

Supplementary File S1. Questionnaire for Household Survey (Simplified Version)

Climate Urbanism as a New Urban Development Paradigm: Evaluating a City's Progression Towards Climate Urbanism in the Global South

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(For research purpose only)

Identification Information

Questionnaire ID:

Date

Name of the respondent:

Ward no:

Holding no:

Coordinates: Latitude-

Longitude-

Contact no:

Section S1: Demographic & Income-related Information of Household (HH)

1.1. HH size:

1.2. Information of HH members:

No.	Name	Relation to HH Head ¹	Age	Income (BDT per Month)	Educational Status ²	Main Occupation	No. Income Sources	Expenditure (BDT per Month)	Dispose-able Money

¹ Relation to HH head: 1 = HH head self; 2 = Wife/Husband; 3 = Son/daughter; 4 = Father/mother; 5 = Brother/sister; 6 = Son/daughter in law; 7 = Father/mother-in-law; 8 = Brother/sister-in-law; 9 = Others (specify). ² Educational statuses: 0 = uneducated; 1 = primary education (up to class 5); 2 = primary education (up to class 8); 3 = Secondary education incomplete (up to class 12); 4 = Higher study.

Section S2: Just and Equitable Society

2.1. We know democracy demands policy makers to consider the rights and voices of citizen while making any decisions. It is crucial that your rights and voice are reflected in the actions of the government to ensure equitable social development. Now, what is your opinion on the question that if you have access to the development decisions and policies taken by the urban authorities (KDA & KCC)? Can you highlight some notable experiences related to such incidents when you felt served or deprived of access to decision making process? (Code: 1 = yes, 0 = No)

☐ Yes

☐ No

2.2. Can you share your view on the importance of women participation in decision making process both within family and society?
So, how would you score the level of women participation in decision makings in your society on a scale of 1 to 5 (lowest to highest)?

☐ 1

☐ 2

☐ 3

☐ 4

☐ 5

2.3. Do you think that men and women are treated equitably in your society? What is your opinion regarding importance of gender equity for socio-economic progress?

☐ Yes

☐ No

2.4. Please, share your view on the need for women education for advancement of your family as well as your society? Do women get access to education (at least for primary education, till class 8)?.....

☐ Yes

☐ No

2.5. You have children (of school going age), right (if have any)? Do they (both son & daughter) go to school? If no, then why?.....

☐ Yes

☐ No

2.6. We know that safe drinking water is a key issue in the area. Citizen are adopting different strategies to get safe water. So, do you have access to safe drinking water? If not then why?.....

- ☐ Yes ☐ No
- 2.7. What is about electricity connection? Do you have access to (*satisfactory level of = no loadshedding for more than 1 h per day*) electricity connection?
- ☐ Yes ☐ No
- 2.8. Primary medical services should be available for all the community people (*within a satisfactory distance and cost*). Do you have such access to necessary primary medical services? If not, then what are the main issues that are limiting this?.....
- ☐ Yes ☐ No
- 2.9. Accessibility to daily activities and services is highly impacted by transportation system. Do you think the transportation system you are served is effective (in terms of cost-efficiency, accessibility and safety)?
- ☐ Yes ☐ No
- 2.10 Which mode of transport you use the most? What do you suggest to make the existing transport system more effective?.....
- 2.11. We know that easy-bike riding as a mode of transport is prominent Khulna city. What do you think about such informal transportation? Do you think such system is beneficial or damaging for our socio-economic development?
- 2.12. Do you think that you have proper access to necessary and latest information regarding important issues such as climate change; Pandemic like COVID-19, dengue fevers; disasters like cyclones, floods etc.?
- ☐ Yes ☐ No
- 2.13. Are you satisfied with the role of KDA, KCC in this regard (Do they take enough steps to ensure your accessibility to such information)?
- ☐ Yes ☐ No
- 2.14. Do you have any connection or relationship with NGOs, local socio-economic institutions, volunteer groups who are dedicated to advance socio-economic development in your area and to support your development? If yes, then can you please describe such institutions, and their roles?.....
- ☐ Yes ☐ No
- 2.15. COVID-19 has showed us that even the middle classes would suffer from food scarcity, access to basic needs. So, I want to know if you think that your family as a unit is capable to provide foods properly (at least 3 basic meals) in critical periods like cyclones, floorings, pandemic like COVID-19? If yes, then what makes you capable? If not, then what makes you incapable to do so?.....
- ☐ Yes ☐ No
- 2.16. Is there any local food hub or similar system where locally produced products and food items are traded dedicatedly for the community, especially prioritizing the low-income people?
- ☐ Yes ☐ No
- 2.17. Do you think such a strategy or system could be effective to ensure food security for the community people even in critical and uncertain period like COVID-19? Share your thoughts in this regard.
- ☐ Yes ☐ No
- 2.18. It is evident from study that low-income people are crucial part of our society but mostly marginalized due to their limited capability. Lack of accessibility to decision makings is one factor that further limited their such capacity. Now, do you think that the low-income people of your society are considered in by urban authorities (KCC, KDA) and other decision-making authorities?
- ☐ Yes ☐ No
- 2.19. Can you share your thoughts on the driving factors underlying their access or access limitations to decision makings?.....
- 2.20. Do you think the special needs of dependent groups (elderly people, people with autism, pregnant women, children etc.) are considered by the development authorities and the government (like KDA, KCC) while developing and implementing development actions in your area?
- ☐ Yes ☐ No

