Summary of discussions of Twenty fifth meeting of the Scientific Advisory Committee to Cabinet (SAC-C) held on 7th February, 2013 at Vigyan Bhawan Annexe, New Delhi

List of participants annexure - 1.

M25 A1&A2 Opening Remarks and Action taken report of 24th SAC-C Meeting

Agenda of 25th meeting and Action taken report of the 24th meeting are placed at annexures -2 and 3 respectively.

Dr. R. Chidambaram, Chairman SAC-C warmly welcomed the members and invitees to the meeting.He then took up the action taken report of 24th SAC-C meeting and informed the members that:

- the observations of SAC-C members were taken into account & suitably incorporated in the finalization of the STI Policy. The policy document was released by the Hon'blePrime Minister in the recently held Science Congress at Kolkata;
- letterswere written to Secretaries (DST, DRDO, DSIR) about the discussion on Photonics area, as well as the recommendation of SAC-C for funding the Photonicsarea by the respective departments;
- letters were also sent to Planning Commission and MoEF, highlighting the importance of Fringe forests and need for encouraging the development in the area.

Recalling the recent statement made by Prime Minister about the Indian institutions not figuring in the list of top Global Universities, he expressed his concern and felt it is an important issue that needs to be addressed. He said that the academic institutions can be classified into three categories viz. (i)IITs/IISERS/IIMs, (ii) national research institutes, central universities(iii) state universities. Among these, the weakestare generally the state Universities and they are large in number. The question is how we enable these institutions / universities to reach world class Research University status. He further said that the issue was discussed in the last SAC-C meeting and as decided, a brain storming meeting was organised at PSA office and the suggestions received from the experts are being worked upon. He then requested the members to express their views.

Referring to the recent Scopus report,**Prof. Samir K. Brahmachari**informed the committee that whilst Chinese Universities figured in first 10 positions, the highest position of Indian institution (IISc)was at 376th.Although,the ranking is improved to 82ndposition with consideration of national labs, such as CSIR,it is still low. He suggested that the nation may identify five best universities/institutions and strategically up-grade these to the global level.

Chairman requested Prof. Brahmachari to share the Scopus report with the members. He then shared the result of the international PISAresults for reading skills, scientific literacy & mathematical science among 15 year old school children, where India's position was not encouraging. He said that it is not only important to raise the general level of research quantitatively but also to improve the quality. He also briefly discussed the gifted children programme initiated by the Office of PSA at NIAS, Bangalore.

Dr. Ved Prakashinformed that **U**GC had identified 15 Universities offering outstanding UG & PG courses in the country. An expert committee could shortlist 5 universities out of these for carrying out research in select areas. These universities could then be supported substantially torealise the objective.

Dr.S.K.Joshi supported the idea of identifying 5 universities with potentialto excel. The identified universities may be provided with contemporary infrastructure, adequate funding and complete autonomy to achieve the world class status.

Citing the example of Nano-electronics lab facilities at IISc & IITB, Chairman said that creation of such centres,besides excellent research, would attract young & competent faculty, which is very important for maintaining excellence.

J.J.Irani observed that 90% of studentsjoiningIIMsare from premier institutes like IITs. After graduation, 80-90% of these studentsjoin foreign banks, consultancy etc. In the process the country is losingoutstanding technical personnels to non-technical jobs. As one of the measures, the IIMs are contemplating to gradually introduce 3-4 years of work experience in their own field for admission with the hopethat students after experience intechnical fields may not show interest in joining non-technical professions. If this measure succeeds, thecountry may benefit.

Dr. Prodipto Ghoshemphasizing on research eco-system, said that faculty in universities are highly overloaded with teaching responsibilities and may not have adequate time to spend on research.Hence, reduced teaching load is essential for faculty to undertake quality research. Secondly, the Universities abroad encourage research at UG level, but in India it takes place at Ph.D level.

This scenario should be changed at least in the top level universities. Thirdly, the quality of research rather than quantity should be given importancein career advancement of faculty.Lastly, he highlighted the importance of availability of research assistants.

Dr.Milan Sanyalfelt that connecting National Laboratories & universities to boost quality research activities is necessary. DAE has such Inter-University centers for using major DAE research facilities. He thus suggested creation ofmore interfacial centers in the campus of universities with adequate funding and autonomy.

Responding to the suggestion, **Dr. Ved Prakash**said that higher education is fragmented and felt that instead of creating parallel structures more integration is required within the existing system. He also explained the schemes of UGC for adjunct faculty and joint professorship to connect national laboratories and universities.

Dr. Dinesh Singh talked about the various measures such as creation of innovation centers, introduction of interdisciplinary degree courses and training for junior faculty abroad taken by University of Delhi for promoting excellence in research and development of innovations.

Dr. Chidambramrequested Dr. Dinesh Singh to share the details of the innovation program at Delhi University particularly rural studentswith UGC and Office of PSA, to which the latter responded positively.

Prof. Raghunathanhighlighted the importance of competent faculty andenhanced scholarships for students in the Universities.

Prof. S.V. Ragavan said that education is a process, teaching is an individual action, and learning is an individual experience. Results depend on the individual's integrity, progress and value system. Though at present, small number of good institutions and high competition are a challenge, efforts are on in right direction in uniting institutions and thus creating a rich environment for learning.

Action points:

- *Prof. Samir K. Brahmachari to share the Scopus report with the members and PSA office;*
- *Prof. Dinesh Singh to share the details of the innovation program at Delhi University particularly that addresses rural issues with UGC and Office of PSA.*

M25 A3: Food processing – Industrial and Rural: Opportunities and Challenges for S&T interventions

Dr. Chidambaram highlighted the importance of food processing specifically in rural economy.He said that it is only the beginning and my office will organize a Brain Storming meeting some time later to generate specific reports covering among others rural centric food processing. He then invited the first speaker, Sh. Anil Joshi, Director, HESCO, to make his presentation.

Speaking on Storage and Post Harvesting Technologies: A Himalayan Initiative,**Dr. Anil Joshi, HESCO, Dehradun**shared his experience in managing the NGOs for farmers and rural women. He highlighted the importance ofvalue addition to the raw fruits/vegetables for empowerment of the farmers and rural people.He pointed that the infrastructure for marketing of perishables such as primary grading/collection centres, warehousing and cold storage, quality certification systems in rural areas are inadequate. Further, perishable commodities lack easy transportation, whereas the whole sale markets lack modern facilities.

He observed that appropriate packaging, pre-treatment of the products, particularly perishable goods, will yield good returns.Perishable commodity may be encouraged for processing at source using modern technologies such as dehydration, pulping, preservation & processing technology, fermentation etc. He emphasized on the need for location / regional specific branding of horticultural produce, strengthening of rural-urban market linkages, decentralised workshop facilities for equipment maintenance etc. He also shared his experience in empowerment of rural masses through resource sustainability, for example, prasad making (Panchamrit) using local millet grain in various temples & shrines in an organised manner. (Details of his presentation are at Appendix Á).

Speaking on W**hither R & D in processed Foods– An Industrial Perspective, Prof. V.M. Naik, IIT, Bombay**shared the findings of Food & Agriculture Integrated Development Action (FAIDA) Report 1997 regarding the market size of food processing. He said that though many reports and reviews on the opportunities in Food Industry have been published by reputed consultantssuch as KPMG, Techno park, E &Y etc.,the importance of science and technology inputs is missing in these reports. He then shared the findings of the Rabo India Finance Pvt. Ltd., report for National Horticulture Mission. The report gives a partial list of R & D opportunities & challenges such as Pre Harvesting /Pre Processing/dairy, fruit & vegetables, oil seeds, cereals, Tea/Coffee, meat & poultry, transportation & storage etc.

The concept of Farm gate especially for on-spot quality check instruments, hygienic milking devices, small chicken dressing machines etc. were discussed. He then elaborated the case study of usage of Mobile Tomato Processing Unit to minimise post-harvest losses in split processing of Tomato at Farm gate.Another case study of vending of Ice Cream safely at 1/3 refrigeration requirements was also discussed.

Some technology platforms of current interest to industry such as non-destructive dehydration, high pressure sterilisation, functional foods, convenience foods, fabricated foods etc., were highlighted. Dr. Naik emphasized thattechnology will be a key imperative to meet the challenges of changing consumer &market needs and to make quality processed food at affordable cost to consumers.(Details of presentation are at Appendix B).

Presenting **BARC Technologies in Food Processing, Dr. Arun Sharma, Head, Food Technology Division, BARC Mumbai** explained the application ofradiation technologies in Food preservation; he said it replaces fumigants.It is like a magic bullet for taking care of pathogens in farm food. He emphasized its importance in food supply chain management especially for controlling sprouting in stored tuber and bulbs, infestation of stored grain, delay in ripening, ensuring food safety & quality. It allows access to international markets by destroying quarantine pests and reducing bio-burden in allied products. He discussed the exploitation of radiation technologies synergistically in improving safety of functional foods. To a specific query he said that there are about 10 radiation facilities in the private sector in addition to the two managed by the BARC in the country. He also discussed the shelf life extension of Litchi, a highly perishable fruit. He said that after the technology intervention the fruits can be stored for 45 days and the technology has been transferred to 3 parties. He then showcased the foldable solar dryer & other instruments, developed by BARC, for usingin food processing techniques.(Details of his presentation are at Appendix C).

Presenting on**Adaptable, Affordable, Appropriate and Acceptable Technologies (4AT)with Proven Informatics for RURAL in terms of Value addition to agri-resources (marginal farmers and markets) with sustainability built into it, Dr.V.Prakash, Distinguished Scientist, CSIR**emphasizedthe importance of intervention at village level and cluster level for enhancing the value of food products through processing at rural level to improve the economy of the marginal farmers. He cited the milk procurement and marketing which has the lowest carbon foot print in the world as an example. Farming systems and technologies, which are verified, identified and guaranteed should only be considered for intervention along with skill up-gradation and informatics.These measures may result in improved market potential, enhanced farm income and better living standards to the farming

community. He suggested looking at a paradigm shift towards rural from urban, towards quality from quantity, towards policy from production and technology. He iterated the need for enhancing the quality at rural processing along with increased production to meet the increasing urban demand. He said that it is crucial to link the farmers & growers to Micro and Macro markets in the food chain and stressed strengthening of the institutional and marketing mechanism to surpass the multilayer problems in value addition.He also highlighted the need to link the informal Food Processing Centres to Organised Processing Centres. He underlined the role of informatics in connecting the farmers with the markets. The requirements of quality seeds in agricultural as well as co-products utilization from the agricultural resources, sustainable intercropping and the importance of livestock for the farmers were discussed.

He mentioned that sustainability can be ensured if the supply chain is within a radius of 100 km.Taking rice bran as an example he discussed the intervention of adaptable R&D in enhancing the value of by-products. He emphasized the need for an integrated approach- a model similar to that of 'procurement and distribution of milk with pasteurization' for individual vegetables, fruits, cereals & legumes.(Details of his presentation are at Appendix D).

Dr. Krishna Ella, CMD, Bharat Biotech Ltd., made a presentation on Entrepreneur's/Technologist's view on Food processing. He said that climate change, Migration of villagers,water shortage and social schemes like MGNREG, free rice distribution are likely to affect the agricultural productivity; on the other hand more wealth leads to more food wastage. Therefore less agricultural production and more wastage will be a major challenge for the nation in future. Comparing the productivity figures of few crops of different nations, he informed the members that productivity per acre is lowest in the country. For farmer to get decent returns, productivity has to be comparable to other countries. He emphasized the need for integrating the Agri marketing with Agricultural Engineering. He lamented that in India the focus in food crops is on increase in production rather than on intervention for value chain building after harvesting.He highlighted the Canola oil and Real juice as examples. He said that Canola, which is a cross between Indian mustard and Brasica, is a US$ 20 billion brand. He said that instead of following the trend and popular foreign brands, Indian crops such as Til, mustard, Kinnoo, mosambi and Tomato should be considered for value addition and brand building. Such measures will also address the excessive crop production at times. Citing several examples, he underlined the importance of policy intervention in giving the fillip to the food processing industry. He said that logistics is the biggest bottle neck in food industry and it needs to be addressed at least for fruits and vegetables on the lines of milk procurement and marketing. He supported the idea of gamma irradiation for preserving the food for longer time and also for exports. He said that government should give

incentives for using better technology and supported for strong public-private-consumer partnership. (Details of his presentation are at Appendix E).

During and after the presentations, there was a healthy interventions and discussion on the subject. Some highlights of these are:

Secretary, Ministry of Food Processing Industrieshighlighted the new initiatives taken by the ministry.He said that the ministry has an on-goingR&D scheme for food processing sector. The scheme was implemented by MoFPI in the XI plan. In the XII FYP the ministry has made departure and transferred the entire scheme to SERB, DST. At the start of XI FYP the budget was 2 crore. But in the XII Plan for the first year a budget provision of Rs.10 cr is available. He further said that the R&D proposals received from universities, national labs, other public institutions get 100 % grant-in-aid support, while the private sector is provided with 50% of the cost associated with the project. So far the ministry has not rejected any proposal for lack of funds. The ministry is planning to introduce a component for supporting the cost of IPR protection, besides encouraging commercialization of the technologies. There are about 100 developments and the ministry is trying to market these. The ministry has two institutions one is close to Delhi and the other near Thanjavur. He welcomed the suggestion of the Chairman for organising a one day brainstorming meeting.

Dr. V.Prakash explained the various processes undertaken during contract farming of tomato. Starting with, pulping as primary processing, making of ketchup, juice as secondary, dry tomato powder as tertiary and finally a nutraceutical which may be of very small quantity but of high value. He said that the primary processing is very critical in such vegetables; it should be very safe and free of chemicals. Different vegetables may have different processing methods. He informed that a high level committee with ICAR, ICMR & CSIR is set up to look at the food safety, dairy industry & fruits/vegetables. It has documented all the aspects and will shortly release the reports. He shared his concern of non-availabilityof any germ plasm of desi livestock in the dairy industry, which may lead to serious problems in the future.

Dr.R.Chidambaram said thatin the last science Congress, while speaking in the session on Biodiversity conservation, he mentioned that the challenge for India is how to balance environmental protection and biodiversity conservation with the imperatives of development. He therefore suggested Biodiversity Foresight Analysis (a new phrase he coined) similar to Technology Forecast Analysis is necessary. It is important to identify the key components of biodiversity, which must be preserved for posterity, so that we do not break the chain.

Dr. Vijayaragavan said thatcurrent tools and techniques will allowbetter understanding of diversity through molecular methods and stability of nodes as well as networks in multiple kinds of situations. There are powerful nodes which are fragile at the same time. However, there is a need forconstant balance between scaling of production and narrowing down of diversity. There may be huge hazard in biology if loss or narrowing down in diversity, but it's the only convenient way for industry to scale up as the procedures & products are to be standardized. What is important is to balance between these two divergent aspects.

Dr Baldev Raj pointed out the role of various sensors in the food industry and the country has a very weak base. It is important to build this R&D capacity in the country. Developments must be interfaced with the industry for their application.

Prof.S.V.Ragavanwanted to know the difference between the cultivated herbs and naturally grown herbs in biodiversity environment. It was explained that when it comes to GM crops it may bedifferent, but needs to be studied;in the case of naturally grown herbs the local agro climatic conditions may affect the active ingredients composition.

Prof.S.V.Ragavanfurthercommented that both food & agriculture require a matrix measuring the requirements and possible sources. This knowledge base and availability of technology has to be developed and to be made available by the Ministry of Food Processing and Ministry of Agriculture.

At the end of the deliberations, SAC-C recommended:

- *a brainstorming meeting on food processing may be organised in association with Ministry of Food Processing Industries. The brainstorming meetingamong others may consider to generate reports on*
  - *models and mechanisms including R&D intervention required for rural centric food processing;*
  - *R&D intervention required for different crops from demand side in moving up the value chainincluding brand building and extending the Farm Gate concept;and*
  - *Developing Human resource for the Food processing industry.*
- *Each of these reports may provide its recommendations separately for industry, academic/national laboratories and Government for policy measures. The outcome of these reports may then be discussed in a conference for fine tuning the reports.*

M25 A4& A5A Discussion on Pre-budget suggestions in R&D domain to Finance Minister and Discussion on the recommendations of 100th Science Congress and possible initiatives from the Office of PSA

Initiating the discussion, the Chairman said that it would be useful if the SAC-C is able to crystalize some pre-budget suggestions/recommendations for the R&Dsector for enabling this office to communicate to the Finance Minister (FM). He also desired to integrate a few of the several recommendations made during the recently convened 100th Session of the Indian Science Congress in Kolkata and highlighted the following points for consideration from Agenda 5 along with the Agenda 4:

i) Special effort to attract talent and develop the human resource for science, technology and innovation on a mission mode;
ii) Strengthening of public and private partnerships in the R&D sector and creation of a policy environment for increasing, significantly, the investment of the private sector into R&D;
iii) Interconnect various arms of the Indian science sector and link discovery processes in science to problem solving responsibilities of the R&D activities of the country; and
iv) While India's participation in Mega Science is welcome, special efforts may be required to develop the human resource critical to the investments planned.

