# A MEANS TO CLOSING GAPS: DISAGGREGATED HUMAN DEVELOPMENT INDEX

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## Introduction:

Within each country, there are significant disparities, gaps: among regions, between the sexes, between urban and rural areas and among ethnic groups. Operationalizing the Human Development requires some analysis of the distribution of Human Development itself. Can Human Development Index (HDI) profile become a useful tool to understand the underlying sources of and potential causes of problems? Can it cope with distributional characteristics of Human Development? Studies in disaggregated HDI have been initiated in a number of countries: Brazil, China, Colombia, Egypt, Gabon, Germany, India, Malaysia, Mexico, Nigeria, Papua New Guinea, Poland, South Africa, Trinidad and Tobago, Turkey, USA. Based on these this study aims at a review.

## Disaggregated HDI as cumulative distribution function

Disaggregated HDI's are arrived at by using the data for the HDI components pertaining to each of these groups into which the HDI is disaggregated, treating each group as if it were a separate country (UNDP 1993, 103). Such subgroups may be defined relative to geographical or administrative regions, urban-rural residence, gender and ethnicity.

The limit of disaggregation could be reached if one could calculate the HDI for each individual in a country separately. The presentation of these indexes in a descending or ascending order could then present a perfect HDI profile (Figure 1).

Figure 1 - not yet available

The x-axis measures the HDI and the y-axis measures the cumulative percentage of population, i.e, the share of population whose human development is less than an indicated level. In this format the HDI profile is presented as a cumulative distribution function.

Assuming now the extreme case where all individuals are identical or where there are no disparities, one could present this profile by the average HDI-line as in Figure 2. The average line touches the x-axis at low, medium or high level of human development. This

average value is nothing else but HDI of this country in HDR. The area to the right of the average-line may be called as the "area of deprivation", which could be separated into income, education and health components. Any individual within this profile is the average. HDI of this individual is measured by indexing and aggregating three dimensions: income, health and education.

If we approximate now the human development of each individual by the national average given in the HDR and try to approximate the human development profile we have to be aware that this average

Figure 2 - not yet available

individual is with respect to education above sixteen years of age, with respect to mean years of schooling above twenty five; its life expectation is given at birth, it has an average income allocated independent of age, but if it earns this income, it must be an adult. An adjusted HDI for children has not been attempted yet. This average adult has no occupation, no sex and lives nowhere or anywhere in a country.

Disaggregation does not improve the qualities of the HDI directly. The measurement technique is the same. The dissaggregation may be considered as an attempt to approximate the "true" HD profile by calculating several HDIs, for example for geographic regions. Although each new HDI is still an average for the respective region, regional differences of human development are becoming by this process apparent. Further disaggregation of each region into rural and urban areas and the disaggregation of urban and rural areas by gender and later by income may improve this approximation process.

**Graphical analysis of HDI profile**

Disaggregated HDI profile is in many examples the hierarchy of regional averages. This implies graphically the rotation of the "vertical HDI profile" in Figure 2. The profile slopes positively after disaggregation. The new rotated HD profile implies inequality of HD among individuals or group of individuals, in this review mainly among regions. Area B1 and B2 in Figure 3 may be considered as the area of inequality of HD, relative to the average.

Figure 3 - not yet available

One may infer easily that the same average value of HD does not necessarily imply the same distribution of HD. Smaller inequality area implies more equal distribution. This is exactly the concern of this study. Closing human development gaps means the improvement of HD by an acceptable or declining area of inequality or the relative decline of area of inequality with respect to the increases in HD, parallel rightward shift

of the profile.

**Disparity Index:**

For quantifying the disparities (inequalities) and their changes over time, an index may be developed. The disparity index (D) may be defined as the percentage of the inequality area (B1+B2) to the HDI=B2+A (Figure 3). An alternative index could be the ratio of B1 to A. The highest value 1 would be achieved, if half of the population in a country has 100% HD and the other half of it has zero HD. Such an extreme situation can only take place, if half of the population in this country has the maximum characteristics in education, health and income and the other half has all the minimum values. It is also required that these maximum and minimum values should be observable averages in third countries. The value of the index drops to zero if the profile line becomes vertical at any level of HD, i.e., if the area of B1 becomes zero.

