# EXECUTIVE SUMMARY

- ST classification stand at 4% (45). Their distribution between rural is 27% and urban 73% respectively.
- SC classification stands at 3% (37). Their distribution between rural is 32% and urban 71% respectively.
- All above classification clearly indicate that urban residents have a better access to the universities / institutes, perhaps because of their placement-situation in the urban areas i.e. almost all institutions which support PhDs are located in urban areas.

9) The family income had been classified into 5 main occupations viz. Service, Teaching, Agriculture, business and others, in the descending order. Services top the list with 31% (379) out of the total respondents. It is seen that about 10% of the families to whom PhD scholars belong, were from the business class; 12% of such families have an income exceeding Rs.2 lakhs a year. That points out that 26% of the families coming from teaching background is not surprising, but it is heartening that 25% actually come from an agricultural background. Service and business family backgrounds are concentrated in the third income bracket, i.e. Rs.1-2 lakh. There is a reverse relation in the income and Ph.D. holders for all occupation categories. Only the service background shows some symmetric relation.

10) The analysis shows that it is not the prerogative of the wards of the highly qualified parents to pursue PhD studies, the opportunities of higher education and research are now being pursued by scholars of even matriculate parents. Again this augurs well for a developing country like India.

11) Around 1050 respondents had less than 60% aggregate marks in PG, at the time of enrollment and approx. 61 respondents had more than 60% aggregate marks at the time of admission. Rest of the 110 respondents besides PG had qualifications with other professional degrees, whereas none of the respondents had M Phil degree.

12) Around 75% of respondents (915) had taken up enrollment for PhD, on the basis of interview, whereas only 25% (306) had been qualified for admission after giving an entrance test.

13) Individual topics for the PhD had grouped into 4 broad types viz. a) Lab work; b) course work; c) Field work and, d) others. The %age response had been in the same descending order a) Lab work (44% respondents); b) course work (32% respondents); c) Field work (18% respondents) and, d) others (6% respondents).

14) Only 77% respondents had taken membership from the different professional bodies. The remaining 23% thought it either useless or perhaps they could not afford it. However, relative unsatisfactory level of membership of professional bodies by scholars of various kinds of institutions indicates a need for better support in this context by the authorities concerned.

15) Interestingly, academic interest was the motivating factor for 87%) of the PhD scholars. The next response had been for who wanted to improve their career prospectus (30%). No better option, family and peer pressure were of low significance. Sponsorship was too limited a phenomena. Therefore, pursuit of excellence reflected in the academic interest as the prime motivating factor, though a good indicator of march forward, would need further probing on the underlying factor.

16) The placement %age of the respondents has expectedly been in the order of: a) Government (76%); b) Foreign (16%); and, c) Private (8%). The placement with private institutions–either independent or corporate–are few and far between. Even though about 50% of PhDs scholars felt that their work was relevant to industry. But they have neither had enough opportunity to interact with the industry nor industries have so far been attracted toward their topics.

17) Among the 16% of the respondents having moved abroad in 21 countries of different continents. Majority of them are in different institutes in USA: 131 (67.18%); followed by France: 13 (6.67%); Bangladesh: 10 (5.13%); Germany and, Japan: 9 each (4.26%); Canada: 7 (3.59%); Palestine: 2 (1.33%) and, one each in countries like: Australia; Iraq (Baghdad); Egypt; Holland; Hong Kong; Iran; Nepal; New Zealand; South Korea; Sudan; Taiwan; UK and Zurich.

18) Though perception about benefits after PhD degree had varied from either sex but aspect like: "Respect from society" has ranked highest with 73% between the male and female. Approx. 51% feel that they have been given more important responsibilities after completing PhD. Around 49% feel they will get an opportunity to take up post-doctoral fellow-ship and 46% have got higher position after completing PhD. Around 42% have got job after completing PhD. Around 49% (598 out of 1221) of the respondents are fully satisfied after completing PhD, whereas 41% respondents (501) are partially satisfied.

19) About 35% respondents (427) are still pursuing the research activities depending upon the facilities available within their institutions wherever they are serving. Approx. 65% respondents (794) have either no opportunity or they are not interested.

20) Predominantly and expectedly 42% (513) respondents are from the Teaching profession. Next 26% PhDs (317) are from R & D sector followed by 18% (220) from S & T Research: 12% Academician, 2% from Management sector. Approx. 13% PhD respondents (159) are over qualified for their jobs, when their minimum requirement of qualification had been only graduate degree. Next 43% PhD respondents (537) needed only Post Graduate degree for their jobs, whereas they were with doctorate degree.

21) Around 38% of the respondents (463) have got jobs pertaining to their specialization they have had during their PhD programme. One can infers that the PhD programmes in Indian universities / institutes will have to fully train the candidates for obtaining the right kind of jobs. Besides, PhD candidates will also have to get fully aware about the available job opportunities at the right places at the right time.

22) Only 29% of the respondents are having opportunity to apply their research capabilities to the present job. This infers that 71% are over qualified for their present job and /or they grabbed whatever they got even after 5-6 years of hard labour they have put-in while completing their PhD programme.

23) Around 77% of the respondents (940 out of 1221) indicate they are able to apply the knowledge acquired from the PhD to their present jobs. Remaining 23% either did not responded to this question or they were unemployed or their nature of job has been different.

