Appendix – Questionnaires used for research in 2017

Scrap collectors

Name
Gender
Age
Where from originally?
How long in Beijing?
How long in scrap collecting?
What did you do before? Back home? And here in the city?
Type of work now
− Scrap collector
− Collection point worker
− Scrap merchant
− Driver
− Other

Street collecting
− How did you start collecting?
− What are the benefits?
− How much do you make on a good day? On an average day? On a bad day?
− What is your total income per month?
− How about the stability of your income?
− What are the components of your income? (salary, bonus, or other form of income)

Where do you collect? Walking the street? Arrangement with community to pick up? What time do you start on an average day? Are there days with more scrap than others?

Are the numbers of scrap collectors getting smaller, generally speaking? Why? What are the reasons for that? Who is making work difficult for you? Which level of government makes your work most difficult?
O2O (Bangdaojia, ZaiShenghuo, TaoQiBao, or any others?)
– Have you heard of them? How did you hear of them?
– Are they a good alternative for collecting on the street?
– Would you work for them? Have they approached you? Or have your friends/colleagues asked you to join?
– Do you work for them?
  – How did you start with them? Why this particular one?
  – Only with one of them or with others too? Why more than one? How many hours for each one? Do they allow you to work for others too?
– What are the benefits of working for an O2O?
  – More income? Regular income?
  – Company uniform
  – Tricycle? Truck?
  – Tools and equipment
  – Smartphone
  – Scanner
  – Have you been educated and trained by the company?
  – Are there some conflicts between you and the company?
  – Are there some conflicts between you and the app users?
  – Are there conflicts of interest? Fights with other collectors? Fights with collectors from other companies?
  – Do you want to do this job for a long time, and why?

Do you have a special relation with a garbage producer?
– None
– Regular
– Frequent
– An individual? A community? A company?
– How did that relation start?
– How do they get in touch with you?
– What do you collect from them? For example, cardboard from a shop? Paper from a company?

After you have collected all day, where do you go to with your scrap? Always the same merchant? Or different merchants for different types of scrap? How did you build that relationship?
Garbage producers

Name
Gender
Age
Occupation
Family size/composition
Waste separation/garbage sorting at source?
  – Yes/no
  – Who takes care of it? You or your wife/husband?
  – When, why, and how did you start separating?
  – Do you think there is enough education/information about why separation is good?
  – What convinced you to separate?
  – Something typically done by women or not?
  – Does your home have enough space to separate?
  – Suggestions for other separators?

MSW schemes
  – The ‘guy downstairs’
  – Collection point
  – App user
  – O2O company of choice
  – Only one?
  – Why more?
  – Why none?
  – What are the comparative advantages of an O2O in your opinion?
  – Special relation with recyclables (the value)?
  – Special relation with recycler (the ‘guy downstairs’)?
O2O company questions

Company name
Date
Spokesperson(s)

Rank/occupation
1. Operations
   – Scope
   – Active since
   – Why RVMs?
     – Collecting and/or recycling?
       – Only recyclables or all SMW?
       – Only PET?
     – Storage of recyclables
       – Where? Collection points? Sorting stations?
       – Are they run by the company or others?
       – Where are they located?
     – Recycling
       – Where does it take place?
       – Own equipment/imported? Collaboration with equipment providers?
       – How many production units?
       – Turning out what sort of resource/product?
       – Selling this product to whom?
     – Other company activities?

2. Size (number of departments)
   – Names/functions

3. Size (number of personnel)
   – Functions
   – Management
     – Number
     – M/F %
     – Types of activities
   – Staff
     – Number
     – M/F %
     – Types of activities
- Workers
  - Number
  - M/F %
  - Types of activities
  - Number/types of activities

4. National outreach (on the basis of information provided on the website)
   - Which activities where?
     - Other plans?

5. International outreach (on the basis of information provided on the website)
   - Which activities where?
     - Other plans?

6. Hiring outside scrap collectors
   - Since when?
   - Why did the company decide to hire them?
   - How?
     - Active recruitment
       - How?
     - Word-of-mouth?
     - Other methods?
   - Requirements for the job?
     - Is Hukou relevant?
     - Is age relevant?
     - Is education level relevant?
     - Does the company provide (on-the-job) training?
     - Apprenticeship?
   - Only hiring scrap collectors? Or other related jobs as well?
     - Sorters?
     - Collection point / sorting station managers?
     - Drivers?
     - Recycle process workers?
     - App/website developers?
     - Others?

7. Structure and quality of employment
   - Contract?
   - Freelancers?
- Working hours?
- Supervision (of scrap collectors)?
  - Conflicts with other collectors?

8. Reimbursement
- (Base) salary
  - Approximately how much?
- Piece rate?
- Competitive bonus system?
- Insurance?
- Promotion opportunities?
- Penalties/discipline?

9. Gear
- Company uniform
  - What is it?
  - Is it being copied by other scrap collectors?
- (Hand) Carts, tricycles
- Vans
- Rented? Deposit?

10. Scope of activities within Beijing
- Where (most) active?
  - Shequ
  - Schools
    - Primary
    - Secondary
    - Tertiary
  - Offices
  - Commercial establishments
  - Shopping malls/shopping centres
  - Restaurants
  - Hotels
  - Neighbourhood
  - District
    - Which district produces most recyclables?
  - City-wide activities
  - Where of the above are most recyclables collected?
11. Collaboration with environmental government departments on activities?
   – *Xiaoqu*-level
   – Neighbourhood-level
   – District-level
   – City-level
   – What sort of collaboration?

12. Collaboration with labour departments for hiring personnel?
   – *Xiaoqu*-level
   – Neighbourhood-level
   – District-level
   – City-level
   – What sort of collaboration?

13. Collaboration with propaganda departments to co-organize/publicize activities?
   – *Xiaoqu*-level
   – Neighbourhood-level
   – District-level
   – City-level
   – What sort of collaboration?

14. Collaboration with environmental NGOs?
   – Which?
   – Why?
   – Types of collaboration
   – What sort of collaboration is relevant for the company?
   – What sort of collaboration is relevant for the ENGO?

15. Internet +
   – Bangdajia app
     – How many users?
     – How successful in terms of recyclable collection?
   – How does it work in practice?
   – Is it city-wide?
   – Who develops/is responsible for the app?
   – Who is responsible for the website?
– Who is responsible for the communication strategy?
  – In collaboration with outside agencies (environmental departments, others, etc.)?
– Who is responsible for the contents?
  – In-house publicity department
– Who designs the educational content?
– Who designs the welfare content?
– The RVM-M2M system generates big data that are useful for environmental agencies and consumer goods producers. How can these data be put to other use?

General questions, wrapping up:
– Have the company results in terms of recyclable waste collected improved after the company started hiring outside collectors?
– Has the scrap flow been secured to satisfaction?
– Why did the company decide to branch out into other activities?
  – Smartphone repairs
  – Maintenance work in individuals’ homes
  – Others
– How does the company hire these workers?
  – In collaboration with the Labour Bureau?
  – Are these jobs predominantly done by men?

**NGO Interviews**

1. There is a long history of recycling in Beijing. After Liberation, it was organized by the State. After 1980, the State withdrew and individuals took over. In recent years, migrant workers have become active as scrap collectors. I am interested in the recent emergence of so-called Online-to-Offline companies active in collecting recyclable waste in the city. Most of them operate through smartphone apps. Examples in Beijing are TaoQiBao, Bangdaojia, and Zaishenghuo; Huishouge is active in Shenzhen, Wuhan, and Tianjin. Through these apps, one can contact someone to come to one’s home and pick up recyclables like plastic, glass, and paper in return for money or goods. The apps specify the value of the waste materials and the amount of money one receives in return.
  – Have you heard of these companies or do you know them? Are you familiar with their services? What do you think of them? Does your organization cooperate with them? If yes, in what way? If no, why not?
– Do you think that these companies will be able to collect more recyclable waste than other methods?
– The companies give the impression that they themselves take care of the recycling and that they do this in a way that protects the environment and the health of the people working in recycling. So not like what happens in many of the ‘garbage’ villages surrounding Beijing. Do you think they do a good job recycling? And that they do it in a healthier and environmentally friendly way?
– Some of the companies have started to hire people who used to collect scrap in the streets to work for them instead. Have you heard of this practice, of hiring (migrant) workers to collect recyclables? Do you think this increases the efficiency of recyclable collecting? Do you think this is a good employment opportunity for these workers? Does it secure a stable income and improve their lives?

2. Are Beijing people well informed/educated when it comes to recycling? What do you think could be improved? How do you think the process of recycling could be improved? How is your organization involved in this process?
– In 2000, the government told the people that they should start to separate their garbage. Do people separate their garbage? How is it done in practice? How could it be improved?
– The O2O companies mentioned above all provide information/education about recycling and garbage separation through their websites and apps. Are you familiar with the contents of this information/education? Do you approve of the way in which it is done, or do you have suggestions for improvements? Do you think that the information makes the consumers more aware of the need to produce less waste and dispose of it in a more environmentally friendly way?
– Do you agree with the observation that elderly people are more committed to recycling than the younger generations (80-hou, 90-hou)? How could the younger generations be educated more effectively? What approach does your organization use?

3. Governments all over the world think that incineration of garbage is the best solution for the problem of dealing with waste. What is the attitude of the Chinese government towards incineration? What is the attitude of the people towards incineration?
– Is the practice of incineration successful in China? In Beijing?
Are incinerators properly equipped with the technology to let them operate in an environmentally friendly way?

When garbage is not properly separated and too much kitchen waste ends up in the incinerator, the waste will be too wet, and it will become very difficult to incinerate the waste without adding external energy. What is the situation in Beijing like? Is the waste dry enough? Do incinerators here produce the amount of energy they have promised they would? What happens with the energy produced by incineration?

All over the world, there are popular protests against incinerators. In Beijing too? Are these protests successful? In which way? Or are they not-in-my-backyard (NIMBY) protests, meaning that the plant will eventually be built somewhere else?

Aside from consuming less, producing less waste, and recycling more, which suggestions does your organization have to deal with the waste problem? How do you communicate these suggestions to the public, to policy makers, etc.?

Municipal Government Department Interviews

1. In many of the interviews we have conducted with Beijing people from all walks of life, the respondents told us that education, propaganda, and information about recycling and garbage separation are the responsibility of the governments at all levels, from national to district to neighbourhood.
   – What are your ideas and insights about such education, propaganda, and information? What should it be like, what should it include, what should it stress most?

2. What types of educational programmes, propaganda initiatives, and information provisions have the Beijing Municipal government departments developed over the years? What are the most significant changes in the past few years regarding these activities? Have they become more frequent? Have they changed over time?
   – Can you tell us some more about the contents of these initiatives? What do you educate about? What forms can this take? What sort of materials do you prepare?
– Do you organize joint projects with ENGOs? What can and do they contribute to your efforts? And is it possible to tell which ENGOs you cooperate with?

3. It has come to my attention that you have been involved in garbage recycling movements in public schools. What were these movements like? How were they organized? What was your part in them?

4. Is it true that young people, i.e., the 80-hou, 90-hou, and 00-hou, need special attention when it comes to creating an awareness about the environment, recycling, and garbage separation? Are they less knowledgeable about these aspects than, for example, the 50-hou and 60-hou? Do they care less? Do they need special attention because they are the next generation, representing the future?
– Do you think that creating awareness among the younger generations will have a positive effect on the recycling behaviour of their parents and grandparents?

5. Recently, so-called Online-to-Offline companies have become active in the chain of collecting recyclable waste in Chinese cities. Most of them operate through smart phone apps. Examples in Beijing are TaoQiBao, LüMao, Bangdaojia, and Zaishenghuo; Huishouge is another one that is active in Shenzhen, Wuhan, and Tianjin. Through these apps, one can contact someone to come to one’s home and pick up recyclables like plastic, glass, and paper in return for money or goods. The apps specify the value of the waste materials and the amount of money one receives in return.
– Have you heard of these companies or do you know them? Are you familiar with their services? What do you think of their work? Would they be mentioned in your educational work?
– These O2O companies all provide information/education about recycling and garbage separation through their websites and apps. Are you familiar with the contents of this information/education? Do you approve of the way in which it is done, or do you have suggestions for improvements? Do you think that the information makes the consumers more aware of the need to produce less waste and dispose of it in a more environmentally friendly way? Would you consider joining hands with these companies when it comes to education, or organizing joint activities with them?