Section S3: Resilient Economy

- 3.1. We choose to live in certain location due to some specific advantages like high security, better access to diverse services, higher income opportunity, prestige and social values etc. So, do you have considered such factors while choosing this area to live in?
- ☐ Yes ☐ No
- 3.2. How would you rate your location in terms of income opportunities and cost efficiency on a scale of 1 to 5, with 1 being the lowest and 5 being the highest score?

☐ 1
 ☐ 2
 ☐ 3
 ☐ 4
 ☐ 5

3.3. We have seen that the Pandemic COVID-19 had affected people, especially of low- and middle-income people much due to their income or economic vulnerability to such pandemic. Now, how would you score your income security in such adverse situation?

☐ 1
 ☐ 2
 ☐ 3
 ☐ 4
 ☐ 5

3.4. Why do you think your income security in such adverse situation is such (low or moderate or high)? Can you elaborate, please? Like what are the factors you think will limit/uphold your income security?.....

3.5. There are examples where community people have generated their *community-funds* for dealing with uncertain and emergency situations like cyclones, floods, earthquakes, pandemic like COVID-19. Do you have such kind of community-based fund-raising system, especially as you have just experienced the terrific impacts of COVID-19?

☐ Yes
 ☐ No

3.6. Do you think that you (your family) are able to produce (by yourself) or manage basic foods (such as rice/fruits/vegetables etc.) and shelters in adverse situation like COVID-19 for longer period of time such as for two or three years?

☐ Yes
 ☐ No

3.7. We know that unemployment is a critical issue for our society as well as your country. What do you suggest for reducing unemployment in your area? How can we increase our economic self-sufficiency?.....

Section S4: Adaptive and Dynamic Urban Form

4.1. Land area and land use, net residential density related information of the household:

Total land area (acre)	Number of people living in the land parcel	Area used for residential land use (acre)	Number of residential units	Number of land uses the land parcel is used for with specification

4.2. On a scale of 1 to 5, with 1 being the lowest and 5 being the highest score, how would you score the level of accessibility to the immediate neighborhoods?

☐ 1
 ☐ 2
 ☐ 3
 ☐ 4
 ☐ 5

4.3. On a scale of 1 to 5, with 1 being the lowest and 5 being the highest score, how would you rate the accessibility of basic services and resources from your living location?

☐ 1
 ☐ 2
 ☐ 3
 ☐ 4
 ☐ 5

4.4. On a scale of 1 to 5, with 1 being the lowest and 5 being the highest score, how would you rate the built-up area density in your living area (or neighborhood=ward)?

☐ 1
 ☐ 2
 ☐ 3
 ☐ 4
 ☐ 5

4.5. With the space scarcity issue, utilizing space for productive uses are imperative to make urban area more productive and vibrant. Now, on a scale of 1 to 5, with 1 being the lowest and 5 being the highest score, how would you score the level of utilization of the unused spaces (street divider, road sides, canals, lakes, roof-top etc.) for producing foods, fruits as well as beatification and making comfortable urban form? (*This question is also addressed by expert views, observation*).

☐ 1
 ☐ 2
 ☐ 3
 ☐ 4
 ☐ 5

4.6. On a scale of 1 to 5, with 1 being the lowest and 5 being the highest score, how would you score your level of desirability of living in this area considering location advantages, land uses, population and building densities, infrastructure, accessibility, safety and security, community cohesion, beauty and comfort etc.)?

☐ 1
 ☐ 2
 ☐ 3
 ☐ 4
 ☐ 5

Section S5: Climate Smart Infrastructure

5.1. Did you use eco-friendly building materials such as ash bricks, stones etc. while constructing your buildings? Can you please specify such materials and their respective uses?.....

