UNIVERSITY OF AGDER

Environmental Concerns and Pro-Environmental Behaviours

in Shanghai

– Closing the Environmental Concern-Behaviour Gap

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This master's thesis is carried out as a part of the education at the University of Agder and is therefore approved as a part of this education. However, this does not imply that the University answers for the methods that are used or the conclusions that are drawn.

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ABSTRACT

Environmental issues are among the biggest problems of our time. While green technology and global initiatives are steps in the right direction, there is an environmental concern-behaviour gap among individuals that prevents successful implementation.

Despite the government's attempts to promote green development, China is one of the world's worst environmental offenders. China's household registration system – Hukou – climate change and resource scarcity are among the push-factors for many rural citizens to move to urban areas in search for a better life. This migrant population tends to settle in urban villages where they lack basic services and suffers from reduced social opportunities and benefits. Urbanisation and change of lifestyles cause inequality, increase pressure on already scarce natural resources, and contribute to enhanced greenhouse gas emissions. Individual concerns and behaviours regarding environmental problems are therefore key issues in the fight against climate change.

Existing literature on environmental concerns in China shows that urban, well-educated and rich citizens tend to be more environmentally concerned than their rural, less-educated and poor counterparts. They also find that the behaviours of the Chinese people do not correspond with their concerns. This research provides a tool to help close this environmental concern-behaviour gap. It contributes to the existing literature by including the Hukou system as an influencing factor, and the rural migrants in Shanghai as a unique social group. The findings of this mixed-method research show that bodily experiences have a profound impact upon the concerns for environmental issues as well as pro-environmental behaviours. It is argued that the Shanghainese lifestyle is so busy that they do not have the time to think before they act. Instead, they act out of habits based on a mindset of saving money first. This thesis suggests that standardised systems and enforced behaviours can convert these habits into *saving the environment first,* and help closing the environmental concern-behaviour gap. Due to citizens' economic priority and health concerns, environmental information encouraged by economic incentives and health benefits might serve as impetuses for increased environmental concerns and pro-environmental behaviours.

ACKNOWLEDGEMENTS

DECLARATION BY CANDIDATE

I, Sandra Baldvinsson Sotkajærvi, hereby declare that the thesis *Environmental Concerns and Pro-Environmental Behaviours in Shanghai – Closing the Environmental Concern-Behaviour Gap* has not been submitted to any other universities than Agder University for any type of academic degree.

1st of June, 2015

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Sandra Baldvinsson Sotkajærvi   Date

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LIST OF ABBREVIATIONS

AC	Awareness of adverse Consequences
AP	Air Pollutants
AR	Ascription of Responsibility to self
BRICS	Brazil, Russia, India, China, South-Africa
CCP	Chinese Communist Party
EDGAR	Electronic Data Gathering, Analysis, and Retrieval system
EKC	Environmental Kuznets Curve
ENGO	Environmental Non-Governmental Organisation
$FFCO_2$	Fossil Fuel CO_2
FoN	Friend of Nature
GDP	Gross Domestic Product
GHG	Greenhouse Gases
GNE	Gross National Expenditure
$H_1 - H_9$	Hypothesis 1-9
IFCE	International Fund for China's Environment
IIED	International Institute for Environment and Development
IPAT	Impact = Population x Affluence x Technology
IPCC	The Intergovernmental Panel on Climate Change
MA	Mildly Agree
MD	Mildly Disagree
NAT	Norm-Activation Theory
NEP	The New Ecological Paradigm
NGO	Non-Governmental Organisation
OA	Ocean Acidification
PM	Particulate Matter
PO	Participant Observation
PPM	Parts Per Million
PPMV	Parts Per Million by Volume

PRC	The People's Republic of China
SA	Strongly Agree
SD	Strongly Disagree
SEPA	State Environmental Protection Administration
SOE	State-Owned Enterprises
SPSS	Statistical Package for the Social Sciences
TPB	Theory of Planned Behaviour
U	Unsure
US	United States
VBN	Value-Belief Norm theory
VOC	Volatile Organic Compounds
WB	The World Bank
WHO	World Health Organization
WWII	World War II

CHAPTER 1: INTRODUCTION

Brief Contextual Overview

Climate change is the biggest problem of our time and it is already too late to stop it. For the first time since records began, ppm of CO_2 in the atmosphere exceeded 400 globally for a month this year (ESRL, 2015). The increased atmospheric CO_2 caused by human activities intensifies the natural greenhouse effect, which is resulting in global warming, ocean acidity, shrinking ice sheets, glacial retreat and extreme events (NASA, n.d.-b). The international community is, however, starting to realise that there are no jobs on a dead planet (Burrow & Naidoo, 2015). Green, sustainable technology and the annual Conference of Parties are evidence of a change in the right direction. In order for such initiatives to be successful, actions must come from all levels of society and cooperation must take place across the world.

Nevertheless, what we do is not enough. Time is running out.

A growing population living modern consumer lifestyles put increasing pressure on already scarce natural resources and contribute to enhanced anthropogenic greenhouse gas emissions. It is time to change and there is a need for governments *and* individuals alike to take action. While governments around the world spend millions of dollars on "soft" initiatives to tackle climate change and environmental issues, these tend to be ineffective. One of the major reasons for this ineffectiveness is the gap between individuals' concerns about the environment and their propensity to carry out corresponding pro-environmental behaviours (Chai, Bradley, Lo & Reser, 2014, p. 2).

This environmental concern-behaviour gap needs to be closed.

Area of Study – Shanghai, China

China is an important global player and a major economic power. Its development the past three decades has been remarkable, and 500 million people have been lifted out of poverty (WB & DRCSC, 2013, p. 4). However, the environment is now suffering in the wake of economic growth. The world's most populous country is also the world's biggest contributor to CO_2 emissions (CCPI, 2014). Additionally, socio-demographic factors such as China's

strict household-registration system – Hukou – has caused the greatest rural-urban migration wave the world has ever seen. These rural migrants are often referred to as the "floating population", or *liudong rekou*. While rural poverty is decreasing, urban poverty is increasing. While urbanisation is creating jobs, the economic growth and income rise leads to greater ecological footprint. While the government is implementing green initiatives, the urban citizens become even more demanding (McGranahan & Tacoli, 2006).

Rural-urban migration patterns in China show that most migrants move from the poorest Central provinces, such as Sichuan, towards the richest Eastern and coastal cities, such as Shanghai (Fan, 2012).
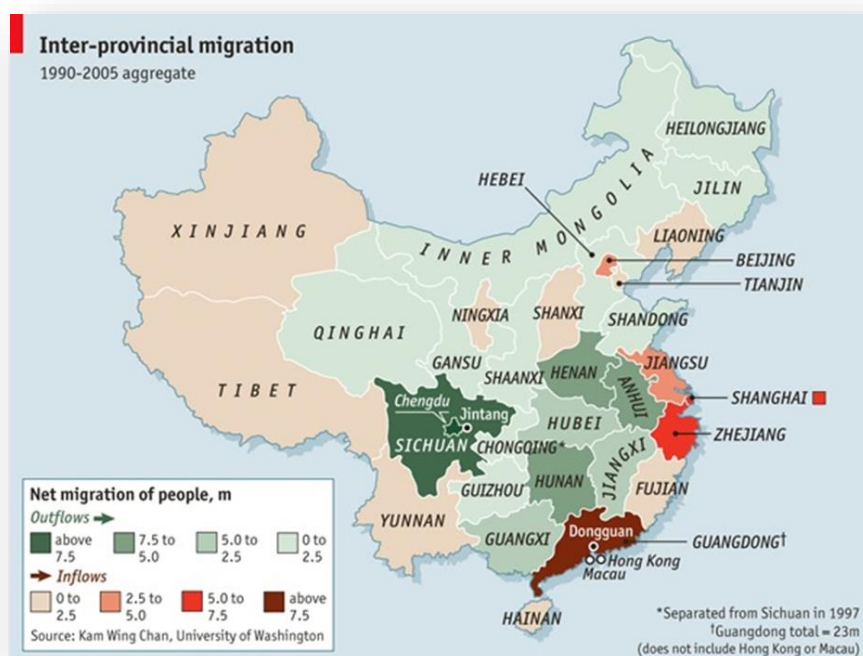
Figure 1: Migration Patterns in China (Infographic, 2012)

Shanghai is China's most populous city and a financial centre, located in the Yangtze River Delta in East China and bounded to the East China Sea (Liang, 2014). With a massive population at almost 24 000 000 people, the population density is 3 700 people per square kilometre. Of the total population, more than 39% are long-term migrants and 80% of these are of rural origin. The number of migrants flowing to Shanghai has increased three-fold in only ten years (WPR, 2014). It is estimated that most of the *liudong rekou* are born after 1980: a young population looking for the exciting city life and the desire for the three C's: Comfort,

Convenience and Consumption (Hu, 2012). Shanghai is one of the most developed cities in China with a western, modern touch, and is therefore a tempting goal for the rural migrants. Unfortunately, their dream of a better life seems to be just that: a dream.

While the native Shanghai residents are wealthy and well educated, the rural migrants provide a stark contrast. Restrictions of the Hukou system prevents them from assimilating into the society, which is creating social unrest and class distinctions. The floating population tend to get the lowest-paid and the most dangerous jobs, and their children struggle to get into Shanghai's most prestigious schools (Eades, 2014).

Personal Motivation for Choosing this Topic

My love for nature extends as far back as I can remember. At the age of four, my favourite movie was "FernGully: The Last Rainforest". I watched it over and over again, and the malevolent humans destroying and polluting the rainforest left deep traces in my mind and soul. I came to develop a special fascination for indigenous people living at one with nature. As a Norwegian abroad, I often got a response that we are known to be environmentally friendly, and lovingly protect our untouched nature of royal mountains and sparkling streams. With a heavy heart and great shame, I must admit I disagree with these statements. Though I would agree that most Norwegians are very enlightened on environmental issues, my observations and experiences tell me that there is a gap between their attitudes and behaviours.

Three and a half years ago, I spent 5 months living in Shanghai where I studied at the Fudan University. Ranking 5th in the BRICS countries, 22nd among Asian countries and 71st worldwide, Fudan University is one of the most renowned schools in China (Top Universities, 2015). There is no doubt that the students were very bright, but their lives seemed to be nothing but studies. Outside campus, I noticed rural migrants all around me who worked hard and lived from hand to mouth. While students were busy with education and living modern consumer lifestyles, the rural migrants were busy striving for a better life. At the meantime, the local environment was degrading and pollution was getting worse.

I started to wonder about possible reasons behind this environmental concern-behaviour gap. Although I am trying my best to close this gap myself, it is inevitable to acknowledge that China is an extremely important player in the global fight against climate change and

environmental degradation. I personally believe that successful change and progress must integrate all levels of society – with a special focus at the individual level.

Due to my background of travelling in China, my studies at Fudan University, familiarity with the culture and contacts in the metropolitan, Shanghai was a natural choice as study area.

What Will this Research Contribute With?
Studies done by Harris (2006), Cao, Chen & Liu (2009), Shen & Saijo (2007), and Tilt (2010) have all looked at environmental concerns and pro-environmental behaviours in China. The results show that urban, well-educated, rich citizens tend to be more environmentally concerned than their rural, less educated and poorer counterparts. They also found that Chinese citizens mostly concern about local environmental problems but do not act environmentally friendly.

While these studies provide a good framework, they are either based purely on quantitative (surveys) or qualitative (case-study fieldwork) research methods. In this way, they tend to focus only on self-reported concerns and behaviours and fail to notice the *actual* behaviours and the real triggering factors of an environmental concern-behaviour relationship. What is more, this literature has not taken into consideration the *liudong rekou* of rural migrants and the restrictions of the Hukou system as influencing factors. This research will contribute to the existing literature on the environmental concern-behaviour gap by adding the Hukou system as a possible influencing factor and take into consideration the *liudong rekou* as a unique social group.

Research Objective
The overall research objective is to find the most prominent influencing factors that trigger pro-environmental behaviour among rural and urban Chinese citizens with a vision that – in the end – it will enhance sustainable development.

Research Questions
- What are the environmental concerns and pro-environmental behaviours among rural migrants compared to Fudan University students in regards to air and water pollution?

- What can explain the environmental concerns and pro-environmental behaviours in regards to air and water pollution among rural migrants compared to Fudan University students?
- Have rural migrants' environmental concerns and pro-environmental behaviours in regards to air and water pollution changed after moving to Shanghai? If yes, why?

China's greatest environmental problems are a result of their huge population, rapid industrialisation and the following energy demand (Liu & Diamond, 2005). In this study, environmental concerns and pro-environmental behaviours are narrowed down to two of the major environmental crises in China: air and water pollution (Lallanilla, 2013). In order to get the most realistic result possible, influencing factors such as education, income (both influenced by the Hukou system), age, area of origin (i.e. rural or urban) and socio-economic eligibility (i.e. agriculture or non-agriculture) must be taken into consideration. The two target groups of this research are therefore: 1) rural migrants residing in Shanghai, and 2) Fudan University students.

Thesis Outline

The rest of the thesis is organised as follows: Chapter 1 introduces general information about climate change and global environmental issues as well as the main drivers behind them. Chapter 2 briefly presents environmental problems connected to air and water. Chapter 3 discusses the future prospects of climate change and possible solutions. In Chapter 4, we turn to China, its history, economic development and the synergy between the state and society. It further discusses the population and urbanisation issues, and China's household registration system – Hukou. Chapter 5 also concerns China, but focuses on two of its greatest environmental issues: air and water pollution. The 6th Chapter gives a literature review on attitudes, values, concerns and behaviours in general before looking at theories of environmental concerns and behaviours in specific. It then discusses studies on environmental concerns and behaviours in China. Chapter 7 describes the methodology used in this research: a mixed method of quantitative and qualitative research. It also brings attention to ethical issues regarding this study. Chapter 8 then goes on to the empirical findings and data analysis of both the qualitative and quantitative data. Existing theories on environmental concerns and pro-environmental behaviours are discussed in regards to these findings. Chapter 9 sums up

major findings and concludes with a theory. The last Chapter concludes the research and provide some general recommendations.

PART I – LITERATURE REVIEW

CHAPTER 2: CLIMATE CHANGE AND ENVIRONMENTAL ISSUES

As greedy kids in a candy store, current human demands are unlimited. In our search for Utopia we keep on grabbing whatever we want. Meanwhile, the Earth is suffering on our behalf. Albert Einstein once said "two things are infinite: the universe and human stupidity; and I'm not sure about the universe" (Quotery, n.d.). Let us take a closer look at this stupidity.

The Natural Greenhouse Effect

Without the natural greenhouse effect, the Earth would have been much too cold for life as we know it (IPCC FAQ 1.3, 2007, p. 1). Similar to a blanket on a cold winter night, the greenhouse effect does not produce heat in itself but prevents energy from escaping (Ramanathan & Feng, 2009, p. 38). Short wavelengths of energy radiates from the sun all the time and in all directions. Approximately 30% of this radiation reflects back into space at the higher atmosphere of the Earth while the rest is absorbed at the lower atmosphere and at the Earth's surface. When the colder surface of the Earth and lower atmosphere gets warmer it creates longer wavelengths of energy radiated back to space. Much of this energy is absorbed by the atmosphere and clouds before, once again, reflected back to Earth (IPCC FAQ 1.3, 2007, p. 1). This process of incoming and outgoing heat goes on until the two energy components are in balance (Ramanathan & Feng, 2009, p. 38).

The Earth's atmosphere consists of gases, particles and clouds (Ramanathan & Feng, 2009, p. 38). Some of the gases – called the greenhouse gases (GHG) – are necessary for the natural greenhouse effect to occur. Carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and water vapour are but some (Bjørke & Ahmed, 2011, p. 1.2). All around us is CO_2 and it is constantly on the move. Sometimes fast, sometimes slow, it moves in balanced cycles

between carbon stores when undisturbed. While a carbon *source* releases more carbon than it absorbs, a carbon *sink* does the opposite – it absorbs more than it releases. The oceans, forests and soils serve as natural carbon *stores*, i.e. they act as both sources and sinks (FERN, n.d.).The exchange of CO_2 between the atmosphere, biosphere and oceans form a nearly-zero cycle. In other words, there is a natural carbon *balance*.

300-400 million years ago the Earth's climate was too hostile for humans to exist due to extremely high concentrations of atmospheric CO_2. After about 200 million years, the natural carbon cycles had managed to move enormous amounts of CO_2 from the atmosphere into other reservoirs at the Earth, such as fossil fuels (Bjørke & Ahmed, 2011, p. 2.4). Coal, oil and natural gas also function as carbon *stores* but are not a part of the nearly-zero carbon cycle. Without disturbance, fossil fuel CO_2 ($FFCO_2$) would be a part of an extremely slow carbon cycle, leaking into the atmosphere through volcanic activities (EO, n.d.-b). A process that would take millions of years (EO, n.d.-a).

The Anthropogenic Greenhouse effect

Humans have disrupted this natural balance for a long time causing an *anthropogenic* greenhouse effect (Bjørke & Ahmed, 2011, p. 1.2, 1.8). An increase in any of the GHGs in the atmosphere will intensify the natural greenhouse effect, heat will accumulate and the balance between incoming and outgoing energy will get out of balance (Ramanathan & Feng, 2009, p. 39; IPCC FAQ 1.3, 2007, p. 1). The Intergovernmental Panel on Climate Change (IPCC) shows that global average surface temperature (land and oceans) has increased steadily since the pre-industrial era (IPCC, 2013, p. 3). Similarly, atmospheric CO_2, measured in *parts per million* (ppm)*, or *parts per million by volume* (ppmv), has increased at disturbing levels (Bjørke & Ahmed, 2011, p. 1.8). For the first time since records began, ppm of CO_2 in the atmosphere exceeded 400 globally for a month this year (ESRL, 2015). This is an increase of 40% from 1750-level, and most likely the highest figure in 20 million years (Furevik, 2014, p. 10; Grida, n.d.). Of the total anthropogenic GHG emissions (2010), CO_2 stood for shockingly 76% and is therefore of special interest due to its speed and magnitude (IPCC, 2014b, p. 4). The major contributors to this increase in atmospheric CO_2 are different human activities where energy use derived from the burning of fossil fuels rank as number one (IEA, 2014, p. 7; IPCC, 2014b, p. 7). Like an alcoholic throws back a bottle of perfectly aged wine, modern

civilization is now guzzling fossil fuels and spitting $FFCO_2$ back into the atmosphere in a blink of an eye. Humans' fossil fuel addiction is disrupting the natural climate *variations,* creating instead a climate *change* (UN WWAP, 2006, p. 18).

The Main Drivers

Immediate- and Underlying Drivers

IPCC divides the drivers of emission trends into *immediate-* and *underlying drivers*. For the immediate drivers they name "population, gross domestic product (GDP) (production) and gross national expenditure (GNE) (expenditures) per capita, energy intensity of production and expenditures, and GHG-emissions intensity of energy" as main factors. For the underlying drivers, the factors influencing emissions are "fossil fuels endowment and availability, consumption patterns, structural and technological changes, and behavioural choices" (IPCC, 2014b, p. 7). The following sections will look into some of these drivers more closely.

Population size, Affluence and Technology

Ehrlich and Pringle (2008) suggest that three anthropogenic factors influence the environment: population size, affluence and technology. This is called the IPAT heuristic and can be presented as an equation: Impact = Population x Affluence (consumption per person) x Technology ("the amount of resources needed, or wastes created, while producing each unit of consumption") (Thwink, n.d.). In theory, a reduction of any of the three factors will reduce the human impact on the environment (Ehrlich & Pringle, 2008, p. 11581).

The past decades are characterised by a tremendous population growth. From 1970 until 2010 the population grew at 87% giving a current population of 7,2 billion people (IPCC, 2014b, p. 23; Worldometers, 25.02.2015). All human beings have biological needs that are met by energy and ecosystem services. The modern human being is, however, a bigger burden upon the environmental systems than its precursor. There are two main reasons for this. First, we have already used the most easily available and fruitful resources and converted the most productive and richest lands. Second, we have become more greedy and demanding: we are harder to satisfy. To maintain this development will mean that we have to dig even deeper to

gain more fossil fuels, we have to make use of scarce and marginal land, and products and services must be transported even farther to cover the growing population at every corner of the Earth. Huge amounts of energy is required to keep this going (Ehrlich & Pringle, 2008, p. 11580). This accelerating process of population growth and the attempt of meeting their demands is degrading the environment, threatening biodiversity and overexploiting natural resources (IPCC, 2014b, p. 23).

Looking purely at statistical analysis, it would seem that population growth has been the main driver behind the increased GHG emissions over the past decades (O'Neill, et. al., 2010, p. 17521). For example, Asia – home to about 60% of the total world population – have the last decades seen a rapid population growth followed by at least 50% increase in per capita emissions (IPCC, 2014a, p. 1332; IPCC, 2014b, p. 24). However, population operates as only one of the factors in the IPAT equation and cannot be seen in isolation. The increased GHG emissions in Asia are undoubtedly connected to a rapid population growth but is also a result of a steep growth in GDP (IPCC, 2014b, p. 20). Researchers and scientists have studied the relationship between GDP (economic growth/development) and environmental quality for many years. The focus has been on whether or not economic growth and environmental quality could go hand in hand, and how a policy that covers both subjects may improve human welfare (Azomahou & Van Phu, 2001, p. 2). The most famous hypothesis on the GDP-environmental quality connection is the environmental Kuznets curve (EKC), introduced by Simon Kuznets. The EKC hypothesis suggests that at very low levels of development (i.e. undeveloped country) there would be insignificant environmental impacts due to modest economic and industrial activities. As economic activity increases and industry intensifies, resource depletion, waste generation and pollution will accelerate. At a certain point, the economic development, structural changes and increased environmental attention will lead to technological solutions (also suggested by the IPAT equation). Such technologies will either manage or avoid environmental problems and the curve will reach a turning point before decreasing (Stern, Common, & Barbier, 1996, p. 1151-1152; Choi, Heshmati, & Cho, 2010, p. 2). Despite being a highly popular hypothesis (especially among economists), the EKC does not give very robust evidence and the results from research on the topic varies greatly (IPCC, 2014b, p. 28; Stern, et. al., 1996; Azomahou & Van Phu, 2001). In studies that supports the inverted-U curve hypothesis, turning point estimates differ significantly (Azomahou & Van Phu, 2001, p. 2-3). Other studies reject the EKC altogether (e.g. Hettige,

Mani & Wheeler 2000, Shafik 1994 and Aslanidis & Iranzo 2009). Yet others show an N-curve instead of a U-curve (e.g. Poudel, Paudel & Bhattarai 2009). Additionally, results tend to vary between regions (IPCC, 2014b, p. 27).

In a globalised world with international trade and geographically separated production and consumption, it becomes increasingly difficult to calculate and pin-point emissions to a specific region or country (Davis & Caldeira, 2010, p. 5687). Nevertheless, some general trends can be found.

Rural-Urban Divide and Urbanisation
Global CO_2 emission trends based on data from EDGAR (Electronic Data Gathering, Analysis, and Retrieval system) showed a decreasing trend with "only" 1.1% increase in 2012. This is mainly due to decreased emissions in United States (US) and the European Union (Oliver, Janssens-Maenhout, Muntean & Peters, 2013, p. 8). IPCC shows that per capita emissions have declined all over the world – except Asia. China is an exception, however, showing new trends, which will be elaborated later. IPCC further shows that per capita emissions tend to grow in developing while decline in developed countries (2014b). At first sight, this might look like it supports the EKC hypothesis with an observed GHG decrease and a GDP increase. However, a further investigation of regional CO_2 emissions shows that there are large variations in the underlying drivers of emission trends (Oliver, et. al., p. 4).

Some of these underlying drivers are *consumption patterns* and *behavioural change*, closely related to Affluence in the IPAT equation. While Ehrlich and Pringle are right in their IPAT heuristic that population density, technology and GDP are important influencing factors, the variation between regions also stems from other aspects such as culture, environment, social ties, individual perceptions and values of the society (IPCC, 2014b, p. 49, 51). Affluence, consumption, behavioural change and per capita emissions differ greatly both between and within countries. A clear trend, especially in developing countries, is the difference of GHG emissions between rural and urban areas (IPCC, 2014b, p. 24, 27). Rural areas are home to an overwhelming proportion of the poorest people in developing countries. They are characterised by lower income compared to their urban counterparts and tend to be highly

dependent on natural resources and agriculture (IPCC, 2014e, p. 616, 618). This makes the rural dwellers a vulnerable group in the climate change context.

Environmental factors such as loss of arable land, exposure to hazards, water and food scarcity and degradation of ecosystems, as well as social, economic and demographic factors, are the major drivers behind migration and rural-urban population movements (ADB, 2012, p. 27; McMichael, Barnett & McMichael, 2012, p. 647). The fact that most of the world's urban population and biggest cities are now located in low- and middle-income countries is an indicator of an urbanisation-wave in the developing world (IPCC, 2014g, p. 541). In the year 2000, almost 50% of the total urban population in the world were located in Asia. By 2030, an estimated 80% of the world's urban population will be located in developing countries (UN WWAP, 2006, p. 89; UNDP, 2014, p. 4). On the positive side, rural-urban migration can be an adaptive strategy where remittances may decrease vulnerability in the area of out-migration (IPCC, 2014e, p. 20). As such, urbanisation is often associated with economic growth and poverty reduction. On the negative side however, it is also a great contributor to increased emissions as well as other developmental, environmental and social problems (IPCC, 2014g, p. 542; IPCC, 2014b, p. 24, 25). A growing urban population means an increasing need for more assets and resources in order to adapt. Unfortunately, local governments in many developing countries are unable to provide these resources and fail to manage and control the urban development (IPCC, 2014g, p. 7, 543). Moreover, a growing population living modern, consumer lifestyles put pressure on already scarce natural resources and contribute to enhanced anthropogenic GHG emissions associated with an increase in extreme events and disasters (Dabelko & Parker, 2012, p. 1; McMichael, et.al., 2012, p. 647).

Urbanisation, change of lifestyles, behaviour patterns, increasing demands and fossil fuel addiction are causing severe adverse impacts on the environment. The scope of this paper does not allow for a full climate change impact review. Instead, it will look deeper into two of the natural resources that stands out as inevitable for the survival of civilization.

CHAPTER 3: AIR AND WATER

Air

> *"Air pollution results from the combination of high emissions and unfavourable weather"*
> *(Jacob & Winner, 2009)*

Clean air consists of gases that are odourless and invisible, mainly nitrogen (N_2) and oxygen (O_2) but there are also traces of water vapour, argon, helium, neon, hydrogen and CO_2 (EPA, 2013a; Airqualityinfo, n.d.). Natural sources for air pollution are volcanic eruptions, wildfires and dust storms that for millions of years were the main sources. Then, humans entered the ring and disrupted nature's game. Man-made air pollution was already recognized in the Middle Ages by coal burning but has increased rapidly since the industrial revolution (Hogan & Slanina, 2010). Both indoor and outdoor air pollution affect natural and human systems around the world and the negative impacts are severe (UNEP, 2014, p. 44).

Indoor air pollution often stems from coal and biomass burning for cooking and heating. It is one of the main causes of child mortality and causes an estimated 4.3 million premature deaths annually (UNEP, 2012, p. 7; UNEP, 2014, p. 44). The most vulnerable groups are poor, rural families in Asia and Africa where women and children are especially exposed (UNEP, 2012, p. 7). Outdoor air pollution, on the other hand, has become an increasing problem in urban areas (UNEP, 2014, p. 44). Carbon monoxide, volatile organic compounds (VOC), Ozone (O_3), oxides of nitrogen (NO_x), SO_2 and particulate matter (PM) are the most common air pollutants (AP) that are used as indicators for measuring outdoor air quality (EPA, 2013a). Sources of air pollution from human activities includes industrial activities, fossil fuel combustion, traffic, power plants, forest fires, and open burning of municipal waste and agricultural debris (UNEP, 2014, p. 43). Most of these are also sources for GHGs and show that air pollution and climate change are interlinked (Bytnerowicz, Omasa, & Paoletti, 2006, p. 438).

Traffic and industry are the main localised contributors to urban pollution, yet air quality is also impacted by weather (D'Amato, Cecchi, D'Amato & Liccardi, 2010, p. 96; Jacob & Winner, 2009, p. 51). Changes in wind patterns and precipitation as part of climate change may have an impact on how APs are distributed and mixed as well as the frequency and extent of the pollution (Bytnerowicz, et. al. 2006, p. 439). In this way, climate change may exacerbate the problems even if AP emissions were reduced (IPCC, 2014g, p. 556; Jacob &

Winner, 2009, p. 51). Air is a recycled universal good shared by all living creatures on the planet and should therefore be regarded as a transboundary issue (Airqualityinfo, n.d.).

Long-lived APs that originate in one country can be transported over great distances and create negative environmental impacts and health problems in another country (DEFRA, 2010, p. 9). The scholar community disagrees on the exact longevity of atmospheric CO_2, mainly due to its complex exchange between ocean, atmosphere and soil (Sonnemann & Grygalashvyly, 2013, p. 1592). Most researchers nevertheless agree that CO_2 lingers long enough in the atmosphere to be carried across national borders (Akimoto, 2003, p. 1716). Tropospheric O_3 (also called ground level ozone) is a potential long-lived GHG causing great concern in regards to air pollution, smog creation and adverse health impacts such as breathing problems and asthma-symptoms (Akimoto, 2003, p. 1716; DEFRA, 2010, p. 8; D'Amato, et. al., 2010, p. 97). It also leads to reduced carbon uptake by vegetation and is therefore a direct and indirect contributor to damaged crops and global warming (UNEP, 2014, p. 43; DEFRA, 2010, p. 8).

In some cases, APs return to the land and water through gravity or as dust or precipitation. This is causing degraded water quality both locally and globally (EPA, 2013b). With warmer weather, we should expect more precipitation in some areas, while more droughts in others. Floods and droughts will become more extreme in a warming world. It is clear that climate change, air and water are interlinked.

Water

> *"Water links us to our neighbour in a way more profound and complex than any other"*
>
> *(John Thomson)*

Water is everywhere: at the Earth's surface plain for the human eye to see, below the ground and even in the air we breathe. The Blue Planet consists of approximately 70% water where 97,5% of this is oceans, 2,5% is freshwater in glaciers, groundwater and permafrost, and 0.4% is surface and atmospheric water in freshwater lakes, plants and animals, soil moisture and wetlands (UN WWAP, 2006, p. 121). Water moves in a hydrological cycle: it falls from the atmosphere as precipitation and is absorbed or evaporated by the land and vegetation or makes its way from the surface to oceans, lakes or groundwater as runoff. With the help of

solar energy, water evaporates from the oceans before returning to the atmosphere where it starts the cycle all over again (FAO, n.d.). With approximately 50 times the amount of carbon found in the atmosphere and absorbing about 25% of $FFCO_2$ emissions, oceans serve as the main atmospheric CO_2 sink. This gives the oceans a vital part in the carbon cycle as well as the climate dynamics and human survival (NASA, n.d.-a; Sonnemann & Grygalashvyly, 2013, p. 1592; IPCC, 2014d, p. 417). Despite its crucial role, the hydrological cycle is threatened, disrupted, and polluted by both human activities and climate change alike.

Climate change affects both water quantity and quality through increased temperatures and extreme events such as flood and droughts. For example, a warmer climate will lead to the mineralization and higher releases of N_2, phosphorous and carbon from the soil. By increased precipitation and flood, the pollutants are carried into oceans and lakes – further degrading the water quality (Delpla, Jung, Baures, Clement & Thomas, 2009, p. 1226, 1228). The accumulation of atmospheric CO_2 are forcing the oceans to absorb even more than it would do as part of the natural nearly-zero carbon cycle (UNEP, 2012, p. 11). This has not only led to a remarkable increase in ocean temperatures but has also disrupted the oceans' chemical composition and marine life.

When CO_2 is absorbed by seawater, carbonic acid is formed and a reduction in pH-values takes place. As a result, the oceans become more acidic and ocean acidification (OA) occurs (Tograder, 2014, p. 11). Such changes have major direct and indirect impacts upon the marine life and ecosystems (Doney, et.al., 2012, p. 16). The so-called calcifiers – i.e. marine species that produce their shells or skeletons on calcium carbonate ($CaCO_3$) – are especially vulnerable. A more acid seawater enters the organisms, making it harder for them to turn seawater calcium into $CaCO_3$. This demands a lot of energy – energy that otherwise have been used on reproduction, growth and other biological processes. Their shells, skeletons and survival are hence in danger of dissolving (IPCC, 2014d, p. 436).

Poor water quality also affects humans. We need water for sanitation, drinking, washing and cooking: we need water to stay alive. If aquatic ecosystems are polluted, degraded or unhealthy it will have negative consequences for the ecosystem services it provides – the very same services that human survival depend upon. Sadly, this is the case in many areas, directly and indirectly affecting the livelihoods of human communities. Ironically, human activities and other external pressures on ecosystems, play a huge part of the declining quality and

quantity of water (Doney, et. al., 2012, p. 12). The main human activities that adversely affect water resources are: 1) population growth, 2) urbanisation, 3) higher demand for comfort, convenience and consumption (the three C's), and 4) pollution (UN WWAP, 2006, p. 121).

Water (like air) is not created but recycled. The resources are nevertheless infinite and a rapid population growth pushes water resources to their natural limits (Population Institute, 2010). When the hydrological cycle is disrupted and water is removed from natural resources, it is called a *water withdrawal*. There are three main purposes for water removal: 1) agricultural, 2) municipal (and domestic), and 3) industrial use. Even though most of the withdrawn water is returned to nature after being used, it is of less quantity and of poorer quality than initially (FAO, n.d.). Huge amounts of water is necessary to produce food. It comes as no surprise then, that agriculture is the biggest consumer of freshwater in the world (UN WWAP, 2006, p. 173). Agricultural production of food is so extremely dependent on water that in some regions it consumes between 75 – 90% of the available freshwater resources (Population Institute, 2010). A growing population, increased income and changed habits in many countries require even more water to produce even more food (PAI, 2012). To maintain, and even increase crop yields, millions of tons of chemicals are used in the agricultural production. Chemical and pesticides runoff from agricultural point sources pollutes waters, reduce water quality and creates serious environmental and social problems (Schwarzenbach, Egli, Hofstetter, von Gunten, & Wehrli, 2010, p. 116). For 3 billion people in the world, fisheries provide 20% of animal protein consumption and 400 million people are heavily dependent on fish for survival (IPCC, 2014d, p. 452). Water stress and water pollution transcends national borders and have become global worries. The economic development and growth of human population are some of the primary determinants for the future water condition of the planet (Vörösmarty, Green, Salisbury, & Lammers, 2000, p. 285).

Urbanisation is linked to industrial development and a shift from rural agriculture to industrial jobs. Unfortunately, this does not mean a removal of the water problems caused by agricultural activities. With industry come unwanted, but similar, consequences such as increased water withdrawal, dumped solid and liquid waste, untreated industrial discharge and high amounts of water consumption (UN WWAP, 2006, p. 276). The urban populations also have large impacts upon freshwater as well as wastewater management. The most vulnerable groups are poor, often rural, migrants that have no other option than to settle in slums lacking provisions for freshwater and sanitation (UN WWAP, 2006, p. 89, 90, 91). Inadequate quality

of water is already adversely affecting the health of more than 1 billion people and contributes to more than 840 000 deaths annually (water.org, n.d.). Water withdrawals for domestic and municipal use are also increasing and are expected to keep rising as the growing numbers of urban dwellers become richer and more demanding. More and more countries experience economic growth and urbanisation, creating a risk of over-pumping of water resources. A depletion of aquifers affecting agricultural production and turning water scarcity into food scarcity is of great concern (PAI, 2012). Types of pollutants differ from each industrial sector. Common for all industries, however, is that the industrial process adds different kinds of harmful chemicals, sludge, heavy metals and radioactive waste to the water. In many cases, unfortunately, this wastewater is dumped into natural water resources (WBCSD, 2005, p. 5). Heavy metals are a natural part of the Earth's crust and present in all ecosystems, though too high concentrations and accumulation in marine organisms can cause dysfunction in reproduction, growth, immune systems and metabolism. It may also have negative health impacts on humans indirectly through food chains (Islam & Tanaka, 2004).

Cities cover the land with buildings and pavements that hinder precipitation to be absorbed by the ground. Instead, precipitation is driven away as stormwater transporting pollutants that ends up directly into streams and rivers, further degrading the water quality (EPA, 2003). To some degree, rivers and lakes are able to break down some of these pollutants, however, this natural limit was surpassed long ago (WBCSD, 2005, p. 4, 5). Physical, chemical and climatic changes are all subject to natural variations. Species have a certain tolerance for such changes and are able to adapt to environmental variability. A problem occur if such variations happen too fast or exceed the normal range. While some species may benefit from such abnormal variations, most species will not have the tolerance or ability to acclimatize and adapt (Doney, et. al., 2012).

Another area where natural variations have been disrupted by human activities are the occurrence of the so-called "dead zones", i.e. areas of water (freshwater and oceans) with very low levels of O_2. Even though dead zones have occurred naturally for centuries, they are at an increasing scale caused by human activities. Between 1960 and 2008, dead zones increased from 42 to 400 (IPCC, 2014d, p.420; Islam & Tanaka, 2004, p. 637). One of the main anthropogenic reasons for this is an enrichment of nutrients (IPCC, 2014d, p.420). Nutrients, such as N_2 and phosphorous, are crucial parts of the marine life and is provided by nature in the exact right amounts. An overabundance of nutrients will cause eutrophication (UN

WWAP, 2006). Algae, plankton and other microorganisms thrive in such conditions causing algal bloom development that covers the water and hinders O_2 from penetrating the surface. This is resulting in hypoxia (reduced levels of O_2) with consequences such as loss of species and biodiversity (Islam & Tanaka, 2004, p. 628). Nutrient runoff stems both from agriculture and industry but increased municipal waste and sewage sludge from urban development further contributes to eutrophication (UN WWAP, 2006, p. 173, 174; Islam & Tanaka, 2004, p. 628).

Water and the marine biodiversity provide countless ecosystem services. One example is genetic resources from marine species that are useful in pharmaceutical industry and may be potential medicines for humans (IPCC, 2014d, p. 453). Bioprospecting has discovered a vast number of marine organisms and chemical compounds successfully used in drugs to fight HIV, dengue, malaria and cancer to mention a few. It is estimated that only 5% of the oceans have been explored, indicating that the marine environment has yet a lot to offer (NOAA, n.d.). Nonetheless, climate change and anthropogenic pressures are throwing a monkey wrench into the discovery of potential medicines from the marine biodiversity.

Most people would agree that the world is developing, but in which direction? Are we heading towards a past scenario of dangerously high CO_2 concentrations in the atmosphere, extreme climate and a hostile environment (Bjørke & Ahmed, 2011, p. 2.4)? What will happen in a hundred years from now if we keep the same path? Al Gore's answer is clear: "What is at a risk if we didn't take action, truly, is the survival of civilization as we know it" (Merchant, 2013).

CHAPTER 4: FUTURE PROSPECTS

Is There Hope?

So far, we can draw three conclusions. 1) Current climate change and global warming cannot be described by natural phenomena or variations alone. 2) The ones to blame are humans, their addiction to fossil fuels and greediness for the three C's (comfort, convenience and consumption). 3) Climate change and global warming have adverse impacts on every single individual on this planet.

If we follow the same path, temperatures will continue to rise and the already observed changes will worsen and expand (IPCC, 2007, p. 45). The climate and weather will become more extreme (Bjørke & Ahmed, 2011, p. 4.3). Heat waves will occur and make dry areas even drier. Warmer oceans causing heavier precipitation will make rainy areas wetter (IPCC, 2013, p. 18, 21). Cyclones, typhoons, hurricanes and storms will become more intense (Bjørke & Ahmed, 2011, p. 4). Sea level rise will leave coastal cities and industries highly vulnerable. Malnutrition, deaths and diseases will increase. Many plants and animal species will be in danger of extinction as they do not manage to adapt to the rapid changes (IPCC, 2007, p. 33, 48; Bjørke & Ahmed, 2011, p. 4.6). Further degradation of ecosystems and huge losses of biodiversity will have enormous negative consequences for human well-being. Without well-functioning ecosystems, humans cannot gain from their services and basic human needs such as food and water will be reduced to a pipe dream (Bjørke & Ahmed, 2011, p. 4. 13). What is more, environmental degradation does not account for national, cultural or religious boundaries. The toxification of air and water affects all the 7 billion people on the planet. Because of the modern civilization's interconnected world economy and the reliance on international trade, obliteration of such industries will have impacts on millions of people around the world (MEA, 2005, p. 10).

Green Technology

In order to prevent global warming to exceed the threshold of 2C, between two-thirds and four-fifths of the fossil fuels reserves must be left in the ground. Since the industrial revolution, growth depended on fossil fuels. Fossil fuel driven growth and development have been regarded as a human right. With a population more than double that of 50 years ago who greedily consumes carbon-based products, this growth is indisputable unsustainable. There are three ways to solve this problem: 1) reduce consumption, 2) reduce population size, or 3) make growth less carbon-intensive.

Is the world willing to give up their modern lives of tablets, cars, mobile phones, washing machines and fridges produced by fossil fuels? Most likely not. When it comes to population size: birth rates tend to decline with better income and living standards. That leaves the question of how growth can be a part of the solution to (and not the cause of) climate change. The answer is now on everyone's lips: *green, renewable energy*. It is no longer a discussion

of "less" or "more" growth; it is about making it "better". Technological change is a driving force behind fossil-fuel phase-out and a springboard for sustainable development (Elliott, 2015). Developing countries and emerging economies must be the centre of attention in this transaction. For decades, these countries have been led by policy-makers whose main concern have been short-term economic growth, poverty reduction and job creation (TNCE, 2015). This has become the centre of attention as the global community is starting to realise that there are no jobs on a dead planet (Burrow & Naidoo, 2015). The Global Commission on the Economy and Climate analyses the costs and benefits of acting on climate change, and is searching for low-carbon, climate-resilient economical pathways (TNCE, 2015). The investment in clean energy is sky rocketing (Elliott, 2015). Solar energy, wind power, bioenergy, hydrogen, ocean energy and geothermal energy are all renewable energy sources that with the sufficient technology will have lower environmental impact than fossil fuels (Renewable Energy, n.d.). In the 21st century, there are no barriers regarding technology or economy to cut down GHG emissions. We have run out of excuses. It is a matter of willingness to value long-term solutions instead of immediate benefits. The greatest obstacle to make this change is how to manage and balance the competing interests (Burrow & Naidoo, 2015).

A trend has emerged in oil-rich Norway. While the current government shows few and weak signs on transactions to renewable energy, the civil society has made it clear that it is no time to wait. Norwegian trade unions, environmental organisations and the state church have come together, working on a climate solution from the bottom-up (Broentilframtiden, n.d.). In conjunction with the release of the IPCC's report AR5, the then current Chairperson Rajendra Pachauri expressed the severity of climate change: "The high speed mitigation train needs to leave the station very soon and all of global society would need to get on board" (Globalpost, 2014). The report stresses the necessity of changing current trends and the need for governments *and* individuals alike to take action (IPCC, 2014f). Unfortunately, there are little progress in reducing atmospheric GHGs and air and water pollution are still serious problems (UNEP, 2012, p. 5, 6, 24-25). The IPCC (2014) has in this regard come with a "final warning". Dr. Pachauri announced that "To keep a good chance of staying below the 2C, and at manageable costs, our emissions should drop by 40 to 70 percent globally between 2010 and 2050, and falling to zero or below by 2100" (Connor, 2014). One of the most influential and unavoidable players in the search for a sustainable world is China.

CHAPTER 5: CHINA

China's History, Economic Development and State-Society relationship

The People's Republic of China (PRC) is massive – at many levels. The population of 1.3 billion makes it the most populous country in the world. It ranks the third largest country with 9 600 000 km^2, and it has the longest combined land border in the world (shared with Russia) (TravelChinaGuide, n.d.). Its environment and nature is no less impressive. It holds the largest and highest plateau, The Yangtze and Yellow Rivers – two of the largest rivers in the world, and some of the highest mountains on the planet are all located within China's borders. In addition comes its long coastline and the complex and diverse ecosystems including: glaciers and deserts, rainforests and wetlands, lakes and oceans (Liu & Diamond, 2005, p. 1179).

Figure 2: Private Picture from The Bund

From the day Deng Xiaoping came into power in 1978 the liberal economic politics "reform and opening", by some termed "market-Leninism", have been known for its success (Tilt, 2010, p. 31). In the past three decades, China has been characterised by an amazing economic

growth as well as remarkable developments in health, education, science and technology (WB & DRCSC, 2013, p. 4). Energy efficiency, i.e. the ratio of service output to energy input, in China has improved the fastest in the world. The share of fossil fuels in the country's energy mix has decreased since the end of the 20th century and it is one of the leading countries in renewable energy investments (WB & DRCSC, 2013, p. 40).

With a GDP (2013) of US $9.240 trillion, China is now recognized as an "upper middle income" country by the World Bank (WB, 2013). It is a major global economic power that has managed to lift 500 million people out of poverty (WB & DRCSC, 2013, p. 4). In 2007, China gave way for more sustainable production and consumption models including environmental protection and improvements of social welfare (IPCC, 2014e, p. 58). Furthermore, the Chinese government released, in 2012, a national report addressing the current situation of China's sustainable development. The report presented impressive numbers, statistics and results giving an impression of an emerging environmental friendly dragon. Some of the spectacular achievements and efforts made towards a sustainable development mentioned in the report are: "to realize free compulsory education"; "the urban-rural disparity has been narrowed"; "drinking water conditions have been greatly improved"; "binding targets for energy-saving and emission reduction, and intensified water pollution control in key river valleys, air pollution control and comprehensive industrial waste management" and; "urban air quality and surface water quality have seen noticeable improvements" (PRC, 2012, p. 3-4).

Despite its remarkable achievements, the reform and open-up policies did not take into account the dire environmental crisis on the heels of development (Tilt, 2010, p. 35). The most populated country in the world is also the world's largest emitter of CO_2 and performs the worst of all the 58 countries included in the Climate Change Performance Index 2014 (CCPI, 2014). China has a variety of energy resources including hydro energy and coal. Nevertheless, it lacks in high-quality fossil energy and the existing energy resources are in general underdeveloped, poorly managed and hard to exploit (Jiang, 2008, p. 261-262). IPCC estimates that carbonaceous aerosols (organic and black carbon) from fuel combustion increased in China the first decade of the 21st century and that the increase of CO_2 emissions was closely related to an increase in urbanisation and the subsequent lifestyle changes (IPCC, 2014e, p. 17, 25). Electricity consumption and energy use has also skyrocketed the last decade (WB, 2011a, 2011b, 2011c). China surpassed the US as the largest energy consumer in the

world in 2009. Two years later, China was responsible for 50% of the total oil consumption growth. It is estimated that by 2035 the Asian dragon will have an energy consumption of 70% more than the US (Morrison, 2014, p. 23). Between 2008 and 2013, China's carbon intensity fell by approximately 1.6 percent annually, but because of the intense and rapid growth, its emissions kept rising. In 2014 however, this trend got to a halt. The big question is whether this is a result of the government's clean up strategy or just natural fluctuations (Plumer, 2015).

The country's whole history from ancient China and its dynasties – however impressive and important – is unfortunately beyond the capacity of this paper. In order to grasp the link between its economic development and environmental status as well as the state-society relationship amidst these circumstances, a limited time span will take a closer look at the history of the PRC from 1949 up until present.

The Sick Man of Asia

70 years ago, China was one of the poorest countries in the world. Referred to as the "Sick Man of Asia" its annual income was only US$50 and its share of the world economy as low as 5% (Thomas, 2007, p. 2). A vast number of factors can explain this economic condition: the imperial political-institutional system, a general lack of new technologies, several civil wars, and the World War II (WWII) – to mention a few (Zhu, 2012, p. 105). In addition, European imperialism imposed foreign military treaties and unbalanced trade practices, which resulted in low internal state sovereignty in China (Thomas, 2012, p. 1). Post-WWII China, however, went in a completely different direction.

When the PRC was established in 1949, it was a highly organised country. The Chinese Communist Party (CCP) under leadership of Mao Zedong had great influence, control and sovereignty over all levels of its country: from the civil society to the economy (Thomas, 2007, p. 23). At that time, China and the Soviet Union were in alliance and in confrontation with the US – resulting in an international isolation and a Soviet model for economic growth. Resources were concentrated in the industrial sectors in order to escalate the domestic expansion in large-scale industries such as steel, mining and electricity. The industrialisation process that started in the early 1950's, was characterised by capital accumulation. A strict government control limited household consumption and established low prices on agricultural

goods. Savings and surpluses from the agriculture were reallocated to the industry sector (Zhu, 2012, p. 109). A Marxist-Leninist ideology of nature as subordinate to man reflected CCP's policies: industrialisation and technology was viewed as solutions to overcome and to change nature. The policies were centrally planned with low flexibility (if any at all) and closed for inputs and information from the grassroots (Ho, 2001, p. 894, 895).

The three major ways the CCP kept its society under control was by: 1) state-owned enterprises (SOE) which kept control of the urban working society, 2) people's communes that kept control over rural peasants, and 3) the household registration system *Hukou* that kept control over internal village-to-village and rural-urban migration (Lin & Lin, 2007, p. 116-117). This strict control over the Chinese population led to a divide between rural and urban residents, and between workers and cadres (Zhou, 2000, p. 98). Only through SOEs and people's communes did the state and society interact (Lin & Lin, 2007, p. 117). The few organisations that existed were either controlled, established, or led by the government. No wonder many scholars claim that a civil-society was non-existent in China at that time (Zhou, 2000, p. 98, 99).

Even though the result was an increase in the Chinese economy, it was not without costs. During the "Great Leap Forward" an estimated 30 million people died due to the man-made famine, and the following "Cultural Revolution" put the brakes on educational development (Rawski, 2011, p. 4). The heavy industrialisation and collectivization thus resulted in an inefficient growth, famine, civil unrest, low levels of living standards, misallocation of resources and dire environmental consequences (Zhu, 2012).

Reform and Opening Up
After Mao's death in 1976, the CCP under leadership of Deng Xiaoping was attempted to turn around the negative development (Zhu, 2012, p. 110). By late 1978, Xiaoping introduced the policy of "reform and opening up" which turned out to be a turning point for state-society relations in China and a springboard for the overall development of the country (Lin & Lin, 2007, p. 117; Kang & Han, 2008, p. 36). At the centre of this policy was economic growth that involved all levels of the nation: from individuals to local governments. Due to the previous famine and low agricultural production, the reforms strategically started in the agricultural sector. Successfully, this resulted in a productivity growth, alleviation of food

constraints, and a shift of labour from agriculture to industry (Zhu, 2012, p. 113). China started to open up to the global economy, which provided the country with expertise, investments and advanced technologies (WB & DRCSC, 2013).

The Chinese state retained its power even after the opening up reforms. The CCP continued to own and control the industrial and economic sector and kept a firm grip on its civil society (Thomas, 2007, p. 26; Schwartz, 2004). It is interesting to note that the initially strong power and position of the state is actually what made civil society blossom. On the one hand, the economic policies were government-initiated, top-down reforms (Kang & Han, 2008, p. 39). On the other hand (as a consequence of the gradually shift towards a market economy and open door policy) the state shifted from a totalitarian to an authoritarian regime while permitting increasingly interaction with the international community. This internal and external successive change has made it possible for a civil society to flourish and has added a new dimension to state-society relations in China (Lin & Lin, 2007, p. 115). As will be presented below, another result of this transformation was an increasingly "greening" of the Chinese state, a post-reform boom of social organisations, and a development of a Chinese embedded environmentalism (Ho, 2001, p. 897, 899, 902).

Graduated Controls, Space of Interaction and Embedded Environmentalism

More than once has the central government made clear that movements in opposition to the state are not tolerated (Ho & Edmonds, 2007, p. 335). Nevertheless, since the middle of 1990's there have been Non-Governmental Organisation (NGO) campaigns and public discussions every year in China (Yang & Calhoun, 2007, p. 218). This may seem contradictory but this is what makes the distinctive Chinese state-society relationship.

As carriers of collective behaviour, social organisations are viewed by the Chinese state as possible enemies and threats to state power. Formal organisations such as politically antagonistic organisations and some NGOs are therefore subject to very strict control (Kang & Han, 2008). For example, strict registration rules for social organisations was enacted in 1998, making it almost impossible for NGOs to be independent of the state or to receive funding without interacting with the government (Schwartz, 2004, p. 37; Lin & Lin, 2007, p. 118). Furthermore, the state has the overall responsibility for laws, regulations and policies also in the environmental protection spheres. Hereof, the State Environmental Protection

Administration (SEPA) is the most powerful and central environmental protection unit (Schwartz, 2004, p. 29, 30). Still, social organisations may be possible partners in "coproduction" and can as such serve as providers of public goods (Ostrom, 1996, p. 1073; Kang & Han, 2008, p. 38). The current semi-authoritarian Chinese state has therefore put into practise a system of "graduated controls" using "many, contradictory voices" to receive maximum benefits of the state-society relationship (Kang & Han, 2008, p. 39; Stern & O'Brien, 2012, p. 177). By implementing the system of graduated controls, the Chinese state controls and limits social organisations according to the public services they provide and how useful they are to the state (Kang & Han, 2008, p. 49). This does not give a state against society but has rather created what can be called a space of interaction. One outcome of this is the "embedded environmentalism" (Ho & Edmonds, 2007, p. 333, 334).

China's economical focus and the following decentralisation of the government in the late 1990's resulted in staff reductions in SEPA among others. Training and education of staff dealing with environmental issues got lower priority than economic growth (Schwartz, 2004, p. 32). The CCP was (and still is) caught between a rock and a hard place, or – one could rather say – between environmental protection and economic growth (Lin & Lin, 2007, p. 120). Environmental NGOs (ENGO) also face staff challenges. Well-educated professionals view NGOs as weak organisations in the sense that they have less influence, lower salaries and poorer access to resources than state organs (Schwartz, 2004, p. 39). In sum: the state has a limited capacity to deal with environmental issues and ENGOs lack access to resources, legitimacy, and power. The space of interaction has enabled both parts to benefit from one another. The state needs public participation and volunteer work to enhance environmental protection, hence reduces control over such organisations (Lin & Lin, 2007, p. 120-121). ENGOs, on their side, take advantage of embeddedness and social capital to receive data and resources they would otherwise not be able to access (Ho & Edmonds, 2007, p. 334).

One example is Friends of Nature (FoN) that was established in the mid-90's. It is one of the first ENGOs in China and has later expanded in terms of both members and influence. They keep a non-confrontational profile and instruct their membership to stay away from conflicts with the state (Schwartz, 2004, p. 39). As long as they keep a low profile, there is a better chance that the state allows FoN to operate freely (Lin & Lin, 2007, p. 119). From the state's perspective, reduced control makes ENGOs such as FoN more receptive to cooperation and might help the state filling the gap between economic growth and environmental protection

(Lin & Lin, 2007, p. 121). The embeddedness is the tie that binds them together. FoN's leader, Liang Congjie was not only a famous, highly educated charismatic leader but also a member of the Chinese People's Political Consultative Conference Standing Committee (Lin & Lin, 2007, p. 122; Schwartz, 2004, p. 40). With his huge social capital, widespread connections and official status he connected FoN with the state. The result was that the state acknowledged his (and hence FoN's) credibility and FoN got access to data and other resources (Schwartz, 2004, p. 40).

Population and Urbanisation

Despite the one-child policies, China's population is increasing. Over the past half century, the population has more than doubled, reaching the current 1.3 billion (Liu & Diamond, 2005, p. 1179). The urbanisation trend in China started off in the late 1970's in the wake of the opening up policies and the following economic growth (Chen, 2007, p. 1). Notwithstanding a relatively low growth rate, so-called "megacities" (i.e. cities with more than 10 000 000 urban dwellers) started to emerge all over China from the 1990's. There is no sign of slowing down: the urbanisation wave is expected to keep growing in the coming decades (Chan & Yao, 2008, p. 3). It is estimated that in the next 20 years the number of new urban dwellers will be equivalent to more than one Buenos Aires or Tokyo – annually. On the bright side, this massive urbanisation is an engine for economic growth and poverty alleviation (WB & DRCSC, 2013, p. 9). The world in general, and China in particular, are experiencing a declining rural population as they are becoming more and more integrated in the rest of the world. An economic transformation is occurring where rural poverty has declined through (among others) remittances (IPCC, 2014e, 616). The downside of this urbanisation is that urban poverty and inequalities has increased consequently (McGranahan & Tacoli, 2006, p. 32). China's household registration system has only aggravated the problem and made rural migrants residing in urban areas particularly vulnerable.

The Hukou System

The Household Registration System – *Hukou* – has existed since the 1950's and works as an institutional mechanism for establishing citizens' official status (Cheng & Selden, 1994, p. 644). Originally a tool to prevent rural-urban migration, it soon evolved to become a way of

classifying the Chinese society. It identified a person's residence status into *rural* or *urban* and a person's socio-economic qualification into *agricultural* or *non-agricultural* (Kuang & Liu, 2012, p. 1). Although the Hukou system has undergone many changes and does no longer prevent rural-urban migration, it is still applicable and has great influence on the lives of rural migrants (McGranahan & Tacoli, 2006, p. 15). Since urban areas in China are state-owned, urban residents enjoy social benefits granted by the state. The rural areas, on the other hand, are not considered the state's responsibility in this regard (Cheng & Selden, 1994, p. 644). Due to the Hukou system as well as climate change and resource scarcity, many rural citizens move to urban areas searching for a better life (McGranahan & Tacoli, 2006; Kuang & Liu, 2012, p. 1). Even though it is possible for a rural citizen to apply for an urban Hukou, the practically unattainable criteria makes it almost impossible. Because of the limitations of the Hukou system and the social discrimination that usually accompanies it, millions of rural migrants that move to urban areas are either unregistered or retain the rural Hukou (Li & An, 2009, p. 2). This has resulted in a massive "floating population" – *liudong rekou* – of rural migrants settled in informal "urban villages" – *chengzhongcun* – in China's biggest cities (Li & An, 2009, p. 2; Wu, Zhang & Webster, 2013). As a result of their rural Hukou, these migrants lack access to basic services and suffer from reduced social opportunities and benefits (Kuang & Liu, 2012, p. 1, 2). What makes this group of migrants especially interesting is that despite their rural origin they have little or no experience from agricultural work. Second, they tend to be young as they migrated earlier than the generation before them. Third, because they tend to get low-skilled, low-paid jobs and still have ties to their rural origins, they have not been able to fully integrate in the city (Wu, Zhang & Webster, 2014, p. 2-3).

Figure 3: Private Pictures of Rural Migrants, Haining Just Outside Shanghai

Urban Demands

In addition to China's increasing population, the demography of the urban population are under huge changes. The number of households are skyrocketing because of the decreasing average household size (Liu & Diamond, 2005, p. 1179-1180). Urbanisation is dependent on natural resources such as water, fuel, land, food etc. and is one of the reasons why most of the urbanisation in China has taken place in coastal areas (Chen, 2007, p. 2). These areas have a developed economy, good infrastructure, and a great amount of natural resources (Shao, Tang, Zhang & Li, 2006, p. 354). On average, the urban population leaves a larger ecological footprint because of higher consumption levels than the rural population (McGranahan & Tacoli, 2006, p. 38). Smaller households means even bigger consumption of resources per person and have major environmental consequences (Liu & Diamond, 2005, p. 1180). China's

economic growth has also led to affluence with clear impacts on food consumption. Higher incomes in combination with globalization and Westernization have caused a remarkable increase in meat, fish, eggs and milk products. Bigger waste creation, more fish and animal droppings, and a huge increase in agricultural fertilizers are some of the consequences (Liu & Diamond, 2005, p. 1180, 1182). A change of diets from simple grains to meat and high-quality vegetables and fruits, demand big changes in crop mix followed by different nutrient supplies. Fertilizer runoff is causing both land and water pollution. Other consequences are land use changes, negative impacts on soil fertility and increased nutrient runoff, which may cause eutrophication (Chen, 2007; Liu & Diamond, 2005).

The urban dwellers are not only demanding more meat on the table, cities also need a transportation network. Globally, China's share of energy consumed in the transportation sector is relatively low, however, this is changing with the rapid urbanisation (Jiang, 2008, p. 265). The number of motor vehicles has increased manifold over the past three decades (Liu & Diamond, 2005, p. 1180). This is especially clear in the megacities, which have increased the number of vehicles by 10% annually (Chan & Yao, 2008, p. 31). Between 2002 and 2020, it is estimated that the increase of motorized vehicles would be between threefold to sevenfold. This will lead to a quadrupling in CO_2 emissions that in turn will aggravate the air pollution problems that already exist (Shao, et.al., 2006, p. 259-260).

CHAPTER 6: ENVIRONMENTAL ISSUES IN CHINA

Environmental Consequences – China at a Crossroad
China's reforms from 1978 are still ongoing and the economic and social developmental results are breath taking. Perhaps even more impressive is the fact that the Chinese state has been able to keep up the economic and social development without losing its sovereignty (Thomas, 2007, p. 27). Nevertheless, environmental consequences closely related to the country's policies have arisen in the wake of China's unique growth. Mao's policies from 1949 created deforestation, overgrazing and soil erosion. The heavy industry of the late 1950's and early 1960's further escalated the deforestation but entailed more pollution. Since then, the pollution problems have only worsened. Even though the overall environmental degradation accelerated as a consequence of the 1978 economic reforms, its huge population,

industrialisation and the following energy demand are also major factors (Liu & Diamond, 2005). In its recovery process from the economic illness, The Sick Man of Asia is now suffering from another disease: environmental degradation. As most diseases, it is infectious. Coal combustion are causing the spread of SO_2 and nitrogen oxides that falls as acid rain all over China as well as its Asian neighbours and across the Pacific ocean all the way to the US (Khan & Yardley, 2007; Liu & Diamond, 2005, p. 1179). The heavy local pollution is assumed to increase the strength of Pacific cyclones, and China's central position in the global trade market leaves deep environmental footprints across the world (Liu & Diamond, 2005, p. 1183; Stromberg, 2014).

Despite the successful economic growth, China is now at a crossroad in its development. Economists around the world are uncertain on whether or not China will be able to keep up the pace and make the transition to a high-income country, or if it will be stuck in a "middle-income trap". Many developing economies have faced this destiny. They have developed rapidly into a middle-income status but (mainly due to low levels of productivity gains) they have been trapped there (Morrison, 2014, p. 5). In these situations, countries must find new ways of developing and new sources for economic growth (WB & DRCSC, 2013, p. 12). Due to the previous unsustainable, environmentally hostile and destructive development pattern, a new and sustainable development is necessary. A green development where China can continue its economic growth and development without heavy dependence on resources, without too high CO_2 emissions and without environmental degradation (WB & DRCSC, 2013, p. 217). Is it possible?

In general, China's biggest environmental issues can be divided into the following categories: 1) land, forests and biodiversity, 2) water (freshwater and oceans), and 3) air (Liu & Diamond, 2005, p. 1181). This study will mainly focus on the two major environmental crisis in China that are impossible to neglect in order for human civilization to survive: air and water pollution (Lallanilla, 2013).

Air Pollution

"Less than 1% of the largest cities in the PRC meet the air quality standards recommended by the World Health Organization" (ADB, 2012)

Frightening pictures of millions of people wearing air pollution masks have gone viral, and the fact that The Sick Man of Asia's capital Beijing is suffering from an "Airpocalypse" has become common knowledge. As we have seen, however, APs does not respect city boundaries. Due to population growth, urbanisation, consumption patterns, industry and an escalation in vehicles, more and more of the Chinese cities are affected (Morrison, 2014, p. 30). The Asian Development Bank (ADB) reported in 2012 that "less than 1% of the largest cities in the PRC meet the air quality standards recommended by the World Health Organization (WHO), and 7 cities in the PRC are ranked among the 10 most polluted cities in the world" (ADB, 2012, p. 55). More regulatory controls, as part of the 11th five-year plan, successfully led to an overall improvement of air quality. Though the numbers differ significantly from city to city. The trend seem to be an improvement in small and medium cities, while large cities remain the most polluted in the country (ADB, 2012, p. 56-57).
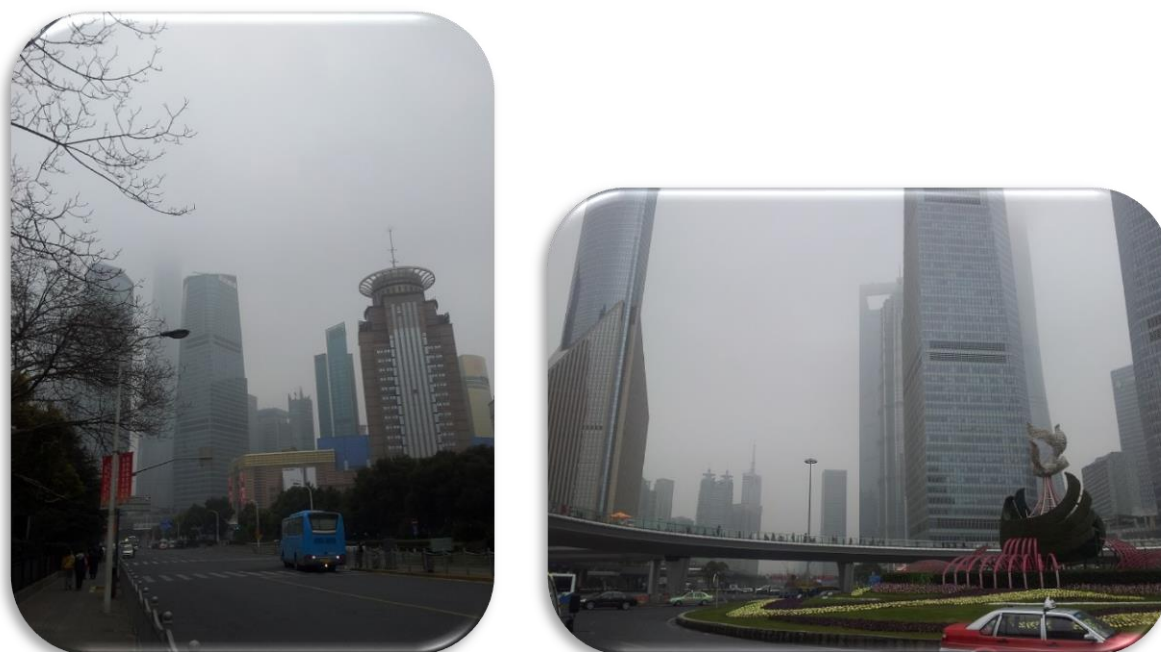
Figure 4: Private Pictures of the Smog in Shanghai

Too keep the industrialisation and development on a roll, China is combusting 47% of the world's coal (Lallanilla, 2013). As a result, the emissions of SO_2 accounts for the largest share in the world and is the main contributor to soot in China (Chen, 2007, p. 9). SO_2 attacks the

throat and lungs and is as such a major cause of respiratory illnesses (EPA, 2012.). It is also contributing to acid rain problems such as acidification of lakes and rivers all over China (Chan & Yao, 2008, p. 2). Acid rain has increased both in frequency and in severity. Areas with the heaviest precipitation – Shanghai being one example – are most affected. More than 70% of dust and SO_2 emissions is traceable back to industrial sources. When SO_2 and NO_x reaches the atmosphere, it transforms into sulphate and nitrate particles through chemical reactions (ADB, 2012, p. 57, 59, 60). In this way, it becomes a part of particulate matter. PM is another component of the urban air pollution consisting of a mixture of inorganic and organic solid and liquid particles often classified according to size. Those of most concern for human health are sulphate, nitrate, organic carbon and elemental carbon, which are fine particles less than 2.5 µm diameter and goes under the abbreviation $PM_{2.5}$ (Jacob & Winner, 2009, p. 52). These particles with the size of one-hundredth the thickness of a human hair, are easily inhaled deeply into the lungs and may cause asthma, wheezing, bronchitis and other respiratory illnesses (UNEP, 2014, p. 43; D'Amato, et.al., 2010, p. 96). Shanghai, Beijing and other megacities in China have some of the highest levels of PM in the world (Shao et. al., 2006, p. 357).

Nevertheless, domestic and commercial emissions are one of the biggest sources for poor local air quality. Growing with a rate of 26% annually from the 1980's, private owned vehicles have gone through the ceiling causing enormous emissions of NO_x, carbon monoxide, fine particles and hydrocarbons. Compared to 1978 level, the number of civilian vehicles in 2007 was 3200% higher. The vehicle fleet is thus a major concern regarding air pollution in China – especially in urban areas (ADB, 2012, p. 57, 61).

Water Pollution
"The PRC's surface water quality situation could best be described as being generally poor"
(ADB, 2012)

Affected by natural variations and climate change, precipitation varies greatly across China. The average annual precipitation is 610 millimetres and the total renewable water resource is an estimated 2 800 billion cubic meters. Only 30% however, is available for consumption, making water scarcity another issue. Despite being a major water consumer, the agricultural sector in China has decreased its share of the water consumption, mostly as a result of

successful campaigns and new technology implemented by the government. Industrialised wastewater discharge seems to have stabilised over the past years, also due to effective control efforts. This is not the case in regards to domestic wastewater, which has increased remarkably over the same period of time (ADB, 2012, p. 34, 36, 45, 46). In addition to creating wastewater and domestic sewage, the rapid urbanisation is causing higher water withdrawal and is polluting the already scarce water resources (Shao, et. al., 2006, p. 355).

The water quality is in a dreadful condition – and declining. In 2013, it was estimated that polluted groundwater was found in 90% of all Chinese cities and two-thirds of these were described as "severely polluted" (Morrison, 2014, p. 30). Industrial and domestic wastewater, agricultural runoff, fertilizers and pesticides are some of the major factors causing water pollution in almost every river and groundwater in China (Liu & Diamond, 2005, p. 1182). Rapid urbanisation and shifting demands in consumer goods and diets does not only intensify China's water scarcity problem but also leads to water quality problems. Nonpoint source water pollution, mostly derived from the agricultural and domestic sector, is another major contributor to water pollution (ADB, 2012, p. 47). Due to the general shift in diets, increase in consumption of meat and dairy products, and land shortage, an increasing proportion of the productivity is carried out in intensive animal production enterprises. The results are concentrated points of animal waste, especially from the small and medium sized producers who lack efficient technology (ADB, 2012, p. 50-51). Nearly 80% of streams that crosses urbanised regions, and more than 50% of China's total surface water, are so heavily polluted that it cannot even be treated to become drinkable (Chen, 2007, p. 9; Lallanilla, 2013). Instead, it is used in irrigation of farmland and vegetable gardens ending up on the peoples' dinner plates (Chen, 2007, p. 9).

Cities all over China – and the coastal megacities in particular – have experienced enormous changes since the opening up and economic reforms (Strohschön, et. al., 2013, p. 344). Conversion of land to urban uses and other land-based changes along the coast of China, cause severe eutrophication in the East China Sea (McGranahan & Tacoli, 2006, p. 42). One example is Shanghai, China's economic centre, the largest city with the highest urbanisation level (Wang, Da, Song, Li, 2008, p. 387). It is located within the watershed of Lake Taihu, which is also the most important drinking water source for inhabitants in Shanghai as well as 37 other cities and towns in the area. Over the past decades, the lake's water quality has remarkably decreased and been subject to heavy eutrophication. In 2003, about 42% of

chemical oxygen demand and 60% of the total phosphorus released to Lake Taihu derived from urban and residential domestic sewage discharge (Shao, et. al., 2006, p. 356).

This paper has hitherto described what IPCC has defined as *immediate drivers* to GHG emissions and climate change. Urbanisation, the desire for the three C's and economic development has noticeable impacts on the environment. Nonetheless, the *underlying drivers* – especially behavioural choices and the reasons for these behaviours – have gotten disappointingly little attention in the existing literature and research. The following sections will therefore look into the issue of individuals' concerns and behaviours, the possible connection between them, and how it relates to environmental protection.

CHAPTER 7: ATTITUDES, VALUES, CONCERNS AND BEHAVIOURS

Why China and Individual Concerns and Behaviours are Important

Is environmental protection and sustainable development a lost case in China? Is the Sick Man of Asia infecting the rest of the world, or is there a cure? Luckily, there is a faint hope, but the prescribed antidote is not without side effects.

New, green technology, as described earlier, might be part of the solution. Nonetheless, the hard facts are that even if we should manage to stop the anthropogenically enhanced greenhouse effect right now and stabilise (or even reduce) the concentrations of GHGs in the atmosphere, global warming and the following effects would continue for a long time (IPCC, 2007, p. 46). Modern civilization needs to throw in the towel and admit their addiction to fossil fuels (Bjørke, 2013). More than 50% of the world's population are now living in urban areas and the numbers keep rising. Many of the most critical climate risks and some of the most vulnerable groups are concentrated here. It is clear that great attention must be given to urban areas in order to address climate change and to realize the goal of a sustainable development. A multidimensional response and responsibility must come from all levels of the government, private sector, civil society *and individuals* (IPCC, 2014g, p. 538, 541; IPCC, 2014e).

China's rapid urbanisation has led to increased urban poverty and inequality. The growing urban population, with a great desire for the three C's, further intensify environmental issues such as air and water pollution. Nevertheless, the Central Committee of the Communist Party

of China and the State Council recently announced the first national Urbanisation Plan (2014-2020) encouraging further urbanisation. The plan's major objectives are green development, green production, and green consumption (Zhu, 2014). The government's investments and decisions are obviously important factors towards a sustainable development. However, China's central role in a globalised world and its enormous population size makes the concerns of individuals and their behaviours regarding environmental affairs key issues (Cao, Chen & Liu, 2009, p. 55-56).

Attitude-Behaviour Gap

LaPiere: Attitudinal Questionnaires

The Stanford sociology professor, Richard T. LaPiere was the first to reveal the two-faced relationship between attitudes and actions. In 1934, he published his two-year long study where he criticised the then common measurement of social attitudes – attitudinal questionnaires (LaPiere, 1934, p. 230). With purely a questionnaire, often followed by a yes/no answer, it is too easy to generalise (e.g. "Chinese") and hence exclude many alternative reactions, such as feelings, meanings and symbols (LaPiere, 1934, p. 231). This critique was based on his experiences from traveling around in America in the early 1930s with a Chinese couple. At that time, the common attitude among Americans towards Chinese was "narrow and bigoted" (LaPiere, 1934, p. 234). Before traveling, he asked (personally or by telephone conversations) hotels and restaurants whether they would accommodate his Chinese friends. As expected, the answer was unanimously "no". Still, except one case, LaPiere and his two Chinese friends were welcomed at all the hotels and restaurants they visited. When six months later, LaPiere mailed a questionnaire to the places they had stayed containing the question "would you accept members of the Chinese race as guests in your establishment?" 92 percent of the restaurants and cafés, and 91 percent of the hotels and tourist homes once again answered "no" (LaPiere, 1934, p. 236). Based on this experience, he concluded that the only thing an attitudinal questionnaire measured was a "verbal response to a symbolic situation". It reflects social and political orientations but not the actual behaviours or actions (LaPiere, 1934, p. 237). In other words, attitudinal questionnaires may be a helpful tool in understanding how respondents believe they will act, but it does not measure the "true" behaviour (Dockery & Bedeian, 1989, p. 11).

LaPiere's classical study has been subject to a lot of criticism and debate. Most noteworthy is his definition of attitude as "a behaviour pattern, anticipatory set or tendency, predisposition to specific adjustment to designated social situations, or, more simply, a conditioned response to social stimuli" (LaPiere, 1934, p. 230). This implies that an individual's behaviour is a major part of his or her attitude, i.e. behaviour is manifested in attitude. On the one hand, he draws the conclusion of Americans' "true" attitude towards Chinese on the actual behaviour that he experienced during his travel. On the other hand, he critiqued the results from his questionnaires. Thus, what he really measured was not the link – or lack thereof – between attitudes and actions, but the link between attitudes measured by questionnaires and the "true" attitudes he witnessed (Dockery & Bedeian, 1989, p. 11-12). Second, the action-element (to accept Chinese guests) in LaPiere's study is the same in both measurements, but he is not consistent in how he presents the targeted elements (Chinese). In the questionnaires, he referred to the target as "members of the Chinese race" but the observed behaviour was directed at that particular Chinese couple, which in many occasions were accompanied by LaPiere himself.

Ajzen and Fishbein: Theory of Planned Behaviour
Ajzen and Fishbein argue that LaPiere failed in the attempt to measure the relationship between attitudes and behaviour. They also argue that LaPiere's definition of "attitude" could rather be termed a "behavioral intention" or "behavioral commitment" (Dockery & Bedeian, 1989, p. 12; Ajzen & Fishbein, 1977, p. 895). Instead, the two psychologists defined attitudes as a person's "evaluation of the entity in question" (Ajzen & Fishbein, 1977, p. 889). They developed a theory called Theory of Planned Behaviour (TPB) and suggested that researchers must look at the specific attitude towards a specific behaviour in order to find out whether or not there is a relationship between them. They argued that attitudes do not necessarily lead directly to behaviour but that attitudes and social pressures influence *intentions,* which in turn have an impact on behaviour and action (Ajzen & Fishbein, 1977; Kollmuss & Agyeman, 2002, p. 242). The stronger the intentions to perform a specific behaviour, the stronger are the motivational factors that influence the behaviour. However, behaviour does not only depend upon intentions and motivations but also upon non-motivational factors and the actual ability to act it out (Ajzen, 1991, p. 182; Boston University SPH, 2013, p. 3). TPB distinguishes between 1) behavioural beliefs, 2) normative beliefs, and 3) control beliefs (Boston University

SPH, 2013, p. 3). Behavioural belief is a subjective assumption about a given outcome of a specific behaviour. The behavioural beliefs together with the subjective values of the expected outcomes determine the *attitude* towards the behaviour. The normative beliefs refer to expectations, or social normative pressure (as perceived by the individual), from others. These normative beliefs together with the individual's motivation to fulfil the expectations from others, lead to subjective norms. The final belief, control belief, refers to factors (as perceived by the individual) that may either assist or prevent the performance of a specific behaviour. Together with the subjective perception of power of these factors, it determines the perceived behavioural control. Thus, the TPB argue that attitude, subjective norms and perceived behaviour control lead to intentions, which in turn lead way to actual behaviours (Ajzen, 2006).
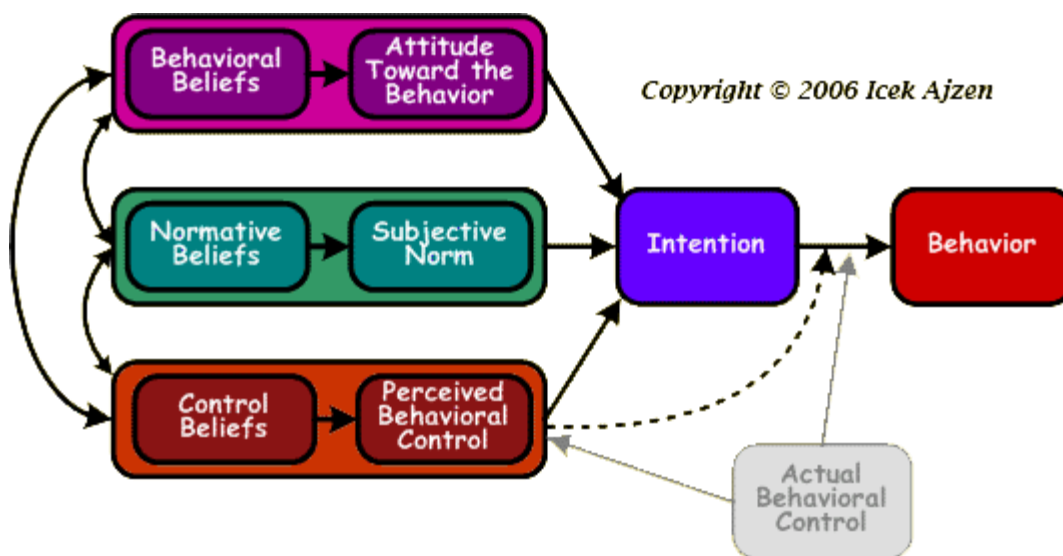
Figure 5: Theory of Planned Behaviour, 2006

The most frequent criticism of TPB is that it is too rational and does not take into account affective and emotional variables that might have an impact on behavioural intention and motivation (Ajzen, 2011, p. 1115; Boston University SPH, 2013, p. 3).

Values

So, what about *values*? To start with the beginning of value as a concept, we would have to examine the work of Durkheim and Weber and address the different fields of study where this concept has played a vital part, i.e. anthropology, psychology, sociology and so on (Schwartz,

2012, p. 3). This is not in the interest of this thesis. Therefore, I will limit this topic to theories and concepts that have been crucial to understand environmental concerns and behaviours.

Rokeach: Definition of Values

In the early 1970's Milton Rokeach, a Polish-American social psychologist, referred to a *value* as a personal belief that a specific behaviour was preferable compared to an opposite behaviour, i.e. a belief of how to behave (Homer and Kahle, 1988, p. 638). He stated that value as a concept was able to unify all the different fields of study concerned about understanding human behaviour (Rokeach, 1973 in Schwartz, 2006, p. 1). Influenced by Rokeach, the current most common way to define a value is "a belief pertaining to desirable end states or modes of conduct that transcends specific situations, guides selection or evaluation of behaviour, people and events, and is ordered by importance relative to other values to form a system of value priorities" (Schwartz, 1992; Schwartz & Bilsky, 1987, 1990 in Schwartz, 1994, p. 20). Notwithstanding this definition, options abound in the scholarly community.

Schwartz: Value Types, AR and AC

The social psychologist Shalom H. Schwartz has modified the above definition of value and describes it as *a guiding principle in life*. All values, he argues, are grounded in three requirements of human existence: 1) biological needs, 2) needs for coordinated social interaction, and 3) needs related to the functioning and survival of groups (Schwartz, 1994, p. 21). Deriving from these human needs, he developed ten different value types according to their underlying motivation or goal (Schwartz, 2012, p. 4-7):

1) Power
2) Achievement
3) Hedonism
4) Stimulation
5) Self-Direction
6) Universalism
7) Benevolence
8) Tradition

9) Conformity

10) Security

He further identifies the structure and relationship between the different value types. For example, some values may be compatible while others will conflict. Schwartz divided the value types into a circular model organised into two opposite dimensions: one that distinguished between openness to change and conservation, and the other between self-transcendence and self-enhancement. If two value types have somewhat similar motivational goal, they will be located closer to each other in the circular model, and opposite with competing value types (Schwartz, 1994, p. 23-24). However, there are six features that are common to them all: "1) values are beliefs linked inextricably to affect; 2) values refer to desirable goals that motivate action; 3) values transcend specific actions and situations; 4) values serve as standards or criteria; 5) values are ordered by importance relative to one another; 6) the *relative* importance of multiple values guides action" (Schwartz, 2012, p. 3-4).
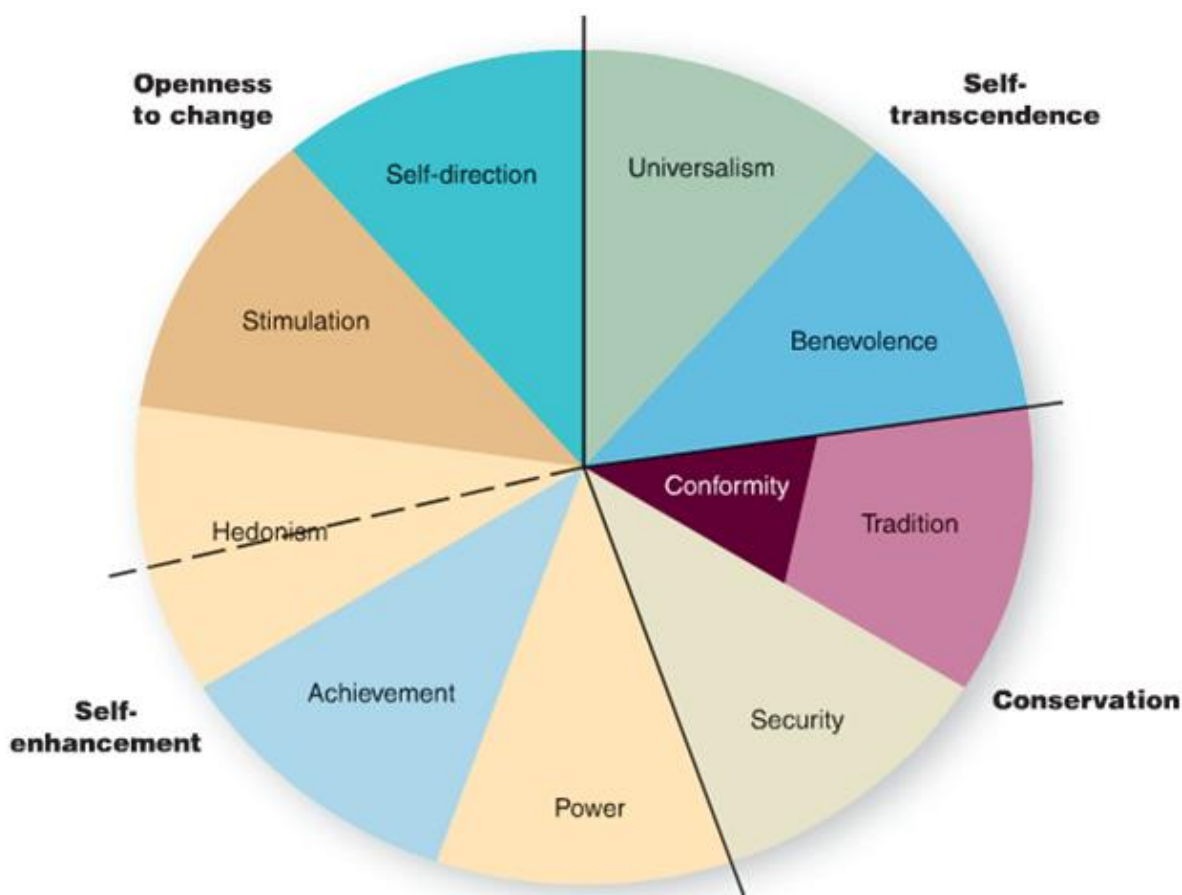
Figure 6: Schwartz Circumplex of Values, 2012

Schwartz also developed a moral norm theory, called Norm-Activation Theory (NAT). NAT claims that when an individual is aware of other people's suffering and feels a responsibility to ease this suffering, his or hers altruistic behaviour will increase (Kollmuss & Agyeman, 2002, p. 245). Similar to the Value-Belief Norm theory – which will be described later – NAT consists of *awareness of adverse consequences* (AC) and *ascription of responsibility to self* (AR) (Stern, 2000, p. 412). In the Value-Belief Norm theory, AC is described as a belief that environmental conditions threaten things that are valued by the individual, while AR is the individual's belief that he can act to reduce that threat. These two beliefs will in turn activate behaviour (Stern, 2000, p. 413). NAT has an altruistic angle to AC and AR, arguing that the interests and benefits of others gets priority over personal utility. Thus, NAT focuses only on internal norms, and includes neither intentions nor perceived behavioural control (Wall, Devine-Wright & Mill, 2007, p. 734).

In addition to defining values as guiding principles in life, Schwartz also claims that values are our basis for attitudes. Attitudes, he says, are evaluations of objects. An object can be evaluated as good or desirable if it promotes motivations, or valued goals – and the opposite if it threatens our goals (Schwartz, 2012, p. 16).

Environmental Concerns and Behaviours

Many of the theories discussed so far have been used to study environmental issues and the relationship, or lack thereof, between environmental concerns and environmentally friendly behaviour (Schultz et. al., 2005, p. 458). The following sections presents some of them.

Dunlap and Van Liere: The New Ecological Paradigm – Environmental Concern

Riley E. Dunlap and Kent D. Van Liere developed the New Environmental Paradigm in the 1970s. This paradigm "focused on beliefs about humanity's ability to upset the balance of nature, the existence of limits to growth for human societies, and humanity's right to rule over the rest of nature" and consisted of 12 Likert statements to measure it (Dunlap, Van Liere, Mertig & Jones, 2000, p. 427). A Likert scale consists of multiple-indicators (statements or items) followed usually by a five-point scale ranging from "strongly disagree" to "strongly agree". The main objective is to measure the intensity of agreement, attitude or feeling towards the item in question (Bryman, 2012, p. 166).

The original New Environmental Paradigm did however, have some limitations. Some of the criticism it met was that the Likert items presenting pro-New Environmental Paradigm were highly overrepresented compared to anti- New Environmental Paradigm items, and that it failed to anchor itself in attitude theory. Put differently, it was poorly theoretically specified (Dunlap, 2008, p. 6; Lundmark, 2007, p. 330). Consequently, a revised version was designed by Dunlap and colleagues, this time consisting of 15 Likert items aimed at measuring environmental *concern* – i.e. environmental worldview. This paradigm came to be known as the New *Ecological* Paradigm (NEP) scale. The revised NEP contained the statements below, followed by five possible answers: Strongly Agree (SA), Mildly Agree (MA), Unsure (U), Mildly Disagree (MD) and, Strongly Disagree (SD) (Dunlap et. al., 2000, p. 434):

1. We are approaching the limit of the number of people the earth can support
2. Humans have the right to modify the natural environment to suit their needs
3. When humans interfere with nature it often produces disastrous consequences
4. Human ingenuity will ensure that we do NOT make the earth unliveable
5. Humans are severely abusing the environment
6. The earth has plenty of natural resources if we just learn how to develop them
7. Plants and animals have as much right as humans to exist
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations
9. Despite our special abilities humans are still subject to the laws of nature
10. The so-called "ecological crisis" facing humankind has been greatly exaggerated
11. The earth is like a spaceship with very limited room and resources
12. Humans are meant to rule over the rest of nature
13. The balance of nature is very delicate and easily upset
14. Humans will eventually learn enough about how nature works to be able to control it
15. If things continue on their present course, we will soon experience a major ecological catastrophe

It is constructed in a way that agreements to the odd-numbered statements and disagreement to even-numbered statements indicate that the respondent has a pro-ecological orientation (Dunlap et. al., 2000, p. 432).

The NEP has become one of the most widely used and accepted measurements of environmental concern (Lundmark, 2007, p. 330). Nevertheless, the NEP scale, similarly to the older version, have been subject to some criticism. For example, despite being revised several times, it is still marked by its age. Some scholars even say it is outdated (see e.g. Lalonde & Jackson, 2002). To indicate that a high NEP score equals a pro-environmental worldview is to oversimplify the issue. Furthermore (as is a problem with most quantitative methods) there is a risk that the indicators will exclude many factors that might be of importance to fully grasp the environmental orientation (Lalonde & Jackson, 2002, p. 29). It has also been debated that the NEP does not serve as a sufficient measure for predicting environmental *behaviours*. However, as stated by Dunlap himself, this was never the intention of the NEP (Dunlap, 2008, p. 12).

Stern et. al.: The Value-Belief Norm Theory

Paul C. Stern and colleagues took Schwartz' moral NAT and Dunlap and colleagues' NEP a little further and developed a Value-Belief Norm theory (VBN). The intention was to measure *environmentally significant individual behaviour* and explore its connection to values (Oreg & Katz-Gerro, 2006, p. 464). Stern et. al. argued that environmental behaviour should not only be defined by its impact, but should also be defined from the actor's standpoint: "as behaviour that is undertaken with the intention to change (normally, to benefit) the environment" (Stern, 2000, p. 408).

The VBN presents a causal chain of five variables: 1) values (biospheric, altruistic and egoistic), 2) ecological worldview (NEP), 3) adverse consequences for valued objects (AC from Schwartz' theory), 4) perceived ability to reduce threat (AR from Schwartz' theory), and, 5) personal norms for taking pro-environmental action. The VBN argue that these variables lead to behaviour (Stern, 2000, p. 412).
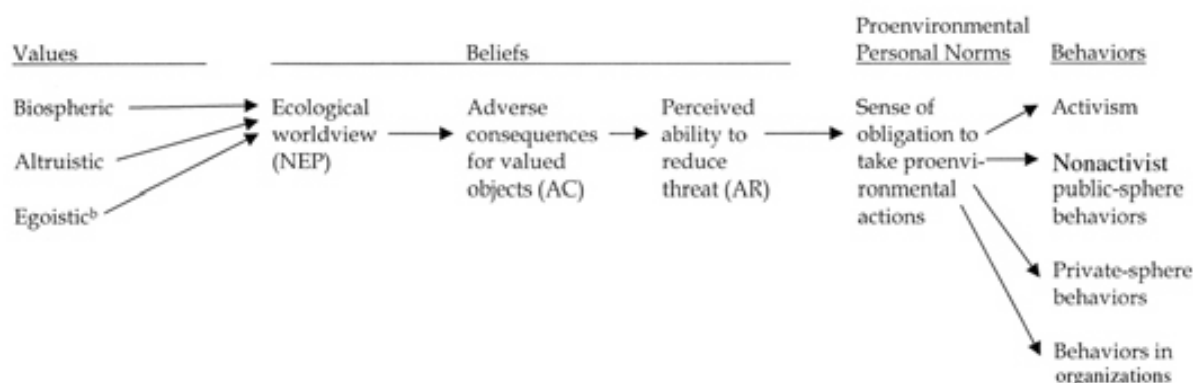
Figure 7: VBN Theory (2000)

Similar to the TPB, the VBN presume that beliefs (AR, AC and NEP) are prior to behaviour. However, it adds to the TPB that personal values precede beliefs (Oreg & Katz-Gerro, 2006, p. 465). In addition to the altruistic orientation, the VBN also focuses on the social orientation. Stern et. al. argue that all individuals possess the three value orientations, i.e. altruistic (other people), egoistic (self), and biospheric (all living things), but with varying strength (Kollmuss & Agyeman, 2002, p. 245). Thus, a person's valued objects and the awareness of possible threats towards these, activate behaviour. For example, an individual with egoistic values may be concerned about the environment but their concern is rooted in the harm it might have on themselves (e.g. air pollution has negative health impacts) (Schultz, et.al., 2005, p. 458-459).

Inglehart: Postmaterialist Theory
Ronald Inglehart developed some of the most influential value-oriented work on environmental awareness (Tilt, 2010, p. 41-42). Through value concepts such as materialism and postmaterialism he developed a postmaterialist theory. This theory claims that those with postmaterialist values (most often found in modern industrial societies) are subject to materialist prosperity and sufficient security hence oriented towards non-materialistic needs to enhance the quality of their life. The value of environmental protection is one example (Oreg & Katz-Gerro, 2006, p. 467; Braithwaite, Makkai & Pittelkow, 1996, p. 1536-1537). This theoretical framework is based on two equally important and collaborating hypotheses: 1) a scarcity hypothesis – subjective values are reflected by the socioeconomic surroundings. i.e. scarce resources or objects tend to be perceived as being of greater value than abundant resources, and 2) a socialization hypothesis – the relationship between values and

socioeconomic environment is something that develops over a long time period and is influenced by the cultural and social settings which an individual is raised within (Inglehart, 1981, p. 881). The theory claims that an economic shift in society changes values – from concerns about meeting basic human needs, to concern about self-esteem, greater citizen involvement, quality of life etc. (Braithwaite, et.al., 1996, p. 1537). It links the affluence of a nation to attitudes and behaviours amongst citizens (Dunlap & York, 2008, p. 532). In this regard, the postmaterialist theory argues that individuals in poor nations cannot "afford" to care about environmental protection (Tilt, 2010, p. 42). Even though Inglehart's theory has been widely used and acknowledged, it is limited to values and environmental attitudes, and incorporates neither beliefs nor behaviours (Oreg & Katz-Gerro, 2006, p. 469). It has also been criticised for viewing materialism and postmaterialism as two distinct concepts – but to gain postmaterialistic values does not necessarily mean that all materialistic values are abandoned (Braithwaite, et.al., 1996, p. 1537).

Cacophony of Concepts and Definitions

As we can see, plenty of theoretical frameworks, methodologies and definitions have been – and still are – used to measure environmental concerns and behaviours as well as the relationship between them. This makes it difficult, if not outright impossible, to compare studies and analyse findings. In order to do this, there must be a consistency in definitions of concepts and reliable measurements (Schaffrin, 2011, p. 12). Several researchers have tried out different ways to combine, add, and/or subtract factors from the existing theoretical frameworks in order to find the ultimate measurements and methods. So far, we have discussed values, attitudes, intentions, worldviews (orientations) and beliefs. Some scholars include them all: in their NEP scale, Dunlap and Van Liere defined *environmental concern* as "perceiving environmental problems as serious, supporting efforts by government to protect environmental quality" and as "engaging in behaviors aimed at improving environmental quality" (Van Liere & Dunlap, 1980, p. 188). Following this definition, cognitive, affective, conative (intentions) and behaviour components may play a part in the concept of environmental concern. However, neither of them are *necessary* to construct it (Schaffrin, 2011, p. 16). Yet other measures see a causal link between the variables: Stern et.al.'s VBN theory claims that *values* (altruistic, egoistic and biospheric) are *necessary* antecedents to environmental *beliefs*, which in turn will drive environmental *behaviours* (Stern, et. al., 1999).

There is, nevertheless, an overall lack of consistency in the existing research findings. This issue is probably due to the different definitions and measurements of concepts being used (Markle, 2013, p. 906). Another influencing factor is that the object in question – the environment – is dynamic and constantly changing in itself. So too are environmental problems and our concerns and attitudes towards them (Schaffrin, 2011, p. 12).

This cacophony of concepts underscores the fact that environmental concerns and behaviours are too complex and dynamic to be measured within one single theoretical framework. There are some factors that, nonetheless, seem to recur in studies on the given topic. Kollmuss and Agyeman divide these into demographic, external, and internal factors (2002). Of the first category, gender and years of education seem to have a certain influence. Women tend to be less knowledgeable about environmental issues but nevertheless more engaged and more concerned about the environment. They are also more willing to change than men. Higher education seems to have a great influence on environmental knowledge, yet this does not necessarily lead to pro-environmental behaviour. As part of the external factors, there is the actual ability to perform environmental actions in regards to available and sufficient infrastructure. Poor infrastructure makes it harder for people to act environmentally friendly, whether they want to or not. It would therefore be of interest to look at the indirect as well as the direct behaviours. Social and cultural influences are also certainly very important external factors in the way that it affects people's behaviour. Situational and internal factors and values seem to play a greater role in motivating pro-environmental behaviour. Important internal factors, besides values, are the perceived behavioural control and a feeling of responsibility for possible consequences. Values, attitudes and behavioural control (the feeling of either having the ability to make a difference, or not) shape our feeling of responsibility (Kollmuss & Agyeman, 2002, p. 248, 249, 250, 252, 255-256).

Environmental Concerns and Behaviours in China

Local Concern and Lack of Environmental Knowledge
Paul G. Harris (2006) has gathered results from several Chinese-language surveys and reports that measure environmental concerns and behaviours in China. The major findings among these studies show that there is a general lack of knowledge on environmental issues. Concern about the environment usually involves problems that surrounds and directly affect them.

Hence, awareness and knowledge about more global environmental problems are almost non-existent in China. This is particularly the case when it comes to rural citizens and low educated persons, while affluent and educated urban citizens are more concerned about the environment (Harris, 2006, p. 7, 8). Based on these findings, one might draw the conclusion that Inglehart's postmaterialism theory is applicable to the Chinese context. However, these results say nothing about the way rural citizens are affected by climate change as they engage in agriculture, how they might perceive these changes, or how this affects their environmental values, concerns and behaviours.

The studies further show that the Chinese view of the environment is very instrumental: humans are superior to nature, and they tend to prioritize political and economic issues. Additionally, the behaviour of the Chinese people does not correspond with their concerns: they say they are concerned about the environment, but they do not act accordingly. Instead, they emphasize a desire for the three C's driven by a struggle for Western consumer lifestyle (Harris, 2006, p. 8, 9). However, Harris does not elaborate that these assumptions of the relationship between concerns and behaviours are based purely on surveys. In other words, they do not take into consideration the *actual* behaviours carried out as a consequence of individuals' environmental concerns. What is more, studies conducted by the International Institute for Environment and Development (IIED) show that even if there exists such a negative correlation between environmental concerns and pro-environmental behaviours among urban dwellers, rural migrants rarely attain the same consumption level (McGranahan & Tacoli, 2006, p. 38). The way rural migrants assimilate to the urban, modern consumer lifestyle and the way they perceive environmental issues will hence have a crucial impact on further environmental pressure. Therefore, it is of great interest to do research on how their environmental concerns and behaviours change after moving to urban areas – will they leave all materialist values behind in favour of postmaterialism?

Confucianism – Humans as an Integrated Part of Nature
Both Harris (2006) and Bryan Tilt (2010) have expressed the significance of Confucianism. The Western notion of environment is often referred to as a biocentric perspective where nature (when separated from humans) is viewed as a pristine object that should be protected from human intervention. The Chinese notion, on the other hand, is much more anthropocentric. Instead of human-nature dichotomy, the Confucian heritage very much

affects how the Chinese view themselves as an *integrated* part of nature (Tilt, 2010, p. 309-310; Harris, 2006, p. 8). During his fieldwork on sustainability in the rural village of Futian, Tilt experienced difficulties in conducting standard surveys and interviews about environmental concerns and behaviours. The problem was grounded in the terms "nature" and "environment" obtained from the Western sciences. "Environment" translated to Chinese comprises two characters which directly translates to "that which surrounds" and is usually used as an auxiliary word to contextualise meaning, and not as a descriptive category on its own. Tilt reasoned that the best term to use was instead "ecological environment" [shengtai huanjing] (Tilt, 2010, p. 311).

[Rural-Urban Divide, Income and Education](#)

Cao, Chen & Liu (2009) have undertaken a survey of 5000 Chinese citizens from six provinces (including Shanghai) where they investigated the environmental attitudes and citizens' willingness to invest in environmental conservation. The study was based on a questionnaire including factors such as age, income, education and location. The overall results are very similar to Harris' synopsis: the better-educated urban respondents were more aware and concerned about the environment than their rural and poorly educated counterparts (Cao et.al., 2009, p. 59, 60, 61). Cao, Chen & Liu's study, also revealed that people in Eastern and Western China were more concerned than those living in Central China and that the younger respondents – student most of all – were more likely to believe that China was experiencing severe environmental degradation. However, the middle-aged respondents were most willing to donate money for conservation (Cao et.al., 2009, p. 57, 58, 59).

Once again are the results based on expected or predicted – not the actual – behaviours. Paying attention to the fact that awareness does not necessarily equal action, it would be interesting to see if a strong awareness leads to pro-environmental action or if the higher educated urban residents are in fact living environmental-hostile consumer lifestyles hiding behind environmental-friendly words. As suggested by Stern et. al., it is preferable to adopt both impact and intent oriented perspectives in order to capture the motivation and intention to act, as well as the actual impacts (Stern, 2000).

Another study, conducted by Shen & Saijo (2007), is looking at individual environmental concern in Shanghai. Shen & Saijo draw their data from a field survey with 1 200 respondents

who all got the same questionnaire containing questions on "different environmental concern measures, attitudes towards trade-off between environmental consideration and other factors, and information on most common socio-demographic characteristics, such as gender, age, education level, occupation, annual household income, and household size" (2007, p. 44). Similar to the other studies, education level is positively correlated with all factors. The results also show that income has a positive effect on pro-environmental attitudes. What are significantly different from earlier studies is that older respondents seemed to be more concerned about the environment than the younger generation (Shen & Saijo, 2007, p. 48). While Shen & Saijo's study gives a good picture of pro-environmental attitudes and concerns, it has left the issue of subsequent behaviours unanswered.

From the findings of the above-mentioned studies, it seems that Kollmuss and Agyeman's (2002) conclusion that demographic factors (such as education) are influential and that the external factors also play a vital part in the Chinese context. Taken this into consideration, my research will include rural migrants with rural Hukou and well-educated students *with* and *without* urban Hukou. In this way, I can investigate if, or how, the social benefits of an urban Hukou influences the individuals' environmental concerns and behaviours.

PART II – METHODOLOGY AND EMPIRICAL FINDINGS

CHAPTER 8: METHODOLOGY

Defining Environmental Concerns and Pro-Environmental Behaviours
To achieve my research objective I have to make *environmental concerns* and *pro-environmental behaviours* two measurable concepts. Ajzen & Fishbein's suggestion of looking at specific attitudes towards specific behaviours is an important input in my attempt to find the possible relationship between them and to measure the actual and true behaviours of individuals. In this regard, I first need to define them before identifying the "most important environmental consequences of human behaviour" in order to "determine the activities most responsible for those consequences" (Markle, 2013, p. 907).