The Chairman then invited comments of the Members. After an exhaustive discussionthe following salient pointsemerged:

- The SAC-C members expressed great concern at the budget cut of 20-30% in the current fiscal year to the S&T departments. Keeping in view their modest budget allocations, a further cut in their budgets will greatly hamper the activities and the members felt that further cuts, if any, should be minimised. The members also felt that the scientific departments (and R&D institutions) should have enough autonomy to reallocate funds, within the overall budget and the project budget limits. Accordingly the SAC-C members suggested that powers may be delegated to the Secretaries of Scientific departments for (a) re-appropriation within a scheme between capital cost and Grant-in-aid in consultation with the Financial Advisor of the respective department and (b) for re-appropriation of

budgetary estimate across the schemes once in a year (preferably in the last quarter) with information to Ministry of Finance.

- Support from Innovation and Technology development programmes of various ministries are only available for a company whose balance sheet is in black. The members felt that such support must also be open (after necessary scrutiny) to a Start-up Company and / or a company making marginal losses. Such support should be open to all companies incorporated under the Indian Companies Act and having manufacturing facilities in India, provided the monies are spent in India.
- Knowledge-based start-ups are essential for economic development. Usually, early stage investors like Angel Investors, Seed capital funds, early-stage venture capital funds, and impact investors invest in such entities. Unfortunately, in India, only 4 to 5 angel investors are there as against over 900 in US. The issue is how to facilitate early stage funding of Knowledge-based companies. The committee suggested that the Finance Ministry may relook at the tax structure, particularly section 56(2), to encourage these investors. In addition, the tax breaks available to Venture Capital Funds may be extended to other early stage investors.
- Public Procurement policy must be tweaked incorporating the provisions that encourage easy procurement of first of its kind products based on indigenous technology. India should be in the forefront as a first introducer of new advanced technologies.
- While weighted tax deduction is available to industry for R&D efforts, it was suggested that similar tax exemption should be extended to industry for proof of concept product development based on research in academic institutions / national laboratories.
- With a view to encouraging close interaction between industry and academia, it is suggested that more Centres of Excellence may be established in publicly funded institutions and Universities in specific well defined technology areas. A general statement by FM supporting this idea may be valuable.
- If we have to move from incremental advances to transformational leaps, we need to mount a few mega science and mega technology

projects in carefully chosen areas. Such mega efforts in select areas have already been mounted in India in the past. While preparing to take up, e.g. the next generation synchrotron radiation source project or a brain related mega science project, early steps must be taken to train people abroad in related scientific and technological disciplines so that adequate trained manpower is available when such projects are actually taken up. This was the method followed in the nuclear programme.

- The Indian industry is given fiscal benefits for investing in the setting-up of Innovation Labs.
- Technology Development Board (TDB) of the DST was established in the year 1996 by an act of Parliament for promoting commercialization of innovation and technologies. TDB has supported over 300 innovators. Funding of such ventures is a risky proposition and only few are actually able to return the investment. The resources to TDB are provided by the Government of India through the R&D cess collected on import of technology and equipment. The returns received by the board are redeployed for further commercialization of new technologies and innovations. In this decade of innovation, it is suggested to exempt the TDB from Income Tax as well as other taxes, as is being done with many other Boards like the Coffee Board.
- All those companies that are involved in R&D activities and recognized by DSIR are facing enhanced scrutiny by the Central Board of Direct Taxes (CBDT). This defeats the very purpose for which weighted tax deduction is provided by Government. The extra scrutiny needed to be rationalized.

Action Points:

The Committee resolved that PSA to GoI may send a detailed note to the FM, suggesting the measures that need consideration for promoting R&D.

M25 A6 Brief introductory presentation on the proposal "R&D in Microelectronics" – Sh. Ajai Chowdhry, HCl Infosystems Limited, Noida

Chairman briefly informed the committee about the functioning of Core Advisory Group for Research and Development in the Electronics Hardware Sector (CAREL) of Office of PSA. He further elaborated that the committee has identified high volume products e.g. setup boxes, tablet personal computers, smart phones, micro automated teller machines, smart meters, smart cards etc. for indigenous development and production. Highlighting the importance of

microelectronics in the country, he invited Sh. Ajay Chowdhry to make his presentation.

