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# Global Rankings of Higher Education Institutions and India's Effective Non-Presence: Why Have World-Class Universities Eluded the Indian Higher Education System? And, How Worthwhile is the Indian Government's Captivation to Launch World Class Universities?

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**Abstract**

The present global higher educational milieu is typified by its preoccupation with rankings. The inter-connectedness that has resulted from globalization has facilitated methodisation of higher education systems the world over. The coming together of countless institutions on a unified platform necessitates the logic of benchmarking. The Indian higher education system is a formidable presence, at least with respect to the numeric strength of comprising institutions, as well as the mass of populace that it covers. This is all the more reason why shortfalls in the higher education system—which have come to be something of a platitude—are so disappointing. The Indian Government has recently made rousing proclamations to make good this deficit and recast the country as "knowledge economy", purportedly by making higher education a top national agenda item and creating world-class universities. While this concern is welcome, there lies a significant distance between the value of comparative information and projects to launch world class universities that policy makers have not heeded. The systemic challenges that afflict the Indian higher education system are tied to its long colonial history as well as its present developing country status. Thus, it is important to identify how well the captivation with producing world-class universities serves the Indian higher education system, and the society at large. That is to say, does this preoccupation relate to the immediate socio-economic realities? The paper collates research on global rankings; reasons that explain India's effective non-appearance in global rankings of higher education institutions; and critique of the Indian Government's world-class universities project. The authors navigate the study largely through descriptive and critical syntheses of precedential published research.

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## 1. Global rankings: "The Blind Men and the Elephant"[i]

In the present global educational milieu, the notions of "knowledge economy"[ii] and world-class university are concurrent (Altbach, 2004; Salmi, 2008, as cited in Ramaprasad, 2011, p. 45). This derives from the enhanced significance that tertiary education assumes in a knowledge economy: tertiary education comes to be the lifeblood of "human capital base", which is made up of skilled workforce and innovative knowledge (Cookson, 2007; Yusuf & Nabeshima, 2007 as cited Salmi, n.d.). Thus, it is important to ascertain that higher education institutions are continually pushing the frontiers of knowledge and innovation. The notion of world-class university is intertwined with global rankings of academic institutions (Altbach, 2004; Altbach, 2011; Kaba, 2012; Salmi, 2011; Salmi, n.d.; Salmi & Saroyan, 2007). Altbach (2004) notes that the dictionary definition of world class refers to "ranking among the foremost in the world; of an international standard of excellence" (p. 22).[iii]

It would also appear that both concepts heaved into sight as a consequence of globalization and the resultant internationalization of higher education (Altbach, 2012; Huang, 2012).[iv] The appliance of the English language as the *lingua franca* of higher education after the Second World War outside of the communist *bloc* and the United Nations' championship of global higher education as an item of high priority were instrumental in systematization of higher education the world over (Guruz, 2008; Altbach, 2008). The convergence of higher education institutions on a global platform led to the need to methodize diverse systems so as to place them within the purview of agencies such as the UNESCO.

There is much debate on the variety of ways in which global rankings can be grouped as well as the relative significance of these groupings. In the interest of navigating the study within a wieldy compass, the authors limit the discussion to academic rankings with the main purpose of producing university league tables. [v] [vi] The era of global rankings is said to have begun in 2003 with the publication of Shanghai Jiao Tong University ranking called the "Academic Ranking of World Universities" (ARWU). The remarkable preponderance of American and British universities was met with amazement all over the world. The Time Higher Education Supplement World University Ranking (in cooperation with Quacquarelli Symonds, and later with Thomson Reuters) the next year was, in a way, Europe's answer to ARWU (Rauhvargers, 2011, p. 19). The phenomenal stir generated by the two has resulted in mushrooming of numerous global rankings (Salmi & Saroyan, 2007, p. 79 as cited in Kaba, 2012, p. 2).[vii]

The methodologies, indicators and selection processes vary considerably across international rankings (Rauhvargers, 2011; Salmi, n.d.; Salmi & Saryon, 2007; Tofallis, 2012). The ARWU targets the top research universities in the world. This implies that only 1000 of the 17,000 universities pass the muster, of which the first 500 are ranked in the league tables (Rauhvargers, 2011, p. 24).[viii] THE-QS World University Rankings (2004-09) considers "those universities that are or are becoming world-class universities . . . It is, therefore hardly surprising that the methodology singles out only around "600 universities altogether and 300 in each of five broad faculty areas" (Rauhvargers, 2011, p. 28). The notion of world class university is determined by utilizing four distinct pillars: research quality, teaching quality, graduate employability and international outlook (Rauhvargers, 2011).[ix] The THE-Thomson Reuters Ranking used 13 separate indicators to compile the league tables for 2010 (Rauhvargers, 2011).[x] The methodology used by the new US News & World Report/QS World's Best Universities is similar to the THE-QS 2009 Rankings (Rauhvargers, 2011).

A number of studies have delved into the research methodology employed by global rankings. Merisotis & Sadlak (2005) note that data collection is the foremost step; this is followed by selection of types of rankings and variables; selection of indicators; weighting shares and, finally data analysis (as cited in Huang, 2012). The most important factors in the ranking process are the decisions related to indicators and weightings (Buela-Casalet et al., 2007; Van Raan, 2005, as cited in Huang, 2012, p. 72). Geuna & Martin (2003) have argued that bibliometric (quantitative evaluation) and peer review (qualitative evaluation) are the most popular methods of academic evaluations (as cited in Huang, 2012, p. 72). Given that measurements and indicators had substantial influences on the ranking results, the pros and cons of bibliometrics and peer reviews have been discussed and debated

repetitiously (Adam 2002; Van Raan 2005; Buela-Casalet al., 2007; Aguillo et al. 2010; Bookstein et al. 2010, as cited in Huang, 2012).

Global rankings exert enormous sway in global higher education, boosted, as they are by "the rationalistic mantra of accountability" (Birnbaum, 2012, p. 7). In the same mold, Hossler (2000) has noted that academic rankings have evolved "out of public interest in accountability and assessment" (as cited in Pike, 2004, p. 193). Gormley & Weimer (1999) have argued that academic rankings serve as "organizational report cards" in response to "consumer demand" on academic quality (as cited in Dill & Soo, 2005, p. 496). Given that higher education is becoming increasingly expensive, it is all the more significant that rankings help students make informed choices (Williams and Van Dyke, 2007, as cited in Salmi, n.d.). The "Supporting analysis for the Higher Education White Paper 2011" published by the Department for Business Innovation and Skills, UK supports league tables on a number of counts. It contends that quality and reputation are the two most important factors that guide price and non-price competition amongst higher education institutions (p. 113). The corresponding White Paper for the year 2003 had held that market competition driven by relevant information—such as the one dispensed by league tables—goes a long way in improving academic quality (as cited in Dill & Soo, 2005, p. 496).

Rankings are also the object of much debate and controversy. Possibly the most widely held criticism is the one about furthering of elitism in higher education and symbolic efforts to attain selectiveness. Krishnan (2005) maintains that preoccupation with rankings and governmental programs to formally launch world class universities in India, just as much as in China, Korea and Taiwan are the results of three driving factors—in this order: "pride, prestige, and spin offs to the wider economy" (p. 1682). As a point of fact, rankings cover no more than three to five per cent of the world's universities. Moreover, the "elitist approach" applied in the methodologies of the global league tables implies that as many as 16,000—at the very least—do not qualify to be considered for the competition (Rauhvargers, 2011, p. 13). It has been posited that the iconic popularity of rankings emanates from their symbolic significance with respect to economic and political factors and not from educational relevance: "[they] encourage prestige wars" and "appear to have many of the characteristics of an academic fad . . . lead[s] to little substantive improvement" (Birnbaum, 2012, pp. 7 – 9).

The criticism about ambivalence and variation in selection criteria is also noteworthy (Bowden, 2001, as cited in Dill & Soo, 2005). It appears that much of the vilification of rankings that is related to ambivalence rests on the premise that academic quality is a conjectural idea. MacGuire (1995) and Schitz (1993), in their criticism of USNWR's claim to represent academic quality of higher education institutions have contended that academic quality is a difficult if not impossible concept to quantify (as cited in Meredith, 2004, p. 445). The larger problem of ambivalence generates its own tribulations. Meredith (2004, p. 445) has put forward that the pressure to figure in the top ranks leads higher education institutions to put to use questionable strategies. For instance, universities tend to base their acceptance decisions on criteria that are components in rankings (p. 445). Along the same lines, Carmody (1987) and Hunter (1995) have argued that ambivalence in rankings result in greater incentive for higher education institutions to publish inaccurate and misleading data (as cited in Meredith, 2004, p. 445). Along the same lines, Salmi (n.d.) has postulated that universities often go as far afield as to merge constituent bodies with the sole intent of boosting the number of research publications. Hossler (2000) and Pascarella (2001) have questioned the validity of college ratings, based on the argument that the criteria used in rankings are not representative of the end result: the quality of the education dispensed to students (as cited in Pike, 2004).

The variation in criteria and indicators is so vast that there is alarming dissimilarity in the order in which the top universities are listed across global rankings; this raises the question about their validity and usefulness: "There is a strong case to be made that college and university ranking reports are not the best way to judge or measure the effectiveness of higher education institutions" (Kaba, 2012, p. 5). A step further, Marginson & van der Wende (2007), in discussing the wide range and dissimilarity in indicators, weights, and proxies, conclude: "A better approach to rankings begins from the recognition that all rankings are partial in coverage and contain biases, and that all rankings are purpose driven" (as cited in Rauhvargers, 2011, p. 20).

While the validity of rankings is debatable, it is established that rankings exert tremendous influence (Altbach, 2011; Larsen, 2003, as cited in Kaba, 2012, p. 3; Salmi, n.d.). Global rankings in higher education, as in all other realms, provide comparative information and are a reality of the current world order (Charon & Wauters, 2008, as cited in Kaba, 2012, p. 3). It would seem, then that rankings are here to stay.

## 2. The Indian higher education system and the curious case of the Indian Institute of Technology: "Some pinnacles of excellence in a sea of mediocrity"[xi]

The National Knowledge Commission (NKC)[xii] lamented that "the Shanghai University ranking of 500 world-class universities featured only 3 Indian universities" (Report to the Nation, n.d., p. 188). To fully grasp the Commission's disappointment, it is important to situate the issue in the larger context of Indian Government's proclamations to remodel the country as "knowledge economy". The Planning Commission, in the Eleventh Five Year Plan (2007-12)[xiii] broadcast its intent to attract global talent through public-private partnership[xiv]. At the core of this is the mandate by the Ministry of Human Resource and Development (MHRD) to set up of fourteen "innovation universities[xv] aiming at world class standards."[xvi] The "innovation universities" are to be developed as "Global Centers of Innovation" in identified cities[xvii]. These Centres are to be, for all intents and purposes, India's education hubs wherein higher education and other bodies will, purportedly contribute to the cause of inter-disciplinary education, entrepreneurship and, research and development in a concerted fashion.[xviii, xix]

The Ministry of Human Resource Development's plan of "world class universities" has been the object of research more than a few times (Altbach, 2009; Altbach, 2011; Altbach, 2012; Altbach & Jayaram, 2008; Gupta, 2010; Gupta & Gupta, 2012; Krishnan, 2005; Powar (n.d.); Ramaprasad, 2011). It has been reported that the framework of the proposal is formulated in a slapdash manner, and has been put together by piecing together fragments from the administrative schemas of prestigious Indian institutions like Indian Institution of Technology (IIT) and the Indian Institute of Management (IIM) (Kasturi, 2008). While the shortfalls in the proposal *per se* are important, it appears that they present as the proverbial "tip of the iceberg". *Sensu lato,* the most important consideration in the discussion is that the template of world class universities cannot be configured without a supporting higher education ecosystem (Salmi, 2011, p. 6). Further, an integrated and planned tertiary education system that responds to nation building capabilities and is subject to reforms is more useful than a few stand-alone world class universities (Salmi, n.d.).

This explains the criticism of the Ministry of Human Resource and Development's pronouncements about world class universities which rest on the tenor that the Indian Government is disinclined to identify and grapple with core challenge in the higher education system and resorts to tokenism (Krishnan, 2005, p. 1681). Ramaprasad's (2011, pp. 45-54) study qualifies Krishnan's argument; the former expresses the ontological problem inherent in the plan by positing that India needs an improved university *system*, and not just a few universities to the standard of world-class.[xx] More to the point, the author contends that for the country to drive knowledge economy forward in the face of global competition, elements of this system must be woven into the fabric of the higher education system. The author illustrates the point by the citing the case of the American higher education system, which is remarkable not only because it features the largest number of world class universities, but also because it comprises of a "richly connected network of institutions" which is made up of research universities just as much as associate degree granting community colleges (p. 46). In the same vein, Krishnan (2005) points out that America's out of the ordinary dominance in global rankings occasions at the systemic level and differentiation plays an important role therein.[xxi]

While the Central Government makes frequent references to the American model of world class universities,[xxii] the higher education system in India stands at the other end of the spectrum. Altbach & Jayaram (2008) have criticized the National Knowledge Commission's recommendation to launch world class universities on the grounds that it is, in actual fact, a heedless proclamation to invest money and resources into a "fundamentally broken university system" (p. 246). The higher education system in India is beset with fundament problems of very high corruptibility, bureaucracy and absence of culture of academic meritocracy and research. The consideration that the Commission's recommendations are wholly neglectful of these challenges implies that indiscriminate investment and purported replication of the American model of world class universities will not amount to much (Vaidhyasubramaniam, 2012).[xxiii]

A number of researchers (Altbach, 2009; Altbach, 2011; Krishnan, 2005; Salmi, n.d.; Sanghi, 2010) have drawn on the case of the IITs as inimitable model of world class universities while still being nested in the Indian higher education system. Altbach (2009) and Altbach (2011) have noted that none of the Indian universities can be considered world class. The author is dismissive of Indian Institute of Technology (IIT), Indian Institute of Management (IIM) and few other institutions that have featured in the global rankings[xxiv] on the grounds that they are very highly specialized institutions catering to a very select group of students. [xxv, xxvi, xxvii] The author goes even further to hypothesize that the IITs cannot be considered universities but rather "small, high-quality technology

institutions" (Altbach, 2009, p. 21). It is also maintained that while the IITs' research output is impressive, it is limited by the very mission and make-up of the institutions (Indiresan, 2007, as cited in Altbach, 2009).

This emerges as a wider trend: the Indian Government has invariably sidestepped universities in order to invest in research and training and opted for specialized institutions instead such as the IITs, IIMs and All India Institute of Medical Sciences (Altbach & Jayaram, 2008 as cited in Altbach, 2012, p. 246). The vast majority of specialized technology oriented institutions such as the IITs and Indian Institute of Science (IISc) focus on technology and engineering, to the exclusion of every things else (Krishnan, 20005). The fact that they are divorced from social and behavioural sciences, and humanities raises the question about the usefulness of their research output to the developing world environment of the country. The problem is compounded, Gupta & Gupta (2012) argue, by setting down the centrally funded technical institutions, such as the IITs, IISc and IIMs into a separate sector. Krishnan (2005) takes the discussion forward to postulate that such de-coupling of technology-engineering with social sciences is not unique to India, rather it is characteristic of developing economies, and it is doubtful if truly world class universities can be generated in the face of this deficit. It is relatable that global rankings are often criticized for sidestepping humanities and social sciences (Rauhvargers, 2011). Possibly, this is tied to the case that the vast majority of research publications and citations in high impact factor journals comes about in STEM[xxviii] disciplines (Altbach, 2011, p. 3). This opens up the discussion about the significance of research in social sciences in developing economies and the concern that global rankings are unmindful of this important aspect.

It has been repetitiously hypothesized that the present notion of world class university rests upon excellence in research (Altbach, 2004; Altbach, 2009; Altbach, 2011; Altbach & Balan, 2007; Burns, 2012; Gupta, 2010; Kaba, 2012; Krishnan, 2005; Rauhvargers, 2011; Salmi, n.d.; Salmi & Saroyan, 2007). Salmi (2011) states that world class universities are "research universities at the pinnacle of the tertiary education hierarchy, as measured by the various international rankings" (p. 5). Altbach (2004) and Altbach (2011) go so far as to argue that essentially all global rankings measure research output in one way or the other. The other indicators are judged only in so far as they support research. This is so for two reasons: of all the criteria and indicators, research productivity is the easiest to measure and carries the most prestige. Research signifies the pinnacle of academic systems because it is the "link to the international network of science and scholarship, producers of much of the research in the academic system, and educators of the élites for key positions in society" (Altbach, 2009, p. 20).

Altbach & Bala´n (2007) have defined research university as "academic institutions committed to the creation and dissemination of knowledge in a range of disciplines and fields and featuring the appropriate laboratories, libraries and other infrastructures that permit teaching and research at the highest possible level" (p. 1). Such universities are characterized by a few salient features: these are government funding institutions; [xxix] "multiversities" *[sic]* (Kerr, 2001, as cited in Altbach & Balan, 2007, p. 11), "resource intensive" and "complex institutions" that "attract the best and the brightest" (Altbach & Balan (2007, pp. 11-12).

On account of the estimation that India is not likely to have "internationally competitive research universities in the coming several decades", the prognosis for world class university is less than promising (Altbach, 2009, p. 29). It is widely asserted that research is a major failing of the Indian higher education system (Agarwal, 2009; Altbach, 2012; Bhatia & Dash, 2010; Dahlman & Utz, 2005; Dukkipati, 2010; Gupta & Gupta, 2012; Patra, 2012; Powar, 2012; Sanghi, 2010). The discussion on research also extends to research on the state of higher education; Swaminathan (n.d.) has argued that research to explore the dysfunction between higher education and economic development is essentially nil in the country (p. 349, as cited in Kumar & Oesterheld, 2007). As noted earlier, global rankings measure research productivity through the number of publications in certain high impact factor journals. It is paradoxical that while India records 75,000 students enrolled in research and 11,000 successful PhD candidates, the effective research output is not impressive (Gupta, 2010).[xxx]

It is important to situate India's research output in the global context. It has been widely held that trans-Atlantic dominance in research accounts primarily for its corresponding preponderance in global rankings (Altbach, 2004; Altbach, 2011; Altbach, 2012; Altbach & Balan, 2007; Kaba, 2012; Krishnan, 2005; Ramaprasad, 2011; Rauhvargers, 2011; Salmi, n.d.; Salmi & Saroyan, 2007).[xxxi] It is also important to note that the Anglo-American dominance in research is fast yielding to the greater presence of developing economies, particularly the BRICK nations[xxxii] (Adams, Pendlebury & Stembridge, 2013). In a comparative discussion of research output of the BRICK nations, the authors describe India as a "sleeping giant", referring, perhaps to India's sluggish upward movement in comparison to the exceptional upsurge in China. It would not be amiss to liken this to China's corresponding escalation in global rankings.[xxxiii]

Several studies have noted that the limited research that does take place in Indian universities is sub-par and not

internationally competitive.[xxxiv] Additionally, the research output is by no means distributed evenly; rather it comes from a very small cadre of institutions: as much as 80 per cent of the publications come from only 10 per cent of universities (Vaidyasubramaniam, n.d., n.p.). Moreover, it does not help that there is no arrangement in place to rank academic institutions in the country. The concept of rankings of higher education institutions in India is limited to the so-called "B Schools", which refer to institutions that grant management and business degrees. Furthermore, these rankings have poorly spelled out methodologies. On a more hopeful note, the National Assessment and Accreditation Council (NAAC), an autonomous agency entrusted with assessing and evaluating higher education institutions in the country, has constituted a committee to work out a framework to develop its own grading scales similar to models like ARWU (Gupta, 2010, p. 838).[xxxv]

It emerges that higher education systems that are differentiated and oriented to research are characterized by several other attributes. One of the top factors that distinguishes a research university from one that limits itself to teaching is that the former has access to public funding that is "consistent and long term" (Altbach, 2004, p. 22). Disappointingly, investment in research is demonstrably insufficient in India. Dukkipati (2010) points out the paradox in Indian economy wherein economic growth has been led by "knowledge based industries" in the face of meager research investment, both in absolute and relative terms.

> . . . in India only 4 per cent of research expenditure is made through universities. In the United States the corresponding figure is 17 percent and in Germany it is 23 percent . . . China's investment in research manpower, estimated at 708 researchers per 1 million people, is six times that of India's (n.p.).

Altbach (2009) concurs and points out that while as many as 150 universities in China benefit from research funding, the University Grants Commission (UGC), on behalf of the Indian Government, sponsors only 20 institutions (p. 17). Similarly, Gupta & Gupta (2012) note that the Government expenditure on research and development in science and technology as percentage of GDP was 0.8% during 2005-06 in India. By way of comparison, the corresponding figure for Israel was 5%, Sweden (4%), Japan (3%), US (2.77) and China (1.5%). Numerous research undertakings have delved into reasons that account for the failure of research in the Indian higher education system. It emerges that the country's colonial history is at the core of the discussion on research (Agarwal, 2009; Altbach, 2009; Altbach, 2012; Altbach & Umakoshi, 2004; Nguyen, 2010; Powar, 2012). Agarwal (2009) upholds Altbach & Umakoshi (2004) in attributing the "centre–periphery relationship" of the system—which puts one in the mind of dependency theory of international relations—to the long colonial history with Britain. This is as true of India as it is of other colonized countries in Asia.

> Altbach & Selvaratnam (1989) use the phrase 'twisted root' to refer to the common origin of contemporary higher education systems in Asia . . . [they are a] replication of non-Asian models that were either imposed by the colonial powers or adopted voluntarily by the non-colonized state like Thailand (Nguyen, 2010, p. 26).

It is held that research was an area of neglect as it did not relate to the British colonial interests in India (Altbach, 2009, p. 14). The higher education system post-Independence continued to grow in the absence of differentiation: "academe has grown without planning in response to massification and the need for new kinds of institutions to serve an expanding economy. . . There is no formal division of responsibility for access or research (Jayaram, 2004)" (p. 16). The problem is only compounded by the case that the scant research that is internationally competitive takes place in institutions that cannot be described as universities, properly speaking (Gupta & Gupta, 2012). Since the present model is derived from the pre-independence era, it is hardly a surprise that research is limited to "a few research organizations in specialized fields . . . in some scientific disciplines" (Altbach, 2009, p. 15). The case of research bodies being divorced from mainstream teaching institutions implies that the research that is accomplished does not tot up towards strengthening India's case for global rankings. Additionally, it has been hypothesized that research and teaching benefit from being in the same institution (Altbach, 2009). It would stand Indian higher education institutions in good stead to form collaborative networks with research oriented institutions in the country; and there are quite a few of them are internationally competitive, such as the Tata Institute of Fundamental Research (TIFR).

Much like any other higher education system, the state of research in the Indian higher education system is nested within the general academic culture, and the former betokens the latter: "Excellence in research underpins the

idea of world class universities . . . if research is the central element, other aspects of a university are required to make outstanding research possible" (Altbach, 2004, p. 22). This is all by way of saying that high quality research is an indicator of other attributes such as quality of faculty and overall education, and supporting infrastructure. For one, universities that consistently feature in the list of global rankings record relatively high graduate enrolment (Salmi, n.d., p. 6).[xxxvi] The concern that undergraduate enrolment accounts for the bulk of enrolment in India is a key factor in the consideration regarding the deficit in research (Altbach, 2009; Sanghi, 2010).[xxxvii]

> The large majority of academics are teachers of undergraduate students and do little research, if any . . . [they] do not hold a doctorate and some have earned only a bachelor's degree . . . Teaching loads tend to be quite high for those teaching undergraduates exclusively. . . the small minority of academics, probably under 3% of the total, who teach graduate (postgraduate) students and are appointed to research-oriented departments in the better universities. . . (Altbach, 2009, p. 22).

In light of this, Vaidyasubramaniam (2013) has counselled that post-graduate education in India must be enhanced to make research truly productive, as it is the doctoral programs that form the wellspring of academic research in world class universities. In addition, the author proposes that the Indian Government must invest in select post-graduate programs in promising institutions instead of launching new technology oriented specialized institutions to propel the "knowledge value chain" (n.p.).

Among the numerous factors that contribute to a system's research prowess, faculty compensation features prominently. Internationally competitive research universities require adequately paid professoriate since this group of academics is part of global labour market. An international survey revealed that China and India were at the bottom of a group of 15 countries in academic salaries (Rumbley et al., 2008 as cited in Altbach, 2009).[xxxviii] Neelakantan (2007) and Bradshaw (2007) have demonstrated that the growing disparity in the salaries of academe and industry in India is responsible for the shortage of internationally competitive faculty members at premier institutions such as the IITs and the IIM's (as cited in Salmi, n.d., n.p.). Gupta & Gupta (2012), citing a Ministry of Human Resource Development report estimate this figure to be in the range of nearly one-third of faculty positions for aforementioned premier institutions as well as central universities. Upholding the argument, Altbach & Jayaram (2008, as cited in Altbach, 2012) have concluded that while world class universities require an internationally competitive salary structure that rewards productivity, the Indian faculty members are "rewarded for longevity rather than productivity, and for conformity rather than innovation" (p. 247). It is noteworthy that the salaries for faculty members indicated by the Sixth Pay Commission fall abysmally short in attracting globally competitive researchers (Sanghi, 2010). Additionally, the absence of tenure system detracts from the lucrativeness of teaching as a career choice (Altbach, 2009). In lauding the tenure system, Krishnan (2005, p. 1682) goes so far as to assert that the American tenure system is to be credited in part for the American universities' success in research productivity.

The issue of faculty compensation is a subset of the Government expenditure on higher and technical education, which has long been considered "public or quasi-public good", and the Government's spend on it has been declining in real terms since 1990s (Prakash, 2007, p. 3254). Several studies have contended that the Indian Government has invested insufficiently in higher education (Altbach, 2005; Altbach, 2006; Kaba, 2012).[xxxix] It emerges from the discussion that increasing the expenditure on post-secondary education is the most immediate requirement. At a low 0.37% of GDP, India's expenditure on post-secondary education compares rather poorly to China (0.6%), much less with developed economies (Altbach, 2009).

In addition, it has been demonstrated that endowments are a characteristic attribute of a world class university. Their significance with respect to global rankings derives from the consideration that they proffer the financial surplus to take on research. This lead in research helps endowment-rich universities win public research funding, completing their research prowess a full circle (Wangenge – Ouma & Langa, 2010, p. 750; Poh, 2010, p. 71-72; Hawthorne, 2007, as cited in Kaba, 2012; Salmi, n.d.). Endowments speak of the generous resources at the disposal of Anglo-American universities; they are also suggestive of the financial limitations of developing countries such as India: "The endowment of Harvard University is around $31 billion — more than 1/4$^{th}$ of the GDP of Tamil Nadu"[xl] (Gudavarthy & Mannathukkaren, 2012). It does not help either that student tuition, predetermined as it is by the Government, is nominal and cannot be raised.[xli] The other option to fund research then would be to procure project funding from agencies such as Department of Science and Technology (DST). In actuality, the project funding that does come by is too meagre to pay for "overhead expenses", let alone pay faculty members to undertake research (Sanghi, 2010).

In listing additional deterrents to academic meritocracy and dynamism amongst Indian faculty members, Altbach (2009) refers to unconstrained academic "inbreeding" (p. 24).[xlii] Krishnan (2005) adds to the discussion by pointing out that "many [Indian] universities have not recruited faculty for years and are managing with temporary staff . . ." (p. 1681). The author pins the less than desirable academic culture on "politicisation intertwined with bureaucratic control" (p. 1681). Both Altbach (2009) and Krishnan (2005) validate Salmi's (n.d.) contention that higher education institutions that are beset with limited mobility of students and faculty are unlikely to be at the "leading edge of intellectual development" (n.p.). A corollary of the argument would be that international dimension is an indicator of intellectual dynamism of a university—this is discussed in subsequent section of the paper.

Academic freedom and institutional autonomy are also important elements of world class universities (Altbach, 2004; Altbach, 2009; Krishnan, 2005; Ramaprasad, 2011). The Indian higher education system has been frequently criticized for its rigid bureaucracy and politicization which negate the country's capability to spawn world class universities (Altbach & Jayaram, 2008, as cited in Altbach, 2012). Some of this is attributable to the practice of institutional affiliation. It is commonly observable that a large number of undergraduate colleges—which account for the vast majority of higher education institutions—are affiliated to universities, and lack autonomy in decision making (Kaul, 1974; Jayaram, 2004, as cited in Altbach, 2009).[xliii] As much as 90 per cent of the undergraduate enrolment and 67 per cent of the postgraduate enrolment is in affiliated colleges (National Knowledge Commission, n.d.). Stella (2002) ascribes the "rigidity of the affiliating structure" to the British legacy—the "London model" (p. 23) and argues that the challenge of quality assurance and accountability are to be attributed to this system of affiliation.[xliv] The centrally funded universities counting up to 25 are better quality than the mainstay of the Indian higher education system—the 230 state universities that have as many as 20,667 colleges affiliated to them (Altbach, 2009).[xlv]

The case that quite a few of the projected world class universities are to be purportedly built by improving on some of the existing state universities—which are infamously fettered with bureaucracy, politicization and quota[xlvi]—makes one sceptical about how amenable these universities might be to augmentation (Altbach & Jayaram, 2008, as cited in Altbach, 2012, p. 247). It is relatable that utilizing the instance of the University of Malaya in Malaysia, Salmi (n.d.) has counselled policy makers not to place unqualified confidence in transforming existing universities into world class status, as it is typically the faulty "governance structure" that is to blame for the absence of world – class attributes in the first place. What then is the way to redemption? Salmi (n.d.), drawing on the case of the IITs, offers a solution to developing countries, such that the higher education systems effectively serve targeted nation-building and developmental needs: "set up an integrated system of teaching, research, and technology oriented institutions that feed into and support a few centers of excellence that focus on value-added fields and chosen areas of comparative advantage, and can eventually evolve into world-class institutions" (n.p.).[xlvii] The author credits the success of the IITs[xlviii] in India with the fact that they were created to mark a break from the conventional higher education systems in the country.

The case of the growing participation of private sector in the Indian higher education system is a subject of prolific research (Agarwal, 2009; Altbach, 1999; Altbach, 2012; Bery, Bosworth & Panagariya, 2004; Powar 2012; Prakash, 2007; Stella, 2002) and presents a very important consideration in the discussion.[xlix] If private institutions have proliferated so significantly,[l] it is because they serve an insistent need: the Ministry of Human Resource Development has forecast that the country "will need 800 new universities and 40,000 new colleges to meet the aim of 30 percent *[sic]* GER (gross enrolment ratio) by 2020. Government alone cannot meet this alone" (Kapil Sibal, former Minister, Human Resource Development, as cited in Gupta & Gupta, 2012).

Possibly, the most pertinent aspect of the discussion on the growing dominance of private institutions is that they are intrinsically more ill-disposed to research than their public counterparts. There exist numerous factors that dissuade private institutions from taking on research projects. Most importantly, the Government's research fund policies are so formulated as to exclude private institutions (Sanghi, 2010). That being said, it would be erroneous to wholly square the private institutions' disinclination to take up research with the Government's research funding policies. Private institutions in India are systemically atypical from public universities; they are self-financing and more focussed on undergraduate and professional education—none of which makes for inducement to conduct research (Powar, 2012).

Elaborating on the numerous aspects of private institutions in India that make them far from "world class", Krishnan (2005) underscores the juxtaposition of lofty projects such as world class universities with the abysmal reality of Indian higher education. The private education sector—an imposing and continually increasing presence—has burgeoned on account of a forceful need and self-guided innovativeness. The Indian Government, far from

channelling the development, has been neglectful of this very promising and indispensable contributor to higher education.

Internationalization of higher education has increasingly become *sine qua non* for world class universities (Salmi, n.d.). The more modern modes of knowledge generation are problem-based and marked by "the growing importance of international knowledge networks" (Gibbons, 1994, as cited in Salmi, n.d., n.p.). As has been noted earlier in the paper, international component adds to the productivity of higher education institutions. Two considerations, in particular are noteworthy with respect to internationalization and its bearing on global rankings: "academic inbreeding" (Altbach, 2004)[li] and inventiveness of research. The incorporation of international dimension amongst faculty and student population ensures academic meritocracy and diversity, which in turn enables pioneering research. Salmi (n.d.) has demonstrated that international diversity is unquestionably concurrent with top ranking universities. [lii, liii]

The pattern of internationalization of higher education that is observed in India falls in the opposite end of the spectrum. It would not be far-fetched to hold that, if anything, it detracts from the prospect of launching world class universities. The most striking aspect of the phenomenon being worryingly higher outbound mobility of domestic students; worse still is the fact that a significant majority of these students do not return to the country, resulting in what is commonly referred to in India as "brain drain" (Altbach, 2012).[liv] In contrast to the soaring growth in outbound mobility is the meagre inward mobility of international students in India (Agarwal, n.d. and Powar, 2012). [lv, lvi]

What is more, the incoming international students are characteristically limited in the sense of diversity of "source countries", as it were; the vast majority of them come from Afghanistan, Iran, Arabic speaking countries in Central Asia, the Gulf and Africa (Dongaonkar & Negi, 2009). The Indian Diaspora, which adds up to over 25 million in 130 countries is the other identifiable group that accounts for inward mobility of international students (Kumar, Sarkar & Sharma, 2009). Agarwal (2006) has forecast that given the Government's failure in framing and executing an effective and coherent policy, it is unlikely that internationalisation of higher education will succeed (as cited in Altbach, 2009).

The Indian Government's approach to internationalization of higher education has been one marked by dispiritedness and symbolic efforts. Numerous pronouncements have been made, only to be followed with non-execution (Agarwal, n.d.; Altbach, 2012; Powar, 2012). However, the proclamations made in the Eleventh Five Year Plan[lvii] to similar effect seem to mark a departure from the policy of "obstructionism" and rhetoric. The tenor of internationalization, as pronounced in the Plan, rests on launching world class universities and education hubs that are to have an international dimension (Matthews, Sibal & Prasad, 2012). Barua (2013) points out some impediments to internationalization: lack of scholarships and stipends to international students at the doctoral level, bar on hiring international faculty members on permanent basis (in IITs, for instance).

The Indian Diaspora is a tremendously unexploited resource in the context of adding to the international dimension of higher education institutions in the country. Kuznetsov (2006) has demonstrated the comparative advantage that Diaspora can add to higher education institutions' international competitiveness; it does so by enriching its networks such as alumni association (as cited in Salmi, n.d.). Salmi (n.d.) has illustrated the significance of allying with Diaspora by utilizing the example of University of Beijing, which actively monitors and draws in researchers of Chinese origin, as part of its express human resource policy.

Thrusting internationalization of higher education forward by collaborating with world class universities—as opposed to launching world class universities from the grounds up—presents a viable option to address the challenges with respect to three distinct concerns: quality of education, research[lviii] and global competencies (Gupta & Gupta, 2012; Matthews, Sibal & Prasad, 2012).

Several studies have demonstrated that there exist numerous variables that determine how likely a university and higher education system are to feature in the global rankings (Altbach, 2004; Kaba, 2012; Salmi, n.d.). Possibly, the most important conceptual theme that emerges out of these studies is that academic output—in all its permutations and combinations—is not the sole guarantor of place in the global rankings. In fact, several factors that, on the face, have little to do with education influence an institution's likelihood to achieve global rankings.

Drawing on the above argument, a great many researchers have demonstrated that global rankings are overwhelmingly dominated by Anglo – American universities (Altbach, 2004; Altbach, 2011; Kaba, 2012; Salmi, n.d.; Salmi & Saroyan, 2007).[lix] Quite a few have argued that captivation with global rankings leads to emulation of the Anglo – American academic model, which only results in strengthening of the Anglo-American hegemony (Marginson, 2006; Salmi & Saroyan, 2007; Watson, 2009, as cited in Kaba, 2012).[lx] Lo (2011) goes so far as to refer

to it as the "soft power" of the Anglo – American paradigm (as cited in Kaba, 2012). The research that enquires into the Chinese Government's efforts to simulate trans – Atlantic universities is particularly illuminating (Lang & Zha, 2004; Mohrman, 2008; Ying & Niancai, 2008, as cited in Kaba, 2012, p. 3). It is important to note that China is by no means the only such: Cantwell & Maldonodo – Maldonado (2009) have demonstrated that "the Arab and Muslim world" is also committed to copying the trans-Atlantic model in order to make it to the global rankings (as cited in Kaba, 2012). Barua (2013) has noted the high significance of "reputation" in evaluating institutions and questioned its application to developing countries. The author argues that most indicators are designed to perpetuate the exisiting rankings.

Thus, the template of top ranking universities is devised from a set of indispensable attributes that are originally trans-Atlantic. It exists by virtue of an organic model which is unique and cannot be reproduced elsewhere. Therefore, developing countries must not mislead themselves in to assuming that the schema for world class universities can be imported (Kaba, 2012; Salmi, 2011, p. 6; Ramaprasad, 2011). In fact, even capital input that matches Anglo-American institutions—as in the case of "wealthy Arab and Islamic countries"—cannot result in duplication of that academic model (Cantwell & Maldonado-Maldonado, 2009, p. 296-297, as cited in Kaba, 2012, p. 20). For global ranking to be authentically *global,* it is important to revise the methodologies such that the indicators and weights are incorporative of socio economic realities of the developing world.

To be noted are two important factors in the discussion: the elements of employability and citizenry in higher education in the developing world. The politico-socio-economic realities in developing countries are marked by the twin challenges of divorce of higher education and employability (or at least insufficient correlation between the two) and socio-political instability, which is reflected in incidents of terrorism, absence of democratic forms of government, stark disparities amongst populations, etc. An effective answer to both the challenges is promotion of knowledge economy in the developing world (Dahlman & Utz, 2005). For higher education to effectively serve the knowledge economy model construct it is important that employability be a defining end goal of graduate studies. In this context, employability refers to those competencies and "high skills" that add up to career preparedness, including job-specific skills and training (Brown, 2001; Brown & Lauder, 2008). Similarly, the ideas of instilling citizenship and socio-political sensitivity through higher education acquire enhanced significance in the developing world. Neither of the two elements finds important enough place in ranking methodologies. It would be fair to conclude that realities of the developing world are very different and rankings must be cognizant of this dissimilarity.

Relatedly, global academic rankings were designed about a decade ago, as has been discussed in the paper. Since then, globalization has brought the developed world closer from the periphery to the center. There has been a lot of systematization in higher education and career competencies since then. In order to keep step with global advances, it is important to continually revise the indicators in academic rankings, so that the rankings optimally serve the need for benchmarking higher education institutions all over the world and not just a select few countries.

## 3. The edifying case of China

The Indian Government makes frequent comparative references to China. Indeed, the lessons from China are particularly instructive for Indian policy makers. China, along with South East Asian countries—particularly, Hong-Kong and Singapore—has proved that it is possible to move away from the periphery and close to the centre.

China's drive to have its higher education institutions counted amongst the top ranking institutions has been studied more than a few times (Altbach, 2009; Mohrman, 2003, as cited in Salmi, n.d.; Pella Jr. & Wang, 2013; Wilhelm, 2013). While there is consensus that China has succeeded in catapulting ahead of the periphery, there is also some concern whether it is more about appearances than substance. The drift of accusations levelled against the Chinese drive seems not to be fundamentally different from the Indian initiative, and centres on the criticism about resorting to palliative rather than curative measures. The fact that rankings judge output exclusively, to the exclusion of processes (Krishnan, 2005, p. 1682) makes it easier for an institution to achieve world class status by engaging in formulaic and calculated efforts—most often by increasing research publications. Indeed, the thrust of these countries is boosting research productivity through increasing publications, hiring of "research-active international staff" (Altbach, 2011, p. 3) and collaborating with Anglo-American universities. It has been put forward that Chinese universities, guided by imitation rather than creativity, deploy less than admirable means to achieve global rankings. The most successful manoeuvre, it appears, is increasing the number of research publication in high impact international journals, without an underlying accent on original knowledge creation (Mohrman, 2003, as

cited in Salmi, n.d.; Pella Jr. & Wang, 2013; Wilhelm, 2013).[lxi] Furthermore, the Chinese policy of favouring research staff with foreign degrees over those with domestic degrees has created divisive and unproductive relationship between the two groups (Pella Jr. & Wang, 2013).

## 4. At the crossroads of policy reforms: The MHRD's aspirations to create world class universities in "a society of scarcity"[lxii] and the tripartite challenge of "access, equity and quality" [lxiii]

While the idea of benchmarking against world class universities serves the Indian higher education system importantly as a point of reference, the question whether the captivation with and investment in building world class universities is well-considered warrants research concern.

The question of attainability of financing is paramount, more so for a developing country like India (Altbach, 2004; Altbach & Jayaram, 2008; Krishnan, 2005; Ramaprasad, 2011; Salmi, n.d.; Vaidhyasubramaniam, 2012). Salmi's (n.d.) study warns world class university hopefuls not to underestimate the level of investment: "Even in the richest OECD countries, only a handful of institutions achieve the kind of concentration of top researchers, professors, students, facilities, and resources" (n.p.).[lxiv] Vaidhyasubramaniam (2013) places the estimated cost of establishing a world class university in India at approximately $1,500 million or Rs. 6,750 *crore*. At odds, the Indian Government provides a measly Rs. 3,000 crore for the project—an important limitation given the consideration that public expenditure is the foremost source of funding for a world class university (Salmi, n.d.).

A conjectural question that emerges out of the discussion is: even if adequate funding could be confirmed for the project of establishing world – class universities, is the investment being expensed at the cost of higher – priority areas? It is pertinent that Krishnan (2005) has argued that the Government's determination to build world class universities cuts deeply into very pressing financial concerns that beset the higher education system.[lxv]

As things stand at present, the notion of world-class university is equated with research university, and excludes institutions that offer undergraduate education (Salmi, n.d.).[lxvi] While research has its place, a higher education system must address national and regional realities; it must, first and foremost, address the immediate socio-economic needs (Altbach, 2011, p. 23). The challenges that beset the Indian higher education system are of a fundamentally systemic nature. The sheer mass of the populace[lxvii] that the higher education system in India serves, combined with the country's emerging presence in global economy, present a very forceful case for thrusting the whole higher education sector as a top agenda item in national policy making.

Of all the challenges, the one about access looms the largest. Simply put, it refers to the large mass of higher education demographic that goes without accessing higher education: an enrolment figure of 13 million puts India at the third place in global higher education enrolment; however this number denotes only 10% of the higher education demographic in the country (Altbach, 2009). The emerging prominence of distance education and massive open online courses (MOOCs) presents as viable solution and must be considered as area of further research interest for Indian policy makers.

The problem of equity denotes the under-representation of certain demographic groups in the higher education system. In India, this presents a daunting challenge across a number of variables: gender, socio-cultural groups and the urban-rural divide (EY-FICCI, 2012). The socio-cultural disparities in India necessitate equitable representation of numerous demographic groups in the higher education system, and this presents a hindrance to achieving meritocracy in recruiting students and professoriate. Gudavarthy & Mannathukkaren (2012) have questioned the applicability of global rankings to higher education systems in developing countries on the ground that they do not weigh in factors that take in hand socio-economic realities. Thus, Jawaharlal Nehru University, which has put in place an extraordinary system of positive affirmation in recruiting students, will find that there are no indicators in global rankings that might reward this.

The concern with respect to quality refers to the sub-par standard of education across a number of dimensions, most importantly: contribution to skill-development, job-preparedness and research. It has been widely contended that the Indian higher education system does not result in a large enough skilled workforce (Agarwal, 2009; Altbach, 2009; Dahlman & Utz, 2005; EY-FICCI, 2009; Kumar & Oesterheld, 2007; Swaminathan, 2007).[lxviii]

The glaring shortage of top-tier institutions means that the most talented students leave the country—as many as 200,000 in 2008—and the vast majority of them never to return home (Agarwal, 2008; Altbach, 2006, as cited in Altbach, 2009). What is still more worrisome is that a large number of these students undertook doctorate studies: between 1970s and 2005, 75–80% of Chinese and Indians who obtained their doctorates in the United States did not

return home (Altbach, 2009). It would be safe to infer that given that the Indian higher education system under-girds research weakly, several of those that are truly research-oriented seek doctoral education abroad, further enfeebling the research capability in India.

## 5. Conclusion

Global rankings are an inevitable aspect of higher education: "massification", internationalization and commoditization of higher education have necessitated the logic of benchmarking institutions. That being said, it is important to understand their limitations and misemployment.

The concern about India's poor representation in global rankings leads to a useful discussion. It limns the global positioning of premier institutions and is an inducement to academic excellence. However, the detour that policy makers take in determining that projects must be take on to launch world class universities in India speaks of unrealistic and un-planful prioritization. There lies a vast distance between the Indian academic system at present and one that can spawn world class universities, much less the resources that would be required.

The phenomenon of global rankings is situated in a centre-periphery paradigm. There are a number of factors that put American and British universities at an inequitable advantage. As it happens, there is a broader issue here: the mass of global knowledge production occurs in the trans-Atlantic region and feeds into its higher education systems. Thus, the terrain of global rankings is not a level playing field: it has gone around the whole of Third World—the shirking is not India's alone. It is very likely that global rankings will continue to be dominated by trans-Atlantic universities. The advances in higher education in Asia, while being impressive in their own right, will take a long time before they are reflected in the global rankings. The cases that global rankings are a "zero-sum game" (Altbach, 2011, p. 2) and the long-held stronghold of Anglo-American universities set daunting obstacles indeed. However, the challenge of center – periphery paradigm while being deterring is not hermetically sealed. Several peripheral countries have succeeded in vaulting over the divide.

Alongside the question of prospects is another point at issue: the relevance of global rankings to developing economies. It is unlikely that the Indian Government can muster the astronomical amounts of money that world class universities call for. Further, the question how well a country like India will be served by diverting scarce resources to building internationally – competitive research intensive universities is also worth considering. In face of the aforementioned challenges and scarcity of resources, the MHRD's project of world class university comes across as one that is out-of-concurrence with the higher education system as well as the society at large. It emerges that there are more constructive and purposeful ways to apply public funding than to make exorbitant investments to get a few universities to feature in the global rankings. As is often the case with Government of India initiatives, rhetoric and symbolic efforts surpass earnestness of purpose and pragmatism.

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## Appendix A

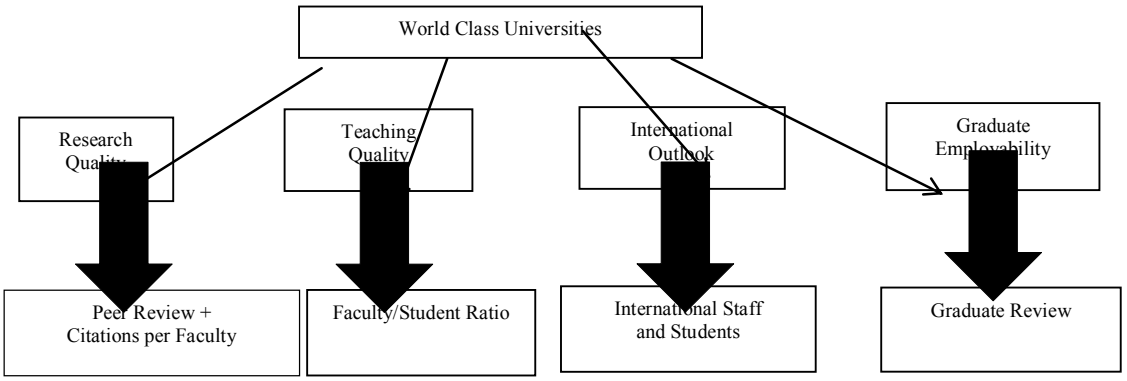
**Criteria, indicators and weights used in the ARWU Ranking**

| | Indicator | Weight |
|---|---|---|
| Quality of Education | Alumni of an institution winning Nobel Prizes and Fields Medals | 10% |
| Quality of Faculty | Staff of an institution winning Nobel Prizes and Fields Medals | 20% |
| | Top 200 highly cited researchers in 21 broad subject categories | 20% |
| Research Output | Papers published in Nature and Science | 20% |
| | Papers indexed in Science Citation Index-expanded and Social Science Citation Index | 20% |
| Per Capita performance | Per Capita academic performance of an institution | 10% |
| Total | | 100% |

Source: Rauhvargers, 2011, p. 25

## Appendix B

**The Four Pillars of THE-QS World University Rankings (2004-09)**




(source: Rauhvargers, 2011)

**Appendix C**

THE-Thompson Reuters 2010 Rankings

| Indicators | Weight |
|---|---|
| Research Volume + Income and Reputation | 30% |
| Research Impact | 32.5% |
| Economic Activity and Innovation | 2.5% |
| International Mix: Staff and Students | 5% |
| Teaching: the Learning Environment | 30% |
| Total | 100% |

(source: Rauhvargers, 2011)

**Appendix D**

Ranking of Top 10 Indian universities based on p-index[lxix]

| Affiliation | P | C | C/P | TICP | %TICP | h-index | p-index |
|---|---|---|---|---|---|---|---|
| Univ. of Hyderabad | 2371 | 10968 | 4.6 | 591 | 24.9 | 49 | 37.02 |
| Univ. of Delhi | 4784 | 12962 | 2.7 | 1082 | 22.6 | 45 | 32.75 |
| Punjab Univ. | 2575 | 9471 | 3.7 | 773 | 30.0 | 44 | 32.66 |
| Jadavpur Univ. | 4807 | 11565 | 2.4 | 872 | 18.1 | 43 | 30.30 |
| Banaras Hindu Univ. | 4870 | 10097 | 2.1 | 718 | 14.7 | 42 | 27.56 |
| Univ. of Madras | 3060 | 7813 | 2.6 | 604 | 19.7 | 34 | 27.12 |
| Univ. of Pune | 1766 | 5449 | 3.1 | 396 | 22.4 | 37 | 25.62 |
| Annamalai Univ | 2388 | 5953 | 2.5 | 232 | 9.7 | 33 | 24.57 |
| Jawaharlal Nehru Univ. | 2084 | 5554 | 2.7 | 411 | 19.7 | 35 | 24.55 |
| Anna Univ. | 3687 | 7381 | 2.0 | 691 | 18.7 | 35 | 24.54 |

Source: Gupta (2010, p. 841)

**Appendix E**

**Top Twenty Universities in World Ranking (2012)**

| Rank | THES | Rank | SJTU |
|---|---|---|---|
| 1 | California Institute of Technology | 1 | Harvard University |
| 2 | Harvard University | 2 | Stanford University |
| 3 | Stanford University | 3 | Massachusetts Institute of Technology (MIT) |
| 4 | University of Oxford | 4 | University of California, Berkeley |
| 5 | Princeton University | 5 | University of Cambridge |

| | | | |
|---|---|---|---|
| 6 | University of Cambridge | 6 | California Institute of Technology |
| 7 | Massachusetts Institute of Technology | 7 | Princeton University |
| 8 | Imperial College London | 8 | Columbia University |
| 9 | University of Chicago | 9 | University of Chicago |
| 10 | University of California, Berkeley | 10 | University of Oxford |
| 11 | Yale University | 11 | Yale University |
| 12 | Columbia University | 12 | University of California, Los Angeles |
| 13 | University of California, Los Angeles | 13 | Cornell University |
| 14 | Johns Hopkins University | 14 | University of Pennsylvania |
| 15 | ETH Zürich – Swiss Federal Institute of Technology Zürich | 15 | University of California, San Diego |
| 16 | University of Pennsylvania | 16 | University of Washington |
| 17 | University College London | 17 | The Johns Hopkins University |
| 18 | University of Michigan | 18 | University of California, San Francisco |
| 19 | University of Toronto | 19 | University of Wisconsin - Madison |
| 20 | Cornell University | 20 | The University of Tokyo |

**Source:** http://www.shanghairanking.com/ARWU2012.html
http://www.timeshighereducation.co.uk/world-university-rankings/2011-12/world-ranking

**Appendix F**
**Number of Research Publications for the Year 2011**

| Country | No. of Research Publications in 2011 | No. of Patent Application in 2010 |
|---|---|---|
| Brazil | 33, 842 | 22,686 |
| China | 156,574 | 526,412 |
| India | 45,172 | 42,291 |
| Russia | 27,792 | 41,414 |
| S. Korea | 44,294 | 178,924 |
| US | 354,486 | 503,582 |

Source: Adams, Pendlebury & Stembridge, 2013 as cited in Wilhelm, 2013, n.p.

**Appendix G**

**Weight of Graduate Students in Selected World Class Universities**

| University | Undergraduate Students | Graduate Students | Share of Graduate Students (%) |
|---|---|---|---|
| Harvard | 7,002 | 10,094 | 59 |

| | | | |
|---|---|---|---|
| Stanford | 6,442 | 11,325 | 64 |
| MIT | 4,066 | 6,140 | 60 |
| Oxford | 11,106 | 6,601 | 37 |
| Cambridge | 12,284 | 6,649 | 35 |
| LSE | 4,254 | 4,386 | 51 |
| Beijing | 14,662 | 16,666 | 53 |
| Tokyo | 15,466 | 12,676 | 45 |

Source: Salmi (n.d., n.p.)

**Appendix H**

**Average monthly salaries, selected countries (USD, 2008 purchasing power parity)**

| Country | Average monthly salary |
|---|---|
| Saudi Arabia | 6611 |
| Canada | 6548 |
| US | 5816 |
| Australia | 4795 |
| New Zealand | 4490 |
| UK | 4343 |
| Germany | 4333 |
| Japan | 4112 |
| S Africa | 4076 |
| France | 3905 |
| Malaysia | 3107 |
| Argentina | 3054 |
| Colombia | 2826 |
| India | 1547 |
| China | 1182 |

Source: Rumbley et al., 2008 (as cited in Altbach, 2009, p. 24)

[i] Rauhvargers, 2011

[ii] Dahlman & Utz (2005) define knowledge economy as "an economy that creates, disseminates, and uses knowledge . . . to enhance its growth and development . . . any economy [that] harnesses and uses new and existing knowledge to improve the productivity of agriculture, industry, and services and increase overall welfare" (p. 2). The World Bank researchers highlight the role of higher education in enabling knowledge economy by creating "a sustained cadre of "knowledge workers" (p. 8). In discussing the significance of skill development and training in the Indian context, the authors recommend: "Raising the quality of all higher education institutions, not just a few world-class ones (such as the IITs)" (p. 11). Salmi (n.d.) expresses a similar outlook in discussing the notion of world class universities: "Preoccupations about university rankings reflect the general recognition that economic growth and global competitiveness are increasingly driven by knowledge, and that universities can play a key role in that context" (p. 1).

[iii] Altbach (2011) and Kaba (2012) make a strong case for likening the notion of world class university with global rankings: ". . . regardless of how they got selected or their rank order, the 200 institutions on the Times Higher Education-QS world university rankings are highly productive and are considered 'WorldClass' *[sic]* institutions" (Deem et al., 2008; Lang, 2005; Mohrman, 2008, p. 42-45, as cited in Kaba, 2012, p. 5).

[iv]Marginson (2006, p. 1) posits that higher education is situated in an "open information environment" as a "single world-wide arrangement". The author places academic rankings as manifestations of competition inherent in higher education, recalling Bourdieu's (1996) notion of "field of power" (as cited in Marginson, 2006, p. 2, as cited in Kaba, 2012).

[v] 1. Academic Ranking of World Universities (ARWU) – Shanghai Ranking Consultancy
2. THE World University Ranking – Times Higher Education
   a. in cooperation with Quacquarelli Symonds (until 2009)
   b. in cooperation with Thomson Reuters
3. World's Best Universities Ranking – US News & World Report in cooperation with Quacquarelli Symonds
4. Global Universities Ranking – Reitor (Peŭmop)
(Rauhvargers, 2011, p. 23)

[vi]Salmi (n.d.) has stipulated that the Times Higher Education Supplement (THES) and ARWU are the "most comprehensive international rankings, allowing for broad benchmark comparisons of institutions across national borders . . ." (n.p.).

[vii]Among these, the USNWR-QS academic ranking merits note as one of the popular global rankings with the main purpose of producing university league tables (Rauhvargers, 2011, p. 23; Huang, 2012). It was the result of partnership between US News & World Report and Quacquarelli Symonds in 2010 (Rauhvargers, 2011, p. 34).
[viii] See Appendix A
[ix] See Appendix B

[x] See Appendix C
[xi]Altbach (as cited in Pathak & Kanwar, 2012)

[xii] It was with the intent to "create a second wave of institution building and of excellence in the field of education, research and capability building" that the National Knowledge Commission (NKC) was constituted in 2005 as a "high level advisory body to the Prime Minister of India (knowledgecommission).
[xiii] The discussion on India's trajectory onto knowledge economy brings into the picture the Planning Commission, an apex Government of India body which is responsible for drawing up the "Five Year Plan", which is a set of objectives that guides economic planning for the subsequent five years. The Plan serves as a rubric for the direction that the national economy is to take in the succeeding years.

[xiv] Public-Private Partnership is defined by the Ministry of Finance thusly: partnership between a public sector entity (sponsoring authority) and a private sector entity (a legal entity in which 51% or more of equity is with the private partner/s) for the creation and/or management of infrastructure for public purpose for a specified period of time (concession period) on commercial terms and in which the private partner has been procured through a transparent and open procurement system (Urbanindia, 2007, p. vii).

[xv]Later renamed as Innovation Universities aiming at world class standards (http://mhrd.gov.in/schemes_he_B)

[xvi] New Initiatives in Higher Education (http://mhrd.gov.in/schemes_he_B)

[xvii] "Bhubaneswar in Orissa, Kochi in Kerala, Amritsar in Punjab, Greater Noida in Uttar Pradesh, Patna in Bihar, Guwahati in Assam, Kolkata in West Bengal, Bhopal in Madhya Pradesh, Gandhinagar in Gujarat, Coimbatore in Tamil Nadu, Mysore in Karnataka, Pune in Maharashtra, Visakhapatnam in Andhra Pradesh and Jaipur in Rajasthan" (http://www.business-standard.com/article/economy-policy/setting-up-of-14-world-class-universities-gets-approval-110111100038_1.html)

[xviii] New Initiatives in Higher Education (http://mhrd.gov.in/schemes_he_B)

[xix] http://planningcommission.nic.in/plans/planrel/fiveyr/11th/11_v2/11th_vol2.pdf

[xx] The author defines the world class university system as "ecology These universities are differentiated by their emphasis on research, teaching and service; their global, regional, national and local scope; their aspiration to be a premier, leading or a generic institution; their specialization in the arts, humanities, sciences and professions. Yet they have to act in concert for the development of the society. They have to form a coherent, coordinated, albeit complex network to generate knowledge, store it, propagate it and apply it to the development of society" (p. 1).

[xxi]The classification of institutions on the grounds of objectives implies that research universities receive adequate research grants and community colleges focus on vocational education (p. 1682).

[xxii] The reference to the US model is perhaps most prominently articulated by Union Minister, Mr. Kapil Sibal. (http://www.dnaindia.com/india/report_foundation-for-world-class-university-being-laid-now-sibal_1308004)

[xxiii]Vaidhyasubramaniam (2012) states that Indian higher education system is missing the characteristics typically associated with world class universities: "extensive freedom . . . innovative curricula, modern pedagogical methods, flexible academic environment . . . creating a new body

of knowledge" (n.d.). These characteristics align with Altbach's (2004) benchmarks for world class university: excellence in research, ability to attract superior academic staff, academic freedom and intellectually stimulating environment, significant measure of internal self-governance and academic autonomy, infrastructural facilities and funding (p. 22).

[xxiv] The Indian Institute of Science and Jawaharlal Nehru University have also figured in the list of top 200 global rankings between 2004 and 2009 along with the Indian Institutes of Technology and Indian Institutes of Management. Further, Tata Institute of Fundamental Research, Indian Institute of Science, University of Delhi and Anna University have figured in the list of top 100 *Asian* universities (http://www.thehindu.com/education/article1529256.ece)

[xxv]THE 2012-13 World University Rankings featured three Indian institutions in the 200-400 list: Indian Institutes of Technology (IIT) Kharagpur, IIT Bombay and IIT Roorkee (http://articles.timesofindia.indiatimes.com/2012-10-08/news/34321570_1_world-university-rankings-phil-baty-higher-education-rankings)

[xxvi] The ARWU 2012 Global Ranking featured Indian Institute of Science in the 301-400 range (http://www.shanghairanking.com/ARWU2012.html)

[xxvii] THE QS ranking featured Indian Institute of Technology (IIT) Bombay in the 187th position (http://articles.timesofindia.indiatimes.com/2010-09-17/india/28220501_1_qs-world-university-rankings-three-rankings-academic-ranking)
[xxviii]Science, technology, engineering and mathematics
[xxix] It is noted that some world class universities in US and Japan are private institutions (Altbach & Bala´n, 2007, p. 10).

[xxx] See Appendix D

[xxxi] See Appendix E

[xxxii] Brazil, Russia, India, China and South Korea

[xxxiii] See Appendix F

[xxxiv] "While a small number of India's 431 universities have excellent research-focused departments and institutes, it is fair to say that few if any can claim overall excellence as research universities" (Altbach, 2009, p. 21).

[xxxv] It is relatable that Prathap & Gupta (2009) have developed a framework for ranking the research performance of Indian higher education institutions by "identifying the indicators that are best correlated with each other and then using a composite indicator emerging as a product of these" (Gupta, 2010, p. 751).

[xxxvi] See Appendix G

[xxxvii] In the year 2011-12, as much as 87.4% of the enrolment in Indian higher education system was recorded in undergraduate degree programs, 12.1% in postgraduate degree programs and a meager 0.5% in PhD programs (EY-FICCI, 2012).

[xxxviii] See Appendix H

[xxxix]Altbach (2006) notes that decades ago India decided to utilize a policy of first investing relatively very little funding in education, and then "…spread its money widely, devoting only 0.37 percent *[sic]* of its gross domestic product (GDP) to post secondary*[sic]* education…". Even with its rising economy and the rapid pace of progress in higher education in Asia and elsewhere, India continues to invest little in higher education. The result is that India is not reaching its potential and that: "The absence of a significant group of world-class universities is perhaps the most serious impediment to India's ambition to build a sophisticated knowledge-based economy…" (p. 49-50; also see Altbach, 2005) (p. 20).

[xl] An Indian state

[xli]*Au contraire:* "Students pay an annual fee of $40,000 for a bachelor's degree in an American Ivy League institution" (Gudavarthy & Mannathukkaren, 2012).
[xlii] It refers to an institution hiring its own graduates for teaching positions.

[xliii]"The University of Mumbai, for example, has 364 affiliated colleges, while the University of Calcutta has 170 and Delhi University 83" (Altbach, 2009).

[xliv] Altbach's (2009) study draws similar conclusion: the Indian higher education system in the British colonial period constituted of an absurdly high number of undergraduate colleges affiliated, rather unyieldingly to a university. The universities, in this case, were more of examining bodies than teaching universities. It is no surprise then that academics in Indian higher education institutions are not partakers in leadership and management.

[xlv] The state universities and colleges "are characterized by endemic underfunding, political interference, often a significant degree of corruption in academic appointments and sometimes admissions and examinations, and inadequate, ill-maintained facilities (Indiresan, 2007, as cited in Altbach, 2009).

[xlvi] "The practice of admitting students and hiring professors on the basis of rigid quotas set for particular population groups—up to 49 per cent—however well-intentioned or justified, virtually precludes meritocracy" (Altbach & Jayaram, 2008, as cited in Altbach, 2012, p. 248).

[xlvii] Also see Altbach, 2011, p. 23 and Salmi & Shrivastava, n.d., as cited in Salmi, n.d., n.p.

[xlviii] "In 2005, The Times Higher Education Supplement ranked the IITs as globally third best engineering school after MIT and the University of California, Berkeley" (Salmi, n.d., n.p.).

[xlix] "The share of private unaided higher education institutions increased from 42.6 per cent in 2001 to 63.21 per cent in 2006. Their share of enrolments also increased from 32.89 per cent to 51.53 per cent in the same period. This trend is likely to continue and therefore, it is reasonable to expect that about half of incremental enrolment targeted for higher education will come from private providers . . . There has already been a de-facto privatisation of the professional education sector, with more than 80 per cent of the engineering colleges being privately funded and managed." (National Knowledge commission, n.d.)

[l] It is reported that private institutions constitute the fastest growing accounting for 64% of the total number of higher education institutions in the country, and 59% of the total enrolment. Even more remarkable is the rate of annual growth: "state private universities have witnessed an annual growth of 33.8% since 1995 . . . (EY-FICCI, 2010, p. 14). Powar (2012) argues on similar lines and reports that between the year 2002 and 2007, the number of public institutions grew from 212 to 215, whereas private institutions grew from 764 to 1511 (p. 161).

[li] Referred to earlier in the paper

[lii] "Harvard University, for instance, has a student population that is 19 percent*[sic]* international; Stanford has 21 percent; *[sic]* and Columbia, 23 percent*[sic]*. At Cambridge University, 18 percent*[sic]* of the students are not from the UK or EU countries . . . the proportion of international faculty at Harvard, including medical academic staff, is approximately 30 percent*[sic]*. Similarly, the proportion of foreign academics at Oxford and Cambridge is 36 and 33 percent, *[sic]* respectively" (n.p.)

[liii] The author has also illustrated the singular consequence of internationalization of higher education with respect to building world class university by utilizing the example of University of São Paulo (USP) in Brazil.The University has pretty much all the features of a world class university and several other outstanding attributes; in spite of all of this, it has not made it to the global rankings. The author ascribes this to the fact that the University is decidedly un-internationalized:

> It [USP] has very few linkages with the international research community and only 3 percent*[sic]* of its graduate students are from outside Brazil . . . most students come from the State of São Paulo and most professors are USP graduates. Foreign professors cannot be recruited by law and it is forbidden to write a doctoral dissertation in a language other than Portuguese. (n.p.)

[liv] "An annual outflow of more than 1,50,000 students to institutes in the west every year – driving out nearly 2-3 million dollars in foreign exchange per annum. It makes India the second-largest target market globally for education institutes in the west. Though the problem of reaching world class standards is not as pressing as meeting the larger needs of the population, India's standing in this regard is indicative perhaps of the generally low standards" (National Knowledge Commission, n.d.)

[lv] "In just over 40 years there has been a 24- fold increase in the number of Indian students abroad, from 11,192 in 1965 to 268,000 in 2008. Though this is less than in China, where the numbers sharply grew from a few thousand in the 1960s to 417,350 in 2008, it is more than twice the global growth rate-the total number of internationally mobile students grew from 290,000 in 1963 to 2.9 million today. Currently, Indians constitute about 7.5 per cent of the world's mobile students, the second- largest group of students from a single country (after China)" (n.p.).

[lvi] Number of International Students in India between 1990 and 2009

| Year | 1990-91 | 1992-93 | 1994-95 | 1996-97 | 1998-99 | 2000-01 | 2002-03 | 2004-05 | 2006-07 | 2008-09 |
|---|---|---|---|---|---|---|---|---|---|---|
| Students | 12,899 | 12,767 | 11.888 | 5,841 | 5,323 | 6,896 | 7,756 | 13,267 | 18,391 | 21,778 |

Source: Association of Indian Universities (as cited in Powar, 2012, p. 245)

[lvii] Eleventh Five Year Plan (http://planningcommission.nic.in/plans/planrel/fiveyr/11th/11_v2/11th_vol2.pdf)

[lviii] See Anderson & Steneck (2011)

[lix] Of the top 200 universities in 2012 Times Higher Education rankings, 196 were from the developed world; furthermore, US accounted for 76 of these (Gudavarthy & Mannathukkaren, 2012).

[lx] Kaba (2012) has researched the Anglo-American paradigm that other countries attempt to emulate in their aspirations to make it to global rankings. The author refers, in particular to the "customer focused commercial provider" model of higher education (Marginson, 2007), "scientization *[sic]* of society, and of higher education itself" (Watson, 2009) and the role of media in strengthening the reputation of institutions—the case of "Thomson Reuters" and "Times Higher Education Supplement".

[lxi] "In the past three decades or so, China's research output has exploded. From 2000 to 2011, its production of scholarly papers increased more than 600 percent *[sic]*. The country now produces the second-largest number of papers, behind only the United States . . . some experts predict that China will become the top producer within the next seven years or so" (Wilhelm, 2013). Anticlimactically enough, China's soaring success in research publications has met with some disparagement: Wadhwa (n.d., n.p.), states that this "has created a situation in which people are . . . flooding the system with garbage . . . [by and large] its research papers and research projects are largely plagiarized and irrelevant" (as cited in Wilhelm, 2013).

[lxii] Altbach(1972)

[lxiii] EY-FICCI Report, 2011, p. 17

[lxiv] By way of reference, a research intensive university of a scale that can hope to compete to be world class university in China costs $700 million to build and has a total annual budget of close to $400 million (Altbach & Jayaram, 2008, p. 248).

[lxv] By way of illustration, the author questions the prudence of the Government's decision to allocate Rs. 100 crore to the Indian Institute of Sciences to initiate the "world class" project, in face of the vast majority of institutions' inability to pay salaries to existing faculty members (p. 1681).

[lxvi] Salmi (n.d.) cites examples of several institutions that dispense high quality tertiary education and serve the socio-economic needs of the society and "are neither research-focused nor operate as universities *strictu sensu*": UK Open University, Conestoga College in Ontario, the Fachhochschulen of Mannheim and Bremen in Germany. Furthermore, the author, citing the impressive economic acceleration of Finland and Ireland, argues that "world class" universities are no condition for knowledge economy.

[lxvii] The 2001 Census had predicted that by 2011 nearly 144 million will fall in the higher education demographic—the age-group of 18 to 23 (Gupta & Gupta, 2012).

[lxviii] By way of illustration, Jha (2009) and Surowiecki (2007), citing a McKinsey report have claimed that as many as 75% of Indian engineering graduates are "too poorly educated to function effectively in the economy without additional on-the-job training" (as cited in Altbach, 2009, n.p.).

[lxix] "A total of 50 Indian universities with comparatively high output of publications during a ten year period from 1999-08 were identified, based on their Publications data downloaded from the Scopus international multidisciplinary bibliographical database covering more than 16,000 international peer reviewed journals . . ." (pp. 839-840)

P = Publication Output
C = Citations
C/P = Average citation per paper
TICP = number of papers resulting from international collaborations
h-index = Hirsch Index
p-index = $(C^2P)^{(1/3)}$ (Prathap, Gangan & Gupta, 2009, as cited in Gupta, 2010, p. 842)