

**TABLE 3: POPULATION INCREASE BY LOCALITIES.**

Locality	1952/54*	1981	Absolute Increase	Percentile Increase
1. Kathmandu	106,579	235,211	128,632	120.6
2. Biratnagar	8,030	93,889	85,859	1,069.2
3. Lalitpur	42,183	30,909	38,726	91.8
4. Bhaktapur	32,118	50,468	18,360	57.1
5. Pokhara	3,755	48,456	44,701	1,190.4 (1290.4)
6. Birganj	9,061	45,880	36,819	406.3
7. Dharan	4,398	42,696	38,298	870.8
8. Janakpur	6,965	35,248	28,283	406.0
9. Nepalganj	10,813	33,935	23,122	213.8
10. Hetauda	189	32,104	31,915	16,886.2
11. Siddhartha Nagar	1,154	30,084	28,930	2,506.9
12. Bharatpur	91	26,675	26,584	29,213.1
13. Dhangarhi	530	26,058	25,538	4,814.4
14. Butwal	2,597	22,882	20,285	781.0
15. Tribhuvan Nagar	859	19,271	18,412	2,143.4
16. Rajbiraj	2,376	16,319	13,943	586.4
17. Bhadrapur	1,478	14,890	13,412	907.4
18. Lahan	1,777	12,923	11,146	627.2
19. Tansen	4,705	12,119	7,414	157.5
20. Ilam	920	9,354	8,434	916.7

\* Statistics Department, 1957, Appendix II, P. 2-10.

TABLE 4 : CHANGES IN REGIONAL SHARE OF POPULATION

Region	1971	1981	Change
I. Eastern Mountain	3.8 (8.4)	3.2 (7.0)	-0.6 (-1.4)
II. Eastern Hill	14.0 (30.7)	12.1 (26.3)	-1.9 (-4.4)
III. Eastern Inner Tarai	2.2 (5.0)	2.3 (5.0)	+0.1 (0)
IV. Eastern Tarai	26.4 (55.7)	28.2 (61.5)	+2.8 (+5.8)
<b>A. KOSI SECTOR</b>	<b>45.6 (100.0)</b>	<b>45.9 (100.0)</b>	<b>+0.3</b>
V. Kathmandu Valley	5.2	5.1	-0.1
VI. Central Mountain	0.4 (1.7)	0.3 (1.1)	-0.1 (-0.6)
VII. Central Hill	18.7 (67.5)	17.2 (63.2)	-1.5 (-4.5)
VIII. Central Inner Tarai	3.0 (11.0)	3.3 (12.1)	+0.3 (+1.1)
IX. Central Tarai	5.4 (19.7)	6.3 (23.3)	+0.9 (+3.6)
<b>B. GANDAKI SECTOR</b>	<b>27.7 (100.0)</b>	<b>17.3 (100.0)</b>	<b>-0.4</b>
X. Western Mountain	3.9 (18.3)	3.4 (16.0)	-0.5 (-1.7)
XI. Western Hill	11.1 (52.0)	9.8 (45.2)	-1.3 (-6.8)
XII. Western Inner Tarai	2.5 (11.8)	2.8 (13.2)	+0.3 (+1.4)
XIII. Western Tarai	3.7 (17.7)	5.5 (25.4)	+1.8 (+7.7)
<b>C. KARNALI SECTOR</b>	<b>21.3 (100.0)</b>	<b>21.7 (100.0)</b>	<b>+0.4</b>
<b>NEPAL</b>	<b>100.0</b>	<b>100.0</b>	

Note: The figures in parentheses denote regional percentages within respective sectors.

TABLE 5 : REGIONAL DISTRIBUTION AND CHANGE

	1971	%	1981	%	Absolute Change	Percentile Change
I. Eastern Mountains	447,460	3.87	484,335	3.21	36,875	8.2
II. Central Mountain	56,623	0.48	48,374	0.32	-8,249	-14.6
III. Western Mountain	452,197	3.19	525,560	3.49	73,363	16.2
<b>A. MOUNTAIN TOTAL</b>	<b>956,280</b>	<b>8.27</b>	<b>1,058,269</b>	<b>7.04</b>	<b>101,989</b>	<b>10.7</b>
IV. Eastern Hill	1,621,211	14.02	1,819,152	12.11	197,941	12.20
V. Central Hill	2,168,341	18.76	2,595,824	17.28	427,483	19.71
VI. Western Hill	1,283,340	11.10	1,477,276	9.83	193,936	15.11
<b>B. HILL TOTAL</b>	<b>5,072,892</b>	<b>43.89</b>	<b>5,892,252</b>	<b>39.22</b>	<b>819,460</b>	<b>16.74</b>
<b>MOUNTAIN &amp; HILL</b>	<b>6,029,172</b>	<b>52.17</b>	<b>6,950,521</b>	<b>46.27</b>	<b>921,349</b>	<b>15.28</b>
VII. Kathmandu Valley	607,561	5.25	766,820	5.10	159,259	26.2
<b>I-VII. TOTAL</b>	<b>6,636,733</b>	<b>57.43</b>	<b>7,717,341</b>	<b>51.37</b>	<b>1,080,608</b>	<b>16.28</b>
VIII. Eastern Inner Tarai	264,360	2.28	347,545	2.31	83,185	31.46
IX. Central Inner Tarai	353,414	3.05	499,316	3.32	145,902	41.28
X. Western Inner Tarai	291,386	2.52	431,913	2.87	140,527	48.22
<b>C. INNER TARAI TOTAL</b>	<b>909,160</b>	<b>7.86</b>	<b>1,278,774</b>	<b>1.51</b>	<b>369,614</b>	<b>40.65</b>
XI. Eastern Tarai	2,942,836	25.46	4,246,446	28.27	1,303,610	37.86
XII. Central Tarai	632,593	5.47	959,177	6.38	326,584	51.62
XIII. Western Tarai	438,174	3.79	830,303	5.52	392,129	141.06
<b>D. TARAI TOTAL</b>	<b>4,013,603</b>	<b>34.72</b>	<b>6,035,926</b>	<b>38.29</b>	<b>2,022,323</b>	<b>50.31</b>
<b>INNER TARAI &amp; TARAI</b>	<b>4,922,763</b>	<b>46.92</b>	<b>7,030,891</b>	<b>46.80</b>	<b>2,391,937</b>	<b>48.58</b>
<b>NEPAL</b>	<b>11,555,983</b>	<b>100.00</b>	<b>15,020,451</b>	<b>100.00</b>	<b>3,464,468</b>	<b>29.97</b>

**TABLE 6. CHANGE IN REGIONAL DENSITY OF POPULATION**

	Area Km <sup>2</sup>	Percent of Total Area	Persons Km <sup>2</sup> 1971	Persons Km <sup>2</sup> 1981	
I. Eastern Mountain and Hill	26,352.52	18.09	78.49	87.41	
II. Central Mountain and Hill	29,893.15	20.53	74.43	88.45	
III. Western Mountain and Hill	47,112.31	32.35	27.24	42.51	
<b>MOUNTAIN &amp; HILL TOTAL</b>		<b>103,357.98</b>	<b>70.99</b>	<b>58.33</b>	<b>67.24</b>
IV. Kathmandu Valley	1,074.13	0.73	565.63	713.89	
V. Eastern Inner Terai	4,765.03	3.27	55.47	72.93	
VI. Central Inner Terai	4,750.68	3.26	74.39	105.10	
VII. Western Inner Terai	5,904.37	4.05	49.35	73.15	
<b>INNER TERAJ TOTAL</b>		<b>15,420.08</b>	<b>10.59</b>	<b>58.95</b>	<b>82.92</b>
VIII. Eastern Terai	13,864.27	9.52	212.26	306.28	
IX. Central Terai	3,978.24	2.73	159.01	241.10	
X. Western Terai	7,896.81	5.42	55.48	105.14	
<b>TERAJ TOTAL</b>		<b>25,739.32</b>	<b>17.67</b>	<b>155.94</b>	<b>223.47</b>
<b>NEPAL</b>		<b>145,591.51</b>	<b>100.00</b>	<b>79.37</b>	<b>103.19</b>

## **Perception of Human Settlement by Planners and Engineers\***

-Shue Tuck Wong\*\*

### **Introduction**

It is four years now since the U. N. Habitat Conference was convened in Vancouver. During this interim, a number of developments took place. One of these was the establishment of a U. N. Center for Human Settlements in Nairobi, Kenya. Another was the creation of a U. N. Audio Visual Information Center on Human Settlements at the University of British Columbia. Hand in hand with this was the creation of a Center for Human Settlements within the U.B.C. Faculty of Graduate Studies to advance the aims of Habitat. Almost overnight, human settlements planning has suddenly emerged as a lively discipline and human settlements development has become a degree program in development education.<sup>1</sup> The establishment of the

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1. S. T. Wong, Human Settlements Planning and Development Education in the Asian Region, paper presented to the session in "Education for Development" at the Ninth Annual (first International) Conference of the Canadian Council for Southeast Asian Studies, held in Vancouver, B. C., November 9-11, 1979.

Human Settlements Development program at the Asian Institute of Technology in Thailand is clearly a manifestation of the importance which human settlements planning can play in the development process of the Asian region.

Concomitant with the establishment of human settlements centers and programs, numerous conferences seminars, workshops and regional meetings have been held where many human settlements issues have been raised and discussed<sup>2</sup> Despite these meetings and discussion, little has been done as to what issues are most important and what priority they should be given for policy implementation and management in a human settlements development program.

### Objectives of Study

The purposes of this paper are threefold: (1) To examine the degree of awareness which planners and engineers have of the importance of human settlements issues; (2) to test the hypothesis as to whether a knowledge of geography has any influence on a planner's or an engineer's perception<sup>3</sup> of the importance of human settlements issues, and (3) to determine the degree of accordance which planners and engineers have on the priority of importance of human settlements issues for policy implementation.

### Sources of data

The data for this study came from a survey which was undertaken by the author in March 1979 when he was affiliated with the Human Settlements Development (HSD) Program at the Asian Insti-

2. K. Battedahl, Human Settlements Issues: Post-Habitat Developments, Paper presented to the Workshop on Human Settlements Issues at the Ninth Annual ( First International ) Conference of the Canadian Council for Southeast Asian Studies, Held in Vancouver B. C., November 9-11, 1979.
3. *Perception* here is defined as the degree of awareness which a planner or an engineer has in the rank rodering of the importance of a human settlement issue. A *human settlement issue* is used to refer to any human or environmental problem that requires action for policy implementation.

tute of Technology (AIT). The survey was conducted in connection with his effort to evaluate student and faculty awarenees of geography and human settlements planning in an Asian post graduate engineering institute.<sup>4</sup>

A sample of about twenty percent was taken at AIT. This consisted of 86 respondents or subjects which were made up of 43 planners and 43 engineers. Of the 43 planners, 35 of them were human settlements planning students from the HSD division and 8 of them were faculty members from the same division. The 43 engineers included 35 engineering students from seven engineering divisions (5 from each division) and 7 division chairmen and 1 chairman (whose division was in the process of being established). The seven engineering division were: Agricultural and Food Engineering (AFE), Computer Applications (CA), Environmental Engineering (ENV), Geotechnical and Transportation Engineering (GEOT), Industrial Engineering (IE), Structural Engineering (STR), and Water Resources Engineering (WR). For convenience planners and engineers are sometimes referred to as HSD and Non-HSD groups respectively.

In terms of geographic distribution, the 86 respondents covered a range of some 23 nationalities both from the Asian region and from the developed countries of North America, Europe and Australia.

As regards to the human settlements issues, ten were selected from U. N seminar and discussion papers on human settlements problems and from Master's theses of the HSD division. Of these ten issues, four were environmental, three social and three economic. The ten issues were:

- A) Population growth and housing needs
- B) Urbanization in the Third World
- C) Regional disparities and inequalities
- D) Deterioration of the urban environment
- E) Rural infrastructures and economic development
- F) Migration, unemployment and rural indebtedness
- G) Education, health and welfare in developing countries

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4. S. T. Wong, *Geography and Human Settlements Planning*, Inaugural Lecture, Asian Institute of Technology, Bangkok, Thailand, 1979.

- H) Rural water consumption and supply management
- I ) Responsiveness to peoples' needs in resettlement
- J ) Improving the quality of life of the rural and urban poor

One will note that these issues are all highly interrelated with one another. They are deliberately jumbled up so that they all appeared to be equally important. Subjects or respondents were asked to rank these issues from 1 to 10 according to order of importance as they preferred or perceived them, i.e., which issues are the most pressing problems that should be dealt with.

In this exercise there are no right or wrong answers. However if people are logical, sensitive and aware of what is going on in the world they will concur and agree with one another on the priority of importance of those issues they have rank ordered. If they perceive the same importance in the issues which others perceive, then there will be a high degree of concordance shown. Conversely, if the reverse happens, i.e., if they do not perceive the same importance as others do, then a high degree of discordance shows up. The latter may be a reflection of illogical rank ordering, unawareness of the importance of the issues or the individualistic idiosyncracies of that person or that group.

#### Methods of Analysis

Three types of statistics are used to measure the degree of correlation and concordance of the planners and engineers in their perception of the importance of human settlement issues.<sup>5</sup> They are: Spearman's rank correlation coefficient, ( $\rho$ ), Kendall's coefficient of concordance, and the chi-square test, ( $\chi^2$ ).

Spearman's rank correlation coefficient ( $\rho$ ), is a measure which shows the degree of agreement or disagreement between the ranking on two sets of scores. The rank correlation coefficient has a

5. K. A. Yeomans, *Statistics for the Social Scientist: 2 Applied Statistics* ( Harmondsworth, London: Penguin Books Ltd., 1968 )



value between +1 and -1. When the value is +1, it means that the ranking are in perfect agreement; When it is -1, it signifies perfect disagreement. A zero means no relationship exists whatsoever.

Kendall's coefficient of concordance is also a measure of agreement or disagreement except that it is used only when rankings on three or more sets of scores are compared. The coefficient is usually signified by the symbol, W.

The significance of W is usually verified by the Chi-square test<sup>6</sup> which is an association measure obtained by taking the square of the difference between the observed and expected frequencies and dividing the figure by its expected value. The larger the difference between the observed and the expected frequencies, the larger is the value of the Chi square. When the observed and expected frequencies are identical, the Chi-square value will be zero.

#### Perception of Human Settlements Issues by AIT Planners and Engineers

Table 1 shows the perception of human settlements issues by AIT human settlements planning and engineering students. The two groups are sub divided into those who had no geography and those who had some. The reason for doing this is to ascertain whether no knowledge of geography or some knowledge of it in high school and collage has any influence on a student's rank ordering of the importance of human settlements issues. If there was no influence, i. e., a student's rank ordering of the issues was independent of whether he had any geography or not, then there would be a high degree of agreement between those who had some geography within the planning group. If some knowledge of geography had any influence on the rank ordering by a student, then the degree of agreement between those who had no geography and those who had some geography would be low or discordant.

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6. The formula for this test is:  $X^2 = \sum \frac{(O - E)^2}{E}$  where O is the observed frequency E is the corresponding expected frequency.

Table 1. Perception of Human Settlements Issues by AIT human Settlements Planning and Engineering students

Human Settlement Issues	HSD Student Who		Non-HSD Student who	
	Had No Geography	Had Some Geography	Had No Geography	Had Some Geography
A	2	3	1	2
B	7	9	9	8
C	5	6	5	7
D	9.5	10	8	9
E	4	2	4	5
F	1	4	6	4
G	6	5	3	1
H	9.5	8	7	6
I	8	7	10	10
J	3	1	2	3

Two sets of Spearman rank correlations were performed to test the foregoing hypothesis. The first set was run for two groups, namely, (1) within the Human Settlements Development (HSD) Division for those who had no geography vs. those who had some geography; (2) within the Non-HSD (or Engineering) Divisions for those who had no geography vs. those who had some geography. The second set was correlated between the HSD (Planning) and Non-HSD (Engineering) groups for different combinations between those who had some geography. The results of these rank correlations are given in Table 2.

The rank correlations within the HSD and Non-HSD groups for those who had no geography vs. those who had some geography were very high for both the groups. These results show that regardless of whether a student had no geography or had some geography, there was a very high degree of agreement with both groups in the perception of the importance of the settlements issues. They therefore support and verify the hypothesis that perception of the importance of human settlements issues was independent of whether one had any geography or not.

Table 2. Summary of Rank Correlations in the Perceptions of Human Settlements Issues by AIT Human settlements Planning and Engineering Students.

Rank Correlations Within HSD and Non-HSD Groups:		p
1.	HSD students who had no geography vs. HSD students who had some geography	0.8333
2.	Non-HSD students who had no geography vs. Non-HSD students who had some geography	0.8909
Rank Correlations Between the HSD and Non-HSD Groups:		
1.	HSD students who had no geography vs. Non-HSD students who had no geography	0.6818
2.	HSD students who had no geography vs. Non-HSD Student who had some geography	0.6575
3.	HSD students who have some geography vs. Non-HSD students who had no geography	0.8061
4.	HSD students who had some geography vs. Non HSD students who had some geography	0.7211

The result of the rank correlations between the HSD and Non-HSD groups however are slightly different. When the p of the HSD students who had no geography vs. the Non-HSD students who had no geography is compared with the p of the HSD students who had some geography vs. the Non-HSD students who had some geography, the latter shows a much higher degree of agreement in the perception of the issues than the former. This might suggest that students who had some geography tend to agree with one another better than those who had no geography at all. But it does not mean that those who had some geography are necessarily more perceptive than those who had no geography. Those who had some geography can be equally agreeable as those who had no geography as is shown by the rank correlation between the students who had some geography vs. the Non-HSD students who had no geography. As a matter of fact, the p of the latter is even higher than that of the p between the HSD students who had some geography vs. the Non-HSD students had some geography.

It must be stressed that in all the rank correlations of the perceptions of human settlements issues, the p's within student groups are considerably higher than those between student groups. Although the degree of agreement in the perception of the issues between the HSD and Non-HSD groups is significant, the p's however are slightly lower than those within groups. Homogeneity in background and common concern in the perception of the issues are probably the major influences that led to the high degree of agreement among the HSD and Non-HSD student groups.

The coefficient of concordance for the four groups (See Table 1) among HSD and Non-HSD students is  $W = 0.8223$  with a  $X^2$  calc. of  $29.6045 > X^2_{0.001}$  (with  $10-1 = 9$  degrees of freedom) = 27.877. This degree of concordance is very high.

When those who had no geography were combined with those who had some geography for both the HSD and Non-HSD student groups and correlated with each other, a p of 0.6848 was yielded. This was significant at the 0.05 level which seems to be consistent with the p's between the HSD and Non-HSD student groups for those who had no geography vs. those who had some geography.

#### Comparison In The Perception Of Human Settlements Issues Among Divisions

We come now to the comparison in the perception of human settlements issues among divisions between students and their faculty. The comparison consists of four groups: 1) HSD students, 2) HSD faculty, 3) Non-HSD students and 4) Non-HSD faculty.

Table 3 shows the perception of the importance of human settlements issues between the HSD and Non-HSD divisions. Notice the close relationship of the rank scores between HSD students and their faculty numbers. A rank correlation of this yielded a p of 0.8667 which is significant beyond the 0.01 level. Both the human settlements planning students and their faculty members perceive improving the quality of life of the rural and urban poor ( Issue J ) as the most important issue.

Table 3. Comparison in the Perception of Human Settlements Issues  
Between HSD and Non-HSD Divisions

HS Issues	HSD Students	HSD Faculty	Non-HSD Students	Non-HSD Faculty	Rank Score	Final Rank
A	4	5	2	3	14	4
B	9	7	10	7	33	8
C	5	4	6	8	23	6
D	10	8	8	9	35	9
E	3	2	5	2	12	2
F	2	3	4	4	13	3
G	6	6	1	6	19	5
H	8	9	7	5	29	7
I	7	10	9	10	36	10
J	1	1	3	1	6	1

As for the second and third important issues, the HSD students feel migration, unemployment and rural indebtedness (Issue F) were more pressing problems to deal with than rural infrastructures and economic development (Issue E). The HSD faculty members perceived these two issues just the other way around, putting more emphasis on rural infrastructures and economic development (Issue E) than on migration, unemployment and rural indebtedness (Issue F).

Between the engineering or Non-HSD students and their faculty members, the latter has a much higher degree of concordance in their perception of the importance of the human settlements issues with the human settlements planners than with their own students. These are evident in Table 4 which summarizes the rank correlations between the HSD vs. Non-HSD divisions.

Except for the rank correlation between HSD faculty vs. Non-HSD students, the  $p$ 's are fairly high. The highest degree of agreement in the perception of human settlements issues is that shown by the HSD students and their faculty members. This correlation, however, is not surprising since they are a homogeneous group of human settlements planners !

Table 4. Summary of Rank Correlations Between HSD vs. Non-HSD Divisions

Rank Correlations Between HSD vs. Non-HSD Divisions	p
1. HSD students vs. HSD faculty	0.8667
2. HSD students vs. Non-HSD students	0.6848
3. HSD students vs. Non-HSD faculty	0.7697
4. HSD faculty vs. Non-HSD students	0.6000
5. HSD faculty vs. Non-HSD faculty	0.7697
6. Non-HSD students vs. Non-HSD faculty	0.6485

The coefficient of concordance of W for the four groups among the planning and engineering students and their faculty members (see Table 3) is  $W=0.7924$  with  $\chi^2_{\text{calc.}} \text{ of } 28.5273 > \chi^2_{0.001}$  (with  $10-1 = 9 \text{ df} = 27.877$ ). The lower W here is probably due to the incorporation of the faculty members from both the HSD and Non-HSD divisions. The W for the HSD and Non-HSD student groups (See Table 1) was much higher because the four groups were all students. Also, concordance in the perception of human settlements issues was independent of the influences of knowledge of geography.

The perception of the human settlements issues by the HSD and Non-HSD student and faculty groups is more clear-cut when the four student and faculty groups are broken up into respective divisional groups between students and faculty members. Table 5 summarizes a comparison of the degree of agreement or disagreement in the perception of the importance of the ten human settlements issues among students and faculty in the eight academic divisions. A conspicuous feature of the table is the high degree of agreement among students in the seven engineering divisions (AFE, CA, ENV, GEOT, IE, STR and WR) in their perception of the human settlements issues. The relationships between the HSD students and the students from the seven engineering divisions, however, are not completely concordant. A low degree of concordance is discernible in the perception of the issues between HSD students and those from ENV, GEOT and STR divisions. The same relationship occurs between the

Table 5. Matrix of Rank Correlations in the Perception of Human Settlements Issues Between Students and Faculty Among Various Divisions

	STUDENTS										FACULTY		
	HSD	AFE	CA	ENV	GEOI	IE	STR	WR	HSD	NON-HSD			
HSD	1												
AFE	0.6364	1											
CA	0.6879	0.7303	1										
ENV	0.4591	0.7682	0.8045	1									
GEOI	0.3783	0.5303	0.5273	0.8409	1								
IE	0.8000	0.6909	0.7909	0.7348	0.7212	1							
STR	0.2636	0.6697	0.5273	0.7409	0.5048	0.5758	1						
WR	0.6697	0.7606	0.5182	0.6439	0.6121	0.8091	0.6303	1					
HSD	0.8667	0.6242	0.6455	0.3803	0.1303	0.5636	0.3242	0.6273	1				
NON-HSD	0.7697	0.6970	0.7909	0.6955	0.5000	0.5576	0.3545	0.5061	0.7697	1			

HSD faculty and students from ENV, GEOT and STR divisions. It is interesting to note that the high degree of concordance which exists between the HSD students and those engineering students of AFE, CA, IE and WR also exists for the HSD faculty and their relationships with the students from the four named engineering divisions. Probably one of the most striking features of Table 5 is the concurrence of the Non-HSD faculty members with HSD students and the HSD faculty members in the perception of the importance of the human settlements issues. Except for the discrepancy with the students from the STR division, the Non-HSD faculty, on the whole, generally concur in their perception of the importance of the human settlements issues with students from the other engineering divisions.

#### **Determining The Degree Of Concordance In The Perception Of Human Settlements Issues Between Planners And Engineers**

In determining the degree of concordance in the perception of human settlements issues between planners and engineers, it is perhaps best to reduce the four groups in Table 3 into two main categories, viz, HSD students and faculty combined as planners, and Non-HSD students and faculty combine as engineers. Table 6 shows the degree of concordance in the perception of human settlements issues by these two main categories. A rank correlation of the two groups yielded a  $p$  of 0.7636, which was significant at the 0.01 level. The significance of the rank correlation coefficient suggests that both planners and engineers have a very high degree of concordance in their perception of human settlements issues. A striking feature of Table 6 is that both planners and engineers perceive Issue J, i. e., improving the quality of life of the rural and urban poor as the most important issue among the ten. Although rural infrastructures and economic development (Issue E) and migration, unemployment and rural indebtedness (Issue F) were perceived as a tie for second in importance by planners, engineers only ranked them in the third and fifth place.

Since the single most important issue agreed upon by both planners and engineers was improving the quality of life of the rural



Table 6. Concordance of Planners and Engineers in the Perception of HS Issues

HS Issues	Planners	Engineers
A	4.5	2
B	7	8.5
C	4.5	7
D	10	8.5
E	2.5	3.5
F	2.5	5
G	6	3.5
H	8.5	6
I	8.5	10
J	1	1

and urban poor, it is suggested that this be given first priority in any human settlements policy for implementation and for further research. Perhaps improving the quality of life should be made the goal of human settlements planning. Human settlements planning may be defined as a science of engineering human skills to improve living conditions of man at various levels of spatial organization- be it at the village, city, regional or metropolitan level- by focussing a large number of plans programs and policies and integrating them into a centralized form of administrative structure for the effective implementation towards the attainment of a better quality of life for the poor.

### Conclusion

Planners and engineers in the Asian region on the whole have a very high degree of concordance in their perception of the importance of human settlements issues. Their degree of agreement on the importance of the issues is much higher within the HSD and Non-HSD group than between them. This was evident from the higher  $p$ 's yielded by the Spearman rank correlations for the within HSD and Non-HSD group and for those between them.

The hypothesis as to whether a knowledge of geography had any influence on a planner or engineer's perception of the importance of human settlements issues was rejected. This study has shown that a planner's or an engineer's awareness of the importance of human settlements issues was independent of a knowledge of geography.

In comparing the perception of the importance of human settlements issues by planning students and their faculty and by engineering students and their faculty among the various divisions it was found that planning students, their faculty members and the engineering faculty members have a much higher degree of concordance in their perception of the human settlements issues among themselves than engineering students have with their own faculty members. However, among students in the eight academic divisions, engineering students from the seven engineering divisions were much more concordant in their perception of the issues than they were with the planning students.

Perhaps the most significant finding of this study was the concordance of planners and engineers in their concern on improving the quality of life of the rural and urban poor. It is recommended that any policy for human settlements plan implementation should make improving the quality of life of the poor its prime goal.