**An example: Disaggregation by administrative units in China**

An interesting result to start with is the disaggregation of HDI in China according to administrative centers (Zhizhou 1993). There are 30 such departments. Tibet ranks with 0.0228 lower and Shanghai with 0.9848 higher than any country in the world (Table 1). The range of HDI scale is wider than the range calculated for the World in 1993 (HDR). Graph 1 presents the disaggregation results graphically. If we assume the qualitative stages of HD, low, medium and high development we can say that there are two states within China which have high HD, fourteen medium and fourteen low HD.

**Table 1**
**DISAGGREGATED HDI OF CHINA 1982 AND 1990**

|  | Share of Population | HDI 1990 | HDI 1982 |
|---|---|---|---|
| Shanghai | 1.18% | 0.985 | 0.99 |
| Beijing | 0.96% | 0.896 | 0.824 |
| Tianjing | 0.78% | 0.799 | 0.759 |
| Guangdong | 5.56% | 0.698 | 0.609 |
| Liaoning | 3.49% | 0.682 | 0.674 |
| Zhejiang | 3.67% | 0.621 | 0.53 |
| Jiangsu | 5.93% | 0.618 | 0.517 |
| Hainan | 0.58% | 0.586 | - |
| Hebei | 5.40% | 0.571 | 0.548 |
| Heilongjiang | 3.12% | 0.565 | 0.567 |
| Shandong | 7.47% | 0.564 | 0.501 |
| Shanxi | 2.54% | 0.556 | 0.516 |
| Jilin | 2.18% | 0.554 | 0.564 |
| Fujian | 2.66% | 0.544 | 0.449 |
| Guangxi | 3.74% | 0.511 | 0.532 |

| | | | |
|---|---|---|---|
| Henan | 7.57% | 0.511 | 0.469 |
| Hunan | 5.37% | 0.49 | 0.451 |
| Hubei | 4.77% | 0.488 | 0.423 |
| Inner Mongolia | 1.90% | 0.464 | 0.446 |
| Shaanxi | 2.91% | 0.461 | 0.381 |
| Sichuan | 9.48% | 0.454 | 0.357 |
| Xinjiang | 1.34% | 0.448 | 0.31 |
| Jiangxi | 3.34% | 0.445 | 0.414 |
| Anhui | 4.97% | 0.442 | 0.406 |
| Ningxia | 0.41% | 0.425 | 0.337 |
| Gansu | 1.98% | 0.364 | 0.318 |
| Guizhou | 2.87% | 0.312 | 0.199 |
| Yunnan | 3.27% | 0.304 | 0.18 |
| Quinghai | 0.39% | 0.261 | 0.209 |
| Tibet | 0.19% | 0.023 | 0.029 |

Source: C. ZHIZHOU (1994)

The disparity index 1990:
The area to the right of the average line = B1 = 0.042
The area to the left of the average line = A = 0.484
A + B = HDI 0.527

Graph 1: China - not yet available

As the states are not of equal size they are weighted by their share of population. The study on China does not supply itself the national (average) HDI. It can be approximated using the disaggregated data and it is 0.527. The sum of, HDI of each administrative unit multiplied by the respective share of population. The HDR 1993 calculates it as 0.566 and puts China within medium development. The difference between the weighted average and national HDI must be partly due to aggregation problem. The overall, national index cannot be built up in a strictly consistent manner from data about the subgroup index values and population shares only. The average life expectancy at birth and average literacy rate for the national population are not strictly speaking the population weighted averages of life expectancy and literacy at the subgroup level (S.Anand and A.Sen, 1993). However, the weighted average is a useful statistic for the discussion of disparities among subgroups.

The disparity index (D), defined as above is (approximately) 16%. The interpretation has to be done with care: The regional disparities amount in China after regional disaggregation to 16% of its HDI. The study on China indicates to two important insights. First, the regional disparities seem to have their causes in, geographic, historical but also in the consciously designed economic plans of the past. Second, the regional imbalances correspond to ethnic differences: Guangxi Zhuang, Inner-Mongolia, Ningxia Hui, Tibet, Xingiang Uygur autonomous regions, gather people of Zhuang, Mogol, Tibetian, Uygur

nationality. In spite of rapid development, the level of human development in these regions are low.

Is it now possible to consider the disaggregation process by this exercise as completed? Are all disparities captured by this disaggregation? Probably, this was nothing but a first step in disaggregation. Considering also the sizes of the regions in China, which are larger than many countries, it is even premature to claim, that regional disparities at least, have been captured.


**Adjustment versus disaggregation**

The need for distinguishing the HD performance of males and females and of different income groups was felt soon in HDR's. The "adjusted HDIs" were an effort in disaggregation. As long as disaggregation remained at national (average) level, HDR's defined them as "adjusted HDI's". They were thought for international comparison. The adjusted HDI's have no great information on their own. They are quite informative with respect to the previous, unadjusted (average) indexes. It is the deviation of the two indexes which implies policy. Recalling the graphical presentations, adjusting is more or less the same as rotating the horizontal profile. The difference between the two indexes could be considered as an approximation (indexing) about the inequality area of HD.

The alternative pattern is achieved by deepening into various characteristics: the HDI of a urban-female living in region (x) of country (y) employed in the service sector! This procedure is more desirable compared to separately adjusted indexes of gender, urban-rural and occupation differences. How far should disaggregation be deepened? The immediate answer is a pragmatic one. One should go as far as the data allows. Disaggregation of HDI means in the first place disaggreagtion of the components of HDI: life expectancy at birth, yearly income at purchasing power parity, rate of literacy, mean years of schooling of a rural-female living in the region (x) of country (y) employed in the agricultural sector! There is seldom such specialized, official data. Data on education is the most suitable one for disaggregation. Data on life expectancy is available only for demographic units at a relatively large size. Income is the most difficult component to decompose, because we have usually statistics on households income. Especially in subsistence economies, income data for females in agriculture may only be assumed, estimated.

Yet any disaggregation is quite informative. A good example is supplied by the study on Malaysia (Leng 1993). This study offers various adjusted indexes. The study reports the success of the "New Economic Policy" in narrowing the inter-ethnic gaps in Malaysia and calculates the ethnicity-adjusted HDI for Chinese 12.9 percent higher than the national HDI (0.790 in HDR 1993 but 0.845 in this new study) while the Malayans and Indians are lower by 8.0% and 5.8% respectively. The impact of a deepening can be visualized. The difference of rural-urban, male-female differences will put some part of the population to the right of the average line of the Chinese average, some to the left of it. The same is true for Malayans and Indians. The index will fall below the minimum

index given by ethnical differences. The study (Leng 1993) concludes: "in Malaysia more attention should be devoted to gender, rural-urban disparities", probably because these indexes are lower then ethnicity-adjusted indexes.

**Table 2**
**MALAYSIA: ADJUSTED HUMAN DEVELOPMENT INDEXES**

| | |
|---|---|
| Unadjusted HDI (1994) | 0.845 |
| Income Distribution-Adjusted HDI | 0.679 |
| Gender Disparity-Adjusted HDI | 0.725 |
| Rural-Urban Disparity-Adjusted HDI | 0.645 |
| Ethnicity-Adjusted HDI | |
| -Malays | 0.777 |
| -Chinese | 0.954 |
| -Indians | 0.796 |

Source: Y.K. LENG, T. AZIZ (1993)

The study on Gabon (Obame 1993) calculates three pairs of disaggregated and one national average HDI. HDIs for three ethnic groups range from 0.483 to 0.580. The urban-rural differences are also not high 0.544 and 0.437. The national average HDI is 0.519. As the highest index (0.580) deviates from the average-line stronger than the minimum index (0.483), one tends to assume that the larger share of population is probably below the average. Exact analysis requires population data by disaggregated index. Still, Gabon seems to be with respect to HD one the most homogeneous societies among all countries, considered in this review, however, at a low level of development.

**Table 3**
**DISAGGREGATED HDI OF GABON 1993**

| GABON | |
|---|---|
| | |
| Overall | HDI: 0.519 |
| | |
| Urban | HDI: O.544 |
| Rural | HDI: 0.437 |
| | |
| Male | HDI: 0.538 |
| Female | HDI: 0.5 |
| | |
| HDI by major ethnic groups | |
| -Fang | 0.58 |
| -Nzabi-Duma | 0.483 |
| -Shira-Panu | 0.523 |

J.C. OBAME (1993)

The range of gender, region, income and occupational disparities give an indication which sequence deepening should follow, if the aim is to analyze disparities. On the other hand, the widest range between any of these indexes if they are unadjusted, give a rough picture of the HDI profile without detailed calculations but if corresponding population shares are provided.

Figure 4 - not yet available
Figure 5 - not yet available
Figure 6 - not yet available

**Closing the Gaps**

The rightward shift of the disaggregated HDI profile shows how gaps, disparities are closed or widened. Three (hypothetical) different patterns may be identified, if we disregard a fall in overall HD (leftward shift). The profile may shift parallel as in Figure 4. The new profile may exhibit a less steep slope than before, as in Figure 5 and the new profile may become steeper as in Figure 6.

The parallel shift implies that the existing disparities are unchanged but relative to the increase in HD they have become now less important. If the rightward shift of the profile ends up by a less steep slope, as in Figure 5, it means increase in disparities or new increasing disparities and progress in HD, i.e., relative decline of these disparities. It is the relative strength of these two opposing effects which will then decide about the final outcome. Figure 6 shows the last possible pattern, a rightward shift of the profile by steepening the profile. This shows both an improvement of HD and its distribution. This is probably the most desirable pattern for "closing the gaps". The study on Nigeria (Adamu 1993) enables such an analysis, Graph 2. The graph has been presented under the assumption of unchanged percentage distribution of population among states in 1970 and 1990. As one can recognize by the shift of vertical lines (national averages) HDI has increased in Nigeria from 0.210 to 0.246 in twenty years. Yet, the distribution of HD profile to the left of the new average is parallel, almost unchanged. The area of inequality is both in 1970 and 1990 the same, 0.13. However, if one calculates the disparity indexes for both 1970 and 1990, one notices the relative decline from 0.62% to 0.53%. It is mainly the decline of HD in Lagos, from 0.744 to 0.441, which has caused a (relative) decline in disparities. Closing the gap by a downward shift of the profile is probably not a desirable pattern! Besides, Nigeria exhibits highest disparity indexes measured in this study.

Graph 2: Nigeria - not yet available

The HDI in Nigeria shows also a beautiful geographic pattern. The index takes the highest value at the South, coastal regions (0.592) and decreases further into the rain forests. The decline continues further into in Guinea Savannas and takes the minimum in the Sahel region (0.037) further North. This geographic pattern coincides with the

distribution of different ethnic and religious groups. The study reports 200 different ethnic groups and continued increase in the number of administrative units (states). A similar analysis can be performed for China. Comparing the HD profile distributions in China between 1990 and 1982 one may notice that China was able to transform about 27-30 percent of its population from low level into medium level of HD (Graph 3). However, the area of (regional) inequality drops in between eight years only from 0.096 to 0.086. This is a good example for the first pattern. The profile shifts rightward, however, regional disparities remain, but their relative importance decreases as the disparity index shows. The index value is in 1982 22% and it decreases in 1990 to 16%.

Graph 3: China - not yet available
**Table 4**
**DISAGGREGATED HDI OF NIGERIA 1970 AND 1990**

| Region | Share of Population | HDI 1990 | HDI 1970 |
|--------|--------------------|----------|----------|
| Bendel | 5.43% | 5.592 | 0.432 |
| Rivers | 4.58% | 0.506 | 0.313 |
| Cross Rivers | 4.85% | 0.482 | 0.381 |
| Lagos | 6.39% | 0.441 | 0.744 |
| Imo | 5.49% | 0.438 | 0.301 |
| Ogun | 2.69% | 0.235 | 0.216 |
| Ondo | 4.46% | 0.223 | 0.176 |
| Oyo | 6.54% | 0.204 | 0.167 |
| Gongola | 4.14% | 0.201 | 0.143 |
| Plateau | 3.77% | 0.197 | 0.106 |
| Niger | 3.32% | 0.179 | 0.152 |
| Benue | 4.68% | 0.177 | 0.080 |
| Kwara | 2.77% | 0.172 | 0.135 |
| Anambra | 6.81% | 0.163 | 0.164 |
| Kano | 9.72% | 0.151 | 0.122 |
| Bauchi | 4.93% | 0.133 | 0.037 |
| Sokota | 7.42% | 0.106 | 0.132 |
| Kaduna | 9.01% | 0.097 | 0.070 |
| Borno | 2.98% | 0.053 | 0.040 |

Source: Adamu (1993)

1990:
Area to the right of the average line $= B = 0.065$
Area to the left of the average line $= A = 0.181$
$A + B = HDI = 0.246$
1970: Area to the right of the average line $= B = 0.065$
Area to the left of the average line $= A = 0.145$
$A + B = HDI = 0.210$

**The choice of maximum and minimum values**

The choice of maximum and minimum values is especially important with respect to intertemporal comparisons as it was discussed in the preceding chapter. The last HDR (1994) has resolved this problem to certain extent by fixing the maximum and minimum values internationally. Yet, it is still a question for disaggregation purposes to choose those fixed values or not? If disaggregated indexes are calculated by those fixed values they become internationally comparable also in time. The choice of domestic maximum and minimum values make the disparities within the country much more explicit. One should also notice that this choice is in many cases not neutral with respect to the ranking of disaggregated units.

The study on Poland (Mijakowska 1993) calculates HDI's for 49 administrative units "voivodaships" in Poland. The indexes range from 0.739 to 0.916. Twenty one of them are at medium level and twenty eight of them at high HD. Weighting by population one may say that seventy four percent enjoy high HD and twenty six percent medium level of HD. However, the development in time seems to be moving into the opposite direction. Poland as a country in transition looses ranks in HD, most probably due to losses in GDP.

The data in Poland's analysis allows the calculation of the disaggregated indexes by changing the maximum and minimum values into the "domestic" ones. Both results are presented in Graph 4. Theuse of maximum and minimum values of HDR produces smaller deviations among the "voivodaships". The area of inequality amounts by the standard method to 0.046 and by the use of local minimum and maximum values to 0.108. The disparity index increases from 5.4% to 19%.

Graph 4: Poland - not available
**Table 5**
**DISAGGREGATED HDI OF POLAND 1990**

| Voivodeships | Share of Population | HDI 1990 | HDI 1990* |
|---|---|---|---|
| 1. St.Warszawskie | 6.39% | 0.915 | 0.817 |
| 2. Krakowskie | 3.23% | 0.901 | 0.813 |
| 3. Gdanskie | 3.73% | 0.895 | 0.729 |
| 4. Poznanskie | 3.48% | 0.894 | 0.730 |
| 5. Bielskie | 2.36% | 0.890 | 0.759 |
| 6. Rzeszowskie | 1.88% | 0.886 | 0.805 |
| 7. Legnickie | 1.34% | 0.885 | 0.629 |
| 8. Radomskie | 1.97% | 0.882 | 0.629 |
| 9. Lodzkie | 3.02% | 0.882 | 0.582 |
| 10. Katowickie | 10.41% | 0.883 | 0.600 |
| 11. Zielonogorskie | 1.73% | 0.880 | 0.605 |
| 12. Bialostockie | 1.81% | 0.879 | 0.691 |
| 13. Plockie | 1.36% | 0.872 | 0.562 |
| 14. Lubelskie | 2.66% | 0.859 | 0.678 |
| 15. Szczecinskie | 2.54% | 0.852 | 0.528 |
| 16. Opolskie | 2.67% | 0.847 | 0.573 |
| 17. Jeleniogorskie | 1.36% | 0.846 | 0.500 |

| | | | |
|---|---|---|---|
| 18. Bydgoskie | 2.91% | 0.836 | 0.579 |
| 19. Wroclawskie | 2.96% | 0.835 | 0.583 |
| 20. Piotrkowskie | 1.69% | 0.831 | 0.523 |
| 21. Torunskie | 1.73% | 0.829 | 0.543 |
| 22. Tranobrzeskie | 1.57% | 0.829 | 0.605 |
| 23. Gorzowskie | 1.31% | 0.811 | 0.438 |
| 24. Walbrzyskie | 1.95% | 0.808 | 0.423 |
| 25. Olsztynskie | 1.96% | 0.807 | 0.481 |
| 26. Koszalinskie | 1.32% | 0.805 | 0.427 |
| 27. Czestochowskie | 2.05% | 0.802 | 0.457 |
| 28. Kieleckie | 2.97% | 0.802 | 0.496 |
| 29. Krosnienskie | 1.29% | 0.799 | 0.582 |
| 30. Elblaskie | 1.25% | 0.797 | 0.461 |
| 31. Tarnowskie | 1.75% | 0.797 | 0.588 |
| 32. Kaliskie | 1.86% | 0.797 | 0.511 |
| 33. Slupskie | 1.08% | 0.789 | 0.400 |
| 34. Skierniewickie | 1.10% | 0.779 | 0.429 |
| 35. Koninskie | 1.23% | 0.772 | 0.403 |
| 36. Pilskie | 1.25% | 0.770 | 0.393 |
| 37. Wloclawskie | 1.13% | 0.769 | 0.358 |
| 38. Leszczynskie | 1.01% | 0.770 | 0.477 |
| 39. Sieradzkie | 1.08% | 0.767 | 0.403 |
| 40. Chelmskie | 0.65% | 0.765 | 0.401 |
| 41. Suwalskie | 1.23% | 0.758 | 0.382 |
| 42. Nowosadeckie | 1.81% | 0.757 | 0.464 |
| 43. Bialskopodlaskie | 0.80% | 0.754 | 0.423 |
| 44. Zamojskie | 1.29% | 0.753 | 0.406 |
| 45. Przamyskie | 1.07% | 0.753 | 0.386 |
| 46. Lomzynskie | 0.91 | 0.753 | 0.431 |
| 47. Siedleckie | 1.71% | 0.752 | 0.428 |
| 48. Ciechanowskie | 1.12% | 0.75 | 0.334 |
| 49. Ostroleckie | 1.04% | 0.738 | 0.294 |

HDI = 0.840, Area to the right of the average line  = 0.0228
* HDI by national maximum and minimum values.
HDI = 0.57574, Area to the right of the average line = 0.054328

**Disaggregated HDI: policy formation and monitoring**

It is probably quite difficult to develop short term policy advice by the help of HDI alone.
Education and health components of the index may change only gradually. The short
term responsiveness of the index is only due to economic-income changes, that
component whose role the concept of HD wanted to limit. All HDR's have presented
altered ranks of nations according to their HDI's year by year, however, this was mainly

because of methodological changes. Once the data and method stabilizes the ranks will also become quite stable. Limited jumps and falls from one year to another will be observed only due to economic fluctuations. Under these circumstances the policy implications will be deduced from international comparisons. The derived advice will be mainly medium and long term policy. Disaggregated HDIs may be in this respect more stimulating. The disaggregated HDI's will probably imply also medium and long term policy, however, the local interests and responsiveness of local politicians will be higher to internal comparisons, competition than to international ones.

Based on available empirical studies and analysis it may be early to make generalizations about the link between disaggregation of HDI and closing the existing gaps. As the preceding chapters above indicate, HDI profile may be used as a measurement tool of disparities. Does this measurement imply also a policy?

The regionally disaggregated HDIs enable the ranking of all available social and economic data according to the hierarchy of HD. The implied polices may be derived out of this ranking. It is the simplest method of analysis for closing the gaps, which we already know from the HDRs. The dimensions of HD, their measurement and the HDI's have been presented always on the same tables. The HDIs served for ranking of the countries but the operational aspects were searched out of the components of the index. One may recall the title page of the first HDR. The rank difference between HDI and GNP has been a starting point for identifying good performing countries. The disaggregation studies on China, Nigeria and Poland have attempted to produce similar data base.

One may infer also some policies out of the hypothetical cases in Figures 4 to 6. There may be policies which may have their strength in increasing the general level of HD and there may be also some policies which might effect the distribution of HD and less its level. Policies related to regional equity and social integration seem to be of this type.

The disaggregated HDI may also stimulate the dialogue on aid policy. Instead of countries, regions or groups in need may be identified and followed up the the help of disaggregated HDI's.


**Level of human development and disparities:**

All these imply a link between level of HD and disparities. This link may be discussed as far as available studies allow. At low levels of human development, the disaggregated HDI will most probably point to all possible problems. By definition desirable features are very low, so the variations in regions, ethnical groups, rural and urban groups, income classes and gender need not to be so high. Yet, the amount of variation with respect to achieved HD indicates to very high disparities. The highest disparities are measured in the lowest developed countries.

In this respect one may ask a different type of question. Which problem looses most probably its relative importance as a country passes from low to medium development level? It is an interdependent health-education problem which dominate all others at low levels of development and it seems to be that disparities due to education continue to be a main cause of disparities at medium level of development.

Graph 5: INDIA - not yet available

**Table 6**
**DISAGGREGATED HDI OF INDIA**

| States | HDI(1) | HDI(2) | HDI(3) | HDI(4) | Share of Pop. |
|---|---|---|---|---|---|
| Uttar Pradesh | 0.244 | 0.292 | 0.11 | 0.53 | 16,88% |
| Bihar | 0.258 | 0.306 | 0.147 | 0.503 | 10.48% |
| Madhya Pradesh | 0.297 | 0.344 | 0.196 | 0.543 | 8.03% |
| Rajasthan | 0.299 | 0.347 | 0.246 | 0.565 | 5.34% |
| Orissa | 0.3 | 0.348 | 0.224 | 0.529 | 3.84% |
| Assam | 0.324 | 0.372 | 0.256 | 0.608 | 2.72% |
| Jamu&Kashmir | 0.333 | | | | 0.94% |
| Andhra Pradesh | 0.349 | 0.397 | 0.361 | 0.589 | 8.07% |
| Himachal Pradesh | 0.413 | | | | 0.63% |
| Gujarat | 0.417 | 0.465 | 0.566 | 0.678 | 5.01% |
| West Bengal | 0.418 | 0.467 | 0.436 | 0.641 | 8.26% |
| Karnataka | 0.427 | 0.475 | 0.502 | 0.639 | 5.46% |
| Tamil Nadu | 0.436 | 0.483 | 0.508 | 0.652 | 6.78% |
| Haryana | 0.467 | 0.514 | 0.624 | 0.724 | 2.00% |
| Maharasthra | 0.484 | 0.532 | 0.655 | 0.711 | 9.58% |
| Punjap | 0.538 | 0.586 | 0.744 | 0.793 | 2.46% |
| Kerala | 0.603 | 0.651 | 0.775 | 0.769 | 3.53% |

Source: (1) A.K.S.KUMAR (1990), (2) A.K.S.KUMAR (1991), (3) J.B.G. TILAK (1991), (4) S.P.PAL & D.K.PANT (1994)

The HDI profile presented in Graph 5 above is derived from the first and last columns of Table 6. India is a good example for the discussion of the stated purpose above. Besides there are good studies available on India. Another suitable example for low level development is Nigeria, which has been already analyzed. Disaggregated HDI's have been calculated after the first HDR just for Turkey and India (AKDER 1990 and KUMAR 1990). Several Indian academicians have seriously elaborated on this index. As Table 6 reveals there have been also several attempts to calculate the disaggregated index for India by different methods. The first two columns are calculated by the same author. The first column is more complete. Graph 5 has been drawn by those results.

Two features are common almost to all calculations, the ranking of states do not change drastically; although the values change by different methods of calculation, the range does not change very much, except in the third column.

Graph 5 may be compared to Graph 1. The comparison is only justified from methodological point of view. The indexes of both countries are calculated by different methods and for different time periods. As the graphical presentations indicate, the variation of HDI's on Graph 1 is markedly wider, yet the disparity index is larger for Graph 5. Area B is the same for both graphs, yet deprivation is larger in Graph 5. The disparity index in India amounts to 24%, while it was 16% in China.