24) Only 33% of the respondents have got special incentive in their jobs after completing PhD. Considering the fact that the Central Government gives 2 pay increments for a PhD, though it is not exactly a huge encouragement despite one spends a minimum 3 and typically 5-6 years for doing a PhD. That calls for change in Govt. policy on incentives!

25) We got about 84% responses on the overall impact of the PhD degree and, the suggestions they provided. Among them about 56% suggested improving the infrastructure in the form of better laboratory facilities, more journals (international), books, instruments etc. Next comes better course work (17%), evaluation of research work (13%), collaboration with industry / institutions (6%).

26) Reacting on the professional degree other than PhD approx. 29% of the respondents felt they would be in a better position elsewhere with professional degree other than PhD.

27) The plus factor for doing PhD helped the scholars to develop: a) analytical thinking (78%); b) applying new skills (67%); and c) more focused (58%). Other advantages are: a) better prospects for moving abroad (67%); b) invitation to different academic professional courses (67%); c) prospects for getting more lucrative jobs (50%); and d) enhanced prestige in the society. 6.47 Interestingly, a) around 26% of the respondents had the job before taking up enrolment for PhD with the ratio of male: female being 66:34; b) 39% got job during their PhD programme with the ratio of male: female being 80:20; and c) around 35% got job after completion of their PhD, under the ratio of male: female being 62:38.

28) The Chapters-IV and V also covers the issues on "Odyssey[6] of PhDs: During the course of doing PhD and after completing PhDs" based on open-ended opinion and interaction at various levels. The findings would provide a lot of insight to the policy makers about the problems being faced by the PhD holders after completing their degree. Suitable policy modification on job strategy and whether any norms can be envisaged for the intervention of private / industrial sectors respectively for the funding of HRD, need active consideration.

29) The next analysis covered job prospects in three stages; a) before enrolment; b) during PhD programme; c) after completing PhD. The results of these three aspects have been: a) around 26% of the respondents had the secured job before taking up enrolment for PhD. The ratio of male: female was 66:34; b) 39% got job during their PhD programme and the ratio of male: female was 80:20; c) around 35% respondents got job after the completion of their PhD. Under this stage the ratio of male: female was 62:38. However, around 28% of the respondents got job within first year of the completion of PhD and, the ratio of male: female was 52:48.

30) The NRIF stretched its inquiry wider in order to elicit views from a cross-section of PhDs. The more insight has been provided after included views from the field of academics, some retired and some still involved in research, research scientists in government laboratories, opinion-makers, policy-makers and others.

**Summing up**

31) The encouraging features were that approx.60%, students at doctoral level and PhD holders admitted that their curriculum content had satisfactory intellectual depth, wide applicability and allowed the opportunity of developing high order cognitive skills. They were satisfied that their course-work units matched their objectives (32%)and were flexible enough to link theory with professional practice (44%). The course-work units were responsive to inputs and evaluations from the relevant professional and industrial bodies (51%). These were also comparable favorably to courses elsewhere. These researchers (35%) were satisfied that the feedback provided to them was frequent and constructive. They were happy to find up-to-date information about the course easily available. For them research work was both interesting and stimulating (33%). Their guides were supportive and always acted as mentors (80%). They felt that the assessment of their work was fair and transparent (45%). They finished their research in time (36%). They also found library facilities satisfactory for the course-work (33%). Relevant industry and professional activities were integrated with the course (11%). Networking with professionals in the field was promoted and information was provided to them about post-doctoral employment. They also felt that they had the possibility of good employment and high approval in the workplace. They thought that life-long learning is a boon, an opening to new horizons for exploration.

32) Few discouraging responses revealed the downside of the PhD studies and the factors that affected their attitude towards this discipline. This segment found PhD studies a long-drawn sentence and, at the end of it, simply not lucrative enough (23%). Their journey was hard: it

[6] Odyssey ~~ Long adventurous journey, series of wanderings

was difficult to work with an uncooperative or a mediocre guide with not enough research facilities (33%), and all the while was plagued with financial and family problems (35%). Some revealed that they did not have any inclination towards doing a PhD (23%), but ambitious family members with a view to keep up with the Joneses foisted it on them. The same families later nagged them constantly for taking long years to get doctorate. Many (30%) admitted that they found different pressures on them frustrating. Thus their half-hearted approach predictably resulted in mediocre output.

33) The Mixed reactions gave a break-up that 43% respondents found lack of infrastructure facilities that hampered their work at every stage; 20% attributed their ordeal to non-cooperation from their guides; 13% had financial problems (data from the NRIF study). They came from a background of Rs.1 Lakh per year income – a low income bracket; 3% found lack of funds in the university/institution; 10% had to take up part-time jobs because of financial constraints, often they got nagging from both ends- the boss for whom they worked, and the institution head of their research institution – because of divided attention. They said their objections were valid: 3% of the respondents said that family problems hampered new research work; 7% had problems of their PhD taking too long. Many had tried various funding agencies but were largely unsuccessful. Hence they had to drop out of research work, and go in for alternatives like IAS, or join an industry. The refrain in practically all cases was: financial constraints, poor infrastructure facilities, sour researcher-guide relationship, lure of big money in corporate sector without a PhD and with less arduous studies.

- Chapter-VII: Suggestions and Recommendations also includes broad views on: **Second Phase of this study,** under reference, for the kind consideration of NSTMIS, DST, MoS&T,GoI.