☐ Yes
 ☐ No

5.2. Have you adopted or utilized natural solutions for cooling indoor temperature or environment? If yes, then can you specify please?.....

☐ Yes
 ☐ No

5.3. Do you practice rooftop gardening, vertical gardening or other kind of greening and beatification strategies? Please specify?.....

☐ Yes
 ☐ No

5.4. Do you use fossil fuel for household purposes (excluding general electricity consumption)? If yes, then specify.

☐ Yes
 ☐ No

5.5. Do you have adopted low-cost, renewable and low-carbon energy sources like solar panel, biogas plant etc.? If yes, then specify please.

- ☐ Yes ☐ No
- 5.6. Do you have access to safe and secure water supply? Please, specify your source of water.....
- ☐ Yes ☐ No
- 5.7. Since safe water is a key issue in the area, do you harvest rainwater or have similar strategies to store safe drinking water? If yes, then specify please.
- ☐ Yes ☐ No
- 5.8. Are you using any water saving strategy for saving water and limiting waste of water? If yes, then specify.
- ☐ Yes ☐ No
- 5.9. Is there any waste water treatment plant (WWTP) (neighborhood scale) in your area? If yes, then how many? Can you describe the plant briefly?.....
- ☐ Yes ☐ No
- 5.10. Sanitation is very important aspect for personal as well as social progress. Do you have (access to) proper sanitation facilities for all the members of your family (especially considering the gender sensitivity of women)?
- ☐ Yes ☐ No
- 5.11. Are the street lights in your neighborhood/area solar-powered?
- ☐ Yes ☐ No
- 5.12. How much (weight/volume) fossil fuel do you use per month for cooking, heating, and other household purposes?
Ans:
- 5.13. Non-motorized transportation (NMT) like walking, cycling, paddled van etc. are widely acknowledged to reduce greenhouse gas emission as well as depletable energy consumption. So, do you use NMT for regular travels? Please specify the reason for using or not-using NMT.
- ☐ Yes ☐ No
- 5.14. Which motorized transport mode do you normally use for traveling?
- ☐ Easy bike ☐ Bus ☐ Mahendra ☐ Motorcycle ☐ Private Car ☐ Car sharing
- 5.15. What is the average distance (in kilometers) traveled per capita per day through motorized vehicle trips?
Ans:
- 5.16. Do you have access to proper (covered, secure, well-maintained) drainage facilities?
- ☐ Yes ☐ No
- 5.17. What is your annual expenditure for the recovery costs of damages induced by climate and disasters?
Ans:

Section S6: Urban Ecosystem Services

- 6.1. Can you share your views on the importance and benefits of ecosystem services (ESS) for urbanism (comfortable living environment, natural cooling system, environmental safeguard, healthy life etc.)? Do the HH has basic level of knowledge regarding ESS?
- ☐ Yes ☐ No
- 6.2. Do you have access to green open space or parks within walking distance?
- ☐ Yes ☐ No
- 6.3. Has the HH used green barriers, such as canopy trees or dense vegetation, for shading, noise reduction, or fencing purposes (as a strategy of ESS)?
- ☐ Yes ☐ No
- 6.4. Has the HH utilized existing adjacent waterbodies (if have any) effectively and productively?
- ☐ Yes ☐ No
- 6.5. Does the household have a variety of fruit, flower, and herb plantations as a part of gardening?
- ☐ Yes ☐ No
- 6.6. Do you use nature-based solutions or strategies, such as specific urban or building design features to ensure adequate air and light circulation, or green walls, to address climate-induced issues? If so, please specify the strategies you have implemented.....
- ☐ Yes ☐ No

Section S7: Climate Conscious Governance

7.1. Can you please share your thoughts or views on climate change and its impacts? What do you think your role is to deal with climate change and to ensure urban sustainability? Level of the knowledge of HH about climate change, impacts on urbanism and their role as citizen (*researcher's perspective*). On a scale of 1 to 5.

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

7.2. On a scale of 1 to 5, with 1 being the lowest and 5 being the highest score, how would you rate the government's endeavor to ensure active public participation in decision makings?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

7.3. Is there an ongoing dialogue between community members and urban planners or representatives of KCC/KDA to regularly inform and engage the public in the development process?

☐ Yes ☐ No

7.4. If yes, then please evaluate the effectiveness of this communication effort in promoting public participation on a scale of 1 to 5, with 1 being not effective and 5 being very effective.

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

7.5. If not, do you think such a dialogue would be beneficial in promoting community involvement and participation in the decision-making process? Please provide your critical perspective on this matter.

Ans: