on citation impact. Of these 20 institutes, 16 are US based. There is not even a single institute from Asia finding a place in this ranking.

In order to examine the correlation between ranking based on citation impact and world class status, I have taken the data on world ranking of universities as reported by the Times Higher Education for the year 2012 and shown the ranking of all these 20 institutes in column 9 of Table 1. From the Table 1, it is clear that 14 out of 16 US based institutes having high citation impact in materials research also have ranking below 100 indicating good correlation between high citation impact and Times Higher Education ranking. Rensselaer Polytechnic Institute (RPI) and Drexel Universities which occupy 20th and 17th position, have a world ranking of 174 and 226 respectively. The European institutes, University of Groningen and University of Pierre and Marie Curie also figure with in 100 rank, whereas Eindhoven University of Technology ranks 114. The Max Planck Society of Germany is not included in the scheme ranking by the Times Higher Education, hence its ranking is not available.

Based on available data, citations impact of IITs is calculated to be 4.93. Incidentally, recently Prathap[2], in his paper on ranking of top 20 institutions in engineering, IITs have been assigned a ranking of 20 with an citation impact of 3.57. This indicates IITs ranking in engineering is lower compared to their ranking in materials science research.

In the context of data presented above, it is necessary to reflect on some of our policy formulations/documents in the area of higher education/research for the 12th Plan. In his report on corporate participation on higher education, Narayna Murthy[3] recommends an investment of US$ 8 billion over the next 5 years and targets for 20 new world class universities. Similarly, Kakodkar committee[4] envisages admission of more than 10,000 Ph D scholars in to IIT system by 2020 compared to present 1200 or so for the purpose of transforming IITs into world class. It remains to be seen, if all these grand plans/measures if implemented will help IITs and other premier institutes securing much clamored tag of 'World Class' institutes. If so, how many institutes/universities in India will join the league of world class? We all have to wait until 2020, if not by 2017.

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Conservation of *Dugong dugon* (sea cow) in Gulf of Mannar

Dugong dugon (dugongs) is probably one of the few living marine mammals surviving in pockets all around the Indian Ocean to the western part of the Pacific Ocean. These marine mammals are herbivores which spend their full life in the sea. They are the only extant species of the family Dugongidae[1]. All extant members of order Sirenia (including the dugong) are listed as vulnerable to extinction[2]. All populations of dugong are also listed in Appendix 1 of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and in Appendix II of the Convention on Migratory Species (CMS). Dugongs are more closely related to elephants than marine mammals such as whales and dolphins, but their closet aquatic relatives are the manatees. The word 'dugong' means 'lady of the sea'[3]. Adults grow to about 2.5–3.5 m long, and weigh about 230–420 kg (ref. 4). They are generally solitary, travel in pairs, or associate, only in small groups (3–6 individuals)[5]. Their main food is sea grass (family Potamogetonaceae, Hydrocharitaceae, Cymodoceaceae); about 25–30 kg consumed per day. Female dugongs in season, attract the attention of several males, one or two of which will eventually mate with her. The young is born after a gestation period of 12–14 months. The mother will not calve again for periods of between 2.5 and 7 years. They have been known to live for more than 70 years in their natural habitat. Dugongs are generally found in warm waters around the coast with large numbers concentrated in wide and shallow protected bays located at a depth of around 10 m (33 ft)[6]. Populations of dugong exist in the waters of 37 countries and territories. Australia is home to the largest population; they also exist in the Gulf of Mannar and the Palk Strait between India and Sri Lanka, but are being seriously depleted. They are now endangered and subjected to a range of human threats in the Gulf of Mannar. Das and Dey[6] suggest habitat loss as the main reason for population decline. This is attributed to the increasingly heavy boat traffic, toxic run-off from agricultural biocides, pollution from urban centres, oil spillage, bottom trawling and dredging and the commercial harvest of sea grasses[7]. Fishing activities around the Indian, Andaman

Figure 1. Dead *Dugong dugon* in Kilakkarai, Tamil Nadu.

and Nicobar, and Sri Lankan coasts, including gill netting and dynamite fishing also cause severe damage. In the Gulf of Kutch, dugong oil is valued as a preservative and conditioner for wooden boats[8]. The meat is believed to have medicinal value, and rejuvenating and aphrodisiac properties[9]. Between April 1983 and August 1984 more than 250 dugongs were reported caught and killed in the Kilakkarai–Tondi region[10] (Figure 1). Low reproductive rate is an important reason for population decline. A large number of infections and parasitic diseases affect dugongs. The greatest threat dugongs face today is from the Sethu Samudram ship channel project (SSCP), which will disrupt the biosphere of sea grass. Constant trenching of the canal system will result in the deposition of sediments on the sea grass. Due to SSCP, the dugong population will be permanently wiped out from the 'Gulf of Mannar'[11]. Suggested conservation initiatives include aerial surveys; it is important to locate sea grass beds for subsequent mapping and studies of community composition. The most effective way of doing this is by local-scale aerial surveys. Satellite tracking is an excellent technique for mapping the movements of dugongs. A project to increase community awareness, assess populations, and monitor deliberate and accidental killing of coastal cetaceans in Sri Lanka has been proposed by IUCN Sri Lanka and the IUCN/SSC Cetacean Specialist Group (CSG). The development of local capacity to conduct at-sea surveys, collect biological samples, estimate the species age and sex composition of landed catches, and assess fishing efforts by area and season would be the major aim. Extension of the project to include dugongs would add greatly to our knowledge of the species in Sri Lanka and provide a basis for establishing conservation priorities[12].

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Meeting abstracts: a waste of space?

Since the year 2000 the percentage of meeting abstracts among all publications in Life Sciences and Biomedicine included in Thomson Reuters' *Web of Science* has never been below 17. In some years this percentage grew even above 25 (Figure 1). Restricting to the fields of Clinical Medicine, Health Care and Pharmacology even yields a peak of nearly 30% (in 2004). Exact research queries are given in Appendix 1 (see supplementary material online). Clearly, in terms of absolute numbers meeting abstracts are important in Life Sciences and Biomedicine. Often conferences are organized by editors of journals, making access to a journal relatively easy (S. M. Duan, pers. commun.).

However, the percentage of uncited meeting abstracts tells another story. Figure 2 shows the percentage of uncited meeting abstracts in Life Sciences and Biomedicine as on March 2013, for meeting abstracts published in the year on the abscissa.

It is completely logical that the percentage of uncited items increases the more recent these items are. What is alarming, however, is that more than 86% of the meeting abstracts is still uncited after 13 years. Even assuming that some of these are wrongly considered as uncited[1], this percentage is still astonishing. Would one not assume that at least its authors cite the original abstract when they publish the corresponding full paper? Low numbers of cited meeting abstracts are not a new phenomenon. About 25 years ago, Moed and Van Leeuwen[2] considered the top 20 journals in terms of their impact factor in 16 subject categories (including 9 categories in Life Sciences and Biomedicine, but also totally different categories such as Mathematics and Physics). These journals published 20,270 meeting abstracts or 10.57% of all publications in the years 1986 and 1987. Yet, these meeting abstracts received in 1988 a total of 2017 citations or an average of 0.10 citations per abstract, while the average overall publications was 2.60. Although occasionally a meeting abstract is highly cited, especially when its content is not re-published in a full journal article, Dhar's[3] with 112 citations being a case in point.

Publishing (and buying) scientific journals is a costly affair, even if exact numbers are hard to come by[4]. Why then are so many meeting abstracts published if they have – at least as measured by received citations – so little practical use? Are these just a claim on the ideas expressed in them? Let us first consider possible reasons why these meeting abstracts are cited so little? An important reason seems to be that abstracts provide little concrete information on one hand, and on the other hand, peer review of such meeting abstracts is at best superficial (for the same reason). Hence colleagues turn to the full publication if they are interested and consequently