Sh. Chowdhry briefly discussed the status of development of products under CAREL.He said that the gap between fabless design and manufacturing in microelectronics needed to be filled–up by the creation of a Centre on Microelectronics. He gave the e.g of Singapore Centre on Microelectronics and suggested that the facilities and manpower of the Singapore Centre may be utilized.

Agreeing with Dr. Chowdhry**,** Chairmansaid that India needed a prototype fabcenter for high design content, low volume chips. He informed the members that there is a proposal in the Twelfth Plan in this context.**Dr. Juzer Vasi**also supported the idea of setting up of a Centre on Microelectronics.

Dr. Devang Khakhar opined that if the current plans for setting–up of a nano fab do not materialize, GoI should consider creating a new public sector undertaking for setting–up such a fab, along the lines of the 0.8 micron CMOS fab set up in the 1980s in the form of the Semiconductor Complex Limited at Mohali.

Summarizing the discussion the Chairman felt that the subject merited a more detailed discussion and suggestedthat a detailed discussion could be taken up in the next meeting of SAC-C.

The meeting ended with a vote of thanks to the Chair.

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Annexure 1

LIST OF PARTICIPANTS

1. Dr. R. Chidambaram
2. Shri Ajai chowdhry
3. Prof. Devang Khakhar
4. Dr. Dinesh Singh
5. Dr. B. K. Gairola
6. Dr. jamshed J. Irani
7. Prof. S.K. Joshi
8. Dr. Juzer Vasi
9. Dr. Krishna M. Ella
10. PROF. MILAN K. SANYAL
11. Dr. Pratibha Jolly
12. Dr. Prodipto Ghosh
13. Dr. M.S. Raghunathan
14. Dr. N. Sathyamurthy
15. Dr. S.K. Sikka
16. Dr Tessy Thomas
17. Prof. Vijayalakshmi Ravindranath
18. Dr. K.Vijayraghavan
19. Dr. J.S. Yadav
20. Dr. Dipankar Chatterji
21. Dr. Baldev Raj
22. Shri Ved Prakash
23. Dr. Krishan Lal
24. Prof. A.S. Pant
25. Prof. Samir K. Brahmachari
26. Shri Rajesh Kumar Singh
27. Shri Arun Kumar Sharma
28. Prof. S.V. Raghavan

Invitees

29. Dr. V. Prakash
30. Dr.V. M. Naik
31. Dr. Anil P. Joshi
32. Shri Rakesh Kacker
33. Smt. Anuradha Prasad
34. Shri Rajesh Bhoot
35. Shri Raman Chopra

36. Shri Vikas Kumar
37. Shri Ajay Jain
38. Shri RK Tayal
39. Shri JBV Reddy
35. Shri Neeraj Sinha
36. Dr. Ketaki Bapat
37. Dr. Manju Gerard

Annexure 3

Action taken Report of 24th SAC-C Meeting

Agenda Item No.	Agenda	Action to be taken	Status
M24 A2	Activities of Office of PSA	No action required	
M24 A3	Draft National Policy on Science, Technology & Innovation	Members to communicate directly to DST	Members provided inputs directly to DST. STI Policy launched
M24 A4	A proposal for Advancing Indian Standard Time	Further discussion required	Letter informing committee decision sent to Secretary, DST
M24 A5	A Status report on Photonics initiatives	Coordination with DST, DoS, DoE, DRDO, CSIR for funding	Action yet to be taken in consultation with stakeholders
M24 A6	Indian Science Congress	Members to communicate directly to DST	Indian Science Congress held successfully
M24 A7	Fringe Forests vis-à-vis Food and Water Security in India	Letter to be sent to PMO in consultation with Prof. R.B. Singh & ICFRE	Letters have been sent to MoEF, Planning Commission etc.
M24 A8	Global Research Universities: Relevance to India	To hold a brainstorming session	Brainstorming session held on 10th Jan. 13 & further discussion in progress
M24 A9	Buffalo genomics: A way forward	Couldn't be taken up in the meeting due to paucity of time	