diversity. HPC advised a cohesive and coordinated approach to avoid duplication of efforts.
 - HPC also recommended to bring out the disease specific documents with current status, which would be helpful to the policy makers and programme managers and the lay public.
 - HPC recommended that ICMR Institutes should develop linkages with local medical colleges and other institutions to better utilize the infrastructure facilities and broaden the research horizon in the country.
 - HPC recommends that ICMR should direct and focus its research towards eradication of leishmaniasis, filariasis, paragonimiasis (lung fluke) and leprosy.
 - HPC recommends that efforts may be accelerated for setting up of laboratories and field units across the country including remote areas to tackle the emergencies such as natural disasters and epidemics.
 - Initiation of new activities in emerging areas such as regenerative medicine, biomedical engineering, bio-security, bio-safety, tissue engineering, emerging environmental health hazards, gender and adolescent health, dental health, psycho-social aspects of geriatric health, impact of climate change on human health *etc.* were also recommended.
 - HPC while commending the recently started translational program of ICMR recommended strongly that promising leads identified by ICMR Institutes should be commercialized for providing affordable and cost-effective diagnostics, vaccines and drugs after independent evaluation.

6. Ongoing activities/programmes of ICMR which are recommended for discontinuation in XII Plan:

- HPC recommended the discontinuation of exploratory & piece meal research related to Herbal Products being undertaken at various centres except where a promising lead has been found. HPC noted that RMRC, Belgaum is specialized in this area and can be consulted by others for any lead in plant based research of their interest.
- Research on use of fishes in mosquito control having been established should be transferred to NVBDCP for implementation.
- Research on toxicology, metabolic (diabetes) and chronic diseases may be discontinued at NIOP, New Delhi to avoid unnecessary duplication with other institutes.
- Studies on the Economic cost of dengue in India.
- Nutrition Monitoring Survey on NNMB pattern in Jodhpur district of Rajasthan.
- To assess the pattern of occupational related injuries of patients attended Employees State Insurance Corporation Hospitals- Database during 2009-12 at Bangalore.
- Trends of demographic profile of population employed in different occupations through the available census details.
- Identification and characterization of sperm flagellar proteins relevant to motility.
- Validation of differentially regulated sperm proteins & Role of tubulin acetylation/deacetylation in sperm, Studies on sperm progesterone in male fertility.
- Electronmicrographic studies related to pathogenesis of leprosy.
- Role of cytokines in chikungunya infection in order to generate information with a view to alter current treatment strategies.
- Studies on chronic arthropathy, a complication in chikungunya infection -to assess whether patient management strategies could be altered.
- Comparative molecular modeling of various important proteins of different leishmania strains and ligand-protein interaction.

7. Other important recommendations

- The HPC recommends strongly that ICMR should be equated with other sister organizations like CSIR-DSIR, ICAR-DARE *etc* since the Department of Health Research (DHR) is now in place.
- Creation of "Harvest Group" to identify leads from extramural research towards making products, processes and other deliverable for the Indian public health system was endorsed.
- Strengthening the BSL-IV lab of the NIV, Pune, a national asset, through adequate staff and infrastructure development to make it fully functional.
- Strategies to improve the use of mass-media may also be explored for better projection of ICMR's scientific activities to enhance public awareness.
- Periodicity of publication of Indian Journal of Medical Research (IJMR) may be

increased to fortnightly in view of the highest impact factor of IJMR among all biomedical journals in India.

- ICMR institutes should have MOU with medical colleges, universities, research institutes, in the region for promoting collaborative biomedical research and human resource development.
- Strengthening of various programmes towards creation of more short and long term fellowships for young scientists from SAARC and other developing countries with specific focus on South Asian and African countries
- The mechanisms to identify and avoid duplication of funding of research projects should be strengthened through involving sister agencies like DBT, CSIR, DST, *etc* through DHR mechanism.