Environmental Concerns

Drawing on the existing literature on (environmental) concern-behaviour relations as well as studies within a Chinese context, I find Schaffrin's definition of *environmental concern* to be the best interpretation suited for my research. He presents a multidimensional conceptualisation based on four attributes to environmental concern. 1) Affective (awareness and evaluative), 2) conative (personal behaviour intention), 3) interest based (egoistic) and, 4) value based (moral/altruistic). All these attributes are held within a framework that considers long- and short-term concerns on a local and global scale (Schaffrin, 2011, p. 27). By following this definition of environmental concern, we include temporal and spatial perspectives (i.e. the socialisation hypothesis of Inglehart), specific experiences (which, based on the noted studies, is important in the Chinese context) and the three value orientations from the VBN theory (altruistic, biospheric and egoistic) (Schaffrin, 2011). In addition, I find Dunlap and Van Liere's NEP – a widely used and accepted measurement for environmental orientation – to be of great importance. Its aim of measuring "beliefs about humanity's ability to upset the balance of nature, the existence of limits to growth for human societies, and humanity's right to rule over the rest of nature" is highly relevant for the Chinese context and Confucian heritage (Dunlap, et.al., 2000, p. 427).

Pro-Environmental Behaviours

The activities I have chosen to include in the general measure of pro-environmental behaviours are guided by the framework of this research, i.e. the energy-intensive, rapid industrialisation and the desire for the three C's creates China's major environmental crises: air and water pollution (Lallanilla, 2013). At the individual level, these activities are divided into three groups: 1) transportation, 2) food, and 3) household operations (Markle, 2013, p. 908).

Transportation

In 2010, the transport sector accounted for 23% of the global CO_2 emissions and approximately 15% of GHG emissions (ITF, 2010, p. 5). According to The World Bank, China's CO_2 emissions from fuel combusted transport steadily increased to 623 million metric tons in 2011 (WB, n.d.). IPCC states that higher income and living standards are associated with increased demand for personal transport (IPCC, 2014b, p. 42). It will therefore be interesting to see if this is the case in this study, or if other factors have a stronger impact.

Food

Consequences of China's huge population, urbanisation and increased meat demand leads to overgrazing of land, deforestation and loss of biodiversity on a continuously reduced area of cropland (Liu & Diamond, 2005, p. 1182; Smil, 2004, p. 107). High meat and dairy products consumption results in degradation of land, consumption of fresh water and fertilizer pollution. At the household level, the consumption of certain goods and services have the biggest environmental impacts (Leahy, 2010). Vegetarian diets and low waste are some contributions to lower GHG emissions (IPCC, 2014b, p. 50).

Household Operations

It is argued that urban households use more modern energy forms than rural households and tend to have higher demand for electricity. If this electricity derives from fossil fuels or coal, it will be a substantial contribution to CO_2 emissions (IPCC, 2014b, p. 25).

Mixed-Method Research

All the quantitative studies discussed earlier follow a deductive approach with a theoretical framework of income, level of education, and socio-demographic elements as major influencing factors on environmental concerns and pro-environmental behaviours. However, China is an enormous country with a huge and diverse population. Hence there is a danger of generalisation when conducting such studies and drawing conclusions for a whole country. What is more, the existing studies on environmental concerns and behaviours have not considered the Hukou system, which still has a great impact on Chinese citizens' socio-economic opportunities. I support LaPiere's opinion that questionnaires do not capture the whole picture and fails to measure the actual behaviours. Together with Stern's argument that one should adopt both intent and impact oriented view, I would argue that to combine quantitative and qualitative research strategy is the best possible solution to get more detailed and realistic measurements of environmental concerns and pro-environmental behaviours. Consequently, I conducted a mixed-method research consisting of supervised self-completion questionnaires, participant observation (PO) and semi-structured interviews (Bryman, 2012, p. 628). The gaps of self-reported questionnaires was filled by the use of PO and semi-structured interviews, giving a more complete answer to my research questions (Bryman, 2012, p. 637). Income – as a possible intervening variable – was important for me to capture, but is still a

sensitive issue for the Chinese. In this way, the questionnaires made it easier to achieve such information while not creating an ethical issue. Together with PO and semi-structured interviews, it increased my opportunity to explain whether income was an intervening variable (Bryman, 2012, p. 641). Perhaps the most outstanding advantage of a mixed-method research was the gathering of diverse views and perspectives of the targeted groups (Bryman, 2012, p. 647). It provided me with the opportunity to gather data from a good number of students (both rural and urban) as well as capturing the views of rural migrants with lower education. While the quantitative data gave some insight in possible patterns, the qualitative data created the context. In this way, I got a deeper understanding of the findings and was able to illustrate possible relationships between categories (Bryman, 2012, p. 645, 646). This research follows an inductive approach and a grounded theory. I used theoretical sampling where the observations, codes and data that was gathered laid the groundwork for further data collection (Bryman, 2012, p. 26, 419, 568). An old-fashioned pen and notebook was used to take field notes of observations. Pictures to document findings and to keep track of interviewees were taken by a smartphone.

Quantitative Research: Supervised Self-Completion Questionnaires

An obvious advantage of surveys is the possibility to cover geographical areas over greater distances and at a low cost. On the other side, since there is usually no interviewer present to assist the respondents, there is a chance that questions are misunderstood or simply remain unanswered (Bryman, 2012, p. 233, 234). Due to earlier studies' findings about the general lack of knowledge concerning environmental issues, the issue of prompting had to be taken into account. The interviewer might have to suggest possible answers or help the interviewees to reduce missing or invalid data (Harris, 2006; Bryman, 2012, p. 224). Another disadvantage of the self-completion questionnaire (with no researcher present) is the uncertainty of who is actually answering the questions (Bryman, 2012, p. 234). I have previously lived in Shanghai for 5 months, and got the impression that women were more domineering than men in a relationship. Men did what they were told, and were often the ones to run errands. I also noticed that the one-child-policy in China has brought with it spoiled children with overprotective parents who follow them everywhere, carry their bags etc. As a result, I feared that self-completion questionnaires, without a present researcher, would be answered by others than the targeted groups or be gender-biased. In addition, because the targeted groups

of this study are urban dwellers and rural migrants living in Shanghai, there was no need to cover distant geographical areas. My conclusion, therefore, was that *supervised self-completed questionnaires* would be suitable for my research.

Throughout my fieldwork, I went to the Fudan University and handed out the questionnaires myself. I was conscious about gender balance and tried to hand out to an equal amount of males and females. Of the 150 questionnaires collected, 97% was below 30 years of age with the dominant group between 20 and 29 years old. The gender distribution was balanced with 71 females and 79 males.
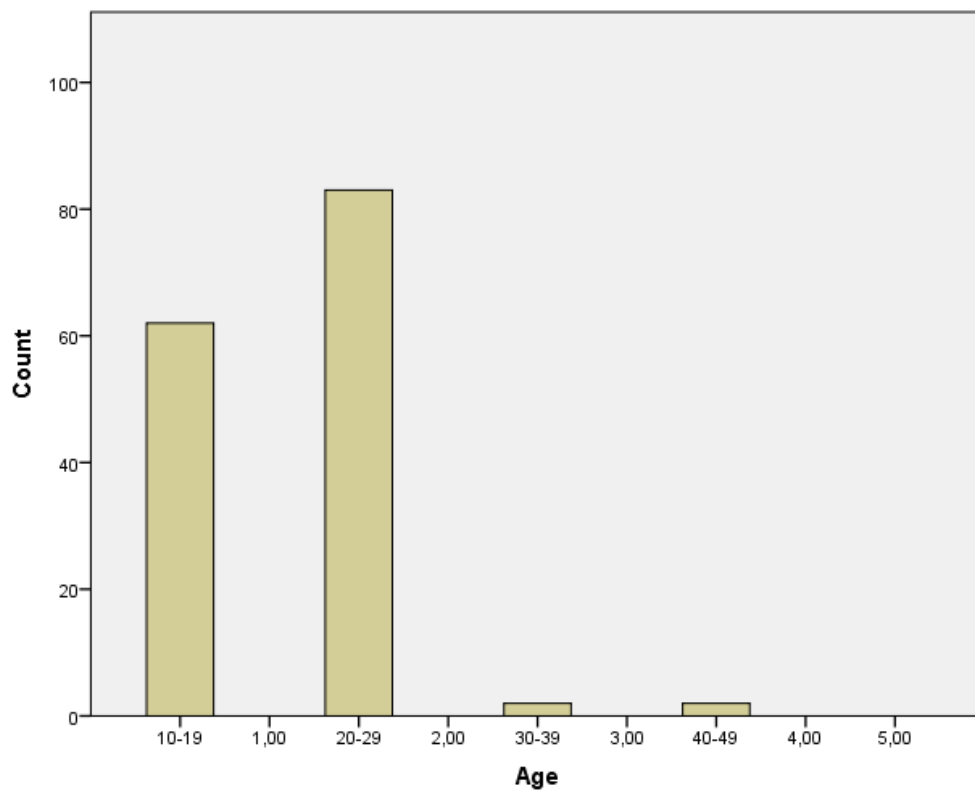
Table 1: Age Groups Students
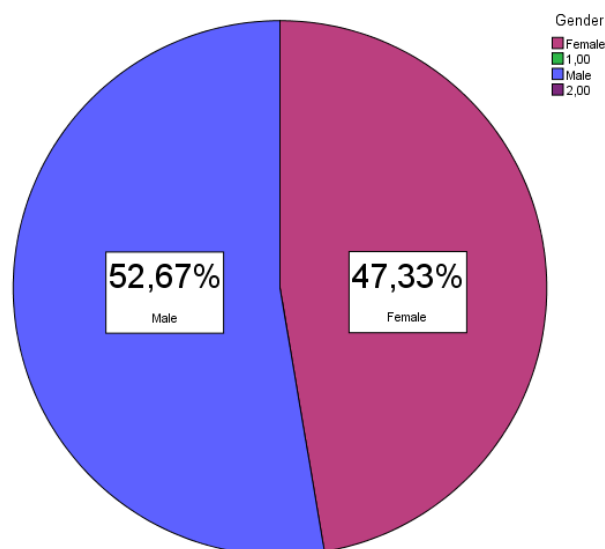
Table 2: Gender Students

The questionnaires were handed out in classrooms where students used to study beside the ordinary lessons. It took on average about 7 minutes to complete a questionnaire, however, there were some cases where respondents spent almost 20 minutes. I usually found a place near the front of the classroom to show my presence and be available for questions.

In order to measure the intensity of environmental concerns and self-reported behaviours I used Likert items. As the scale measures the intensity of agreement to the statements, a low scoring gave an indication of low pro-environmental concerns and behaviours and the opposite for a high score. To achieve internal reliability, all indicators was consistent and related to each other (Bryman, 2012, p. 164, 166, 169, 170, 249). Data from the questionnaires was plotted into SPSS before analyzed.

This study follows Kollmuss and Agyeman's (2002) argument that the influencing factors of environmental concerns and behaviours can be divided into three main categories: internal, external and demographic. Thus, my questionnaire was designed in a way to capture these factors, and included: *socio-demographic questions*; *NEP (in order to capture the general environmental worldview of the respondents); VBN's three value orientations (altruistic, biospheric and egoistic); Inglehart's postmaterialism theory and; self-reported concerns and behaviours connected to air and water pollution.*

Appendix 1 shows the questionnaire in English, but respondents received them in Mandarin to lower the threshold for participation. Question 1 – 9 cover the demographic factors. The

original questionnaire did not include question 4 – "Where did you take the following education?" This question was added after a discussion I had with a Chinese teacher at Fudan University. She told me that Hukou was an important factor but what really matters was where you were born and raised, hence place of education. In China, she told me, "development" was almost equal to "education" meaning that the more developed cities were also the cities with a good educational system. Therefore, you can assume that poor, undeveloped cities or provinces are characterised by poor education. Furthermore, education means everything in order to get a job in China. A good education from a well-known school (such as Fudan) will provide you a job almost immediately. It is also very common that parents support their child during their studies. This is the reason why I chose to ask the monthly income of the *household*. The monthly income is consequently the amount of both parents combined. Those who are born in rural places often struggle in daily life because their parents cannot afford to support them. Instead, they end up taking a rural education and keeping their rural Hukou. Question number 7 – "Have you changed your Hukou?" is one way of asking where their parents are from, and together with question 5 - "Are you born in Shanghai?" it gave me an indication on the respondents' origin, and if they had moved from rural areas or not.

Question number 10 – 19 is the NEP. While the original NEP has 15 statements, chosed the remaining 10 that I found most suited for my research and that could best help me to answer my research questions. They are ordered in such a way that agreement to even numbered statements indicates a low environmental concern, while agreement to odd numbered statements indicates a high environmental concern. Even numbered statements are therefore coded from 1 (strongly agree) to 5 (strongly disagree) while odd numbered are coded from 5 (strongly agree) to 1 (strongly disagree).

The discussed existing literature on environmental concerns and pro-environmental behaviours in China show that: the Chinese are mostly concerned about the environmental problems that are closely related to them, that they view themselves as superior to nature, and that they prioritize economic and political issues (Harris, 2006, p. 7, 8, 9). Based on this, I found it necessary to incorporate Inglehart's postmaterialist theory with the socialization and scarcity hypothesis. These are represented in statements number 20 (coded from 1 – 5) and 35 (coded from 5 – 1) where disagreement to number 20 supports the postmaterialist theory and indicates a high pro-environmental concern, while an agreement to statement number 35

supports the socialization hypothesis and indicates a high environmental concern and orientation.

The affective component is covered by statement number 21 where an agreement (scored 5 – 1) shows a specific belief or attitude towards air and water pollution and expresses an awareness of its seriousness (Shaffrin, 2011, p. 18-19). It was of special interest to my research to see whether the Fudan students (good education), scored high on this statement. A high score among well-educated, urban respondents would strengthen the existing literature and theories that claim education and place of residence (urban areas) to be influencing factors regarding environmental concerns.

Statements number 31 – 34 also measure the evaluation of seriousness of air and water pollution but in addition incorporates the spatial component in order to find out if the Chinese are most concerned about (and aware of) local or global problems. Agreement to statement 31 (coded 5 – 1) and disagreement to statement 32 (coded 1 – 5) indicates a concern for *local* air and water pollution and a high environmental concern. Similarly, agreement to number 33 (coded 5 – 1) and disagreement to statement 34 (coded 1 – 5) indicates an evaluation of *global* air and water pollution as serious and points to a high environmental concern.

Likert item 22 and 26 was designed to capture the desire for the three C's in the transportation and household sector respectively. Both are coded from 1 – 5 where agreement supports the hypothesis that a desire for comfort, convenience and consumption have priority on behalf of environmental protection. High score gives an indication of environmental concern.

To measure the self-reported pro-environmental behaviours in the transport, food, and household sections, I designed statements number 23, 25, 27 and 29, which are all coded from 5 – 1. A high score on these statements suggest that the respondent behave and act environmentally friendly. However, as argued by Stern and the VBN theory, both the intent and impact oriented behaviour is important to grasp in order to capture the targeted behaviours that *actually* can make a difference when it comes to environmental protection (Stern, 2000, p. 408). By statement 28 and 30 I focus on the respondents' believes, motives and AR.

Further inspired by Stern et. al., Likert items 36-42 measure the respondents' value orientation. Statement number 36, 38 and 40; number 37, 39 and 41, and; number 42 represent altruistic, egoistic and biospheric values respectively. Agreements to question 36, 38 and 40

show a strong altruistic value orientation. Agreements to number 37, 39 and 41 show a strong egoistic value orientation, while agreement to number 42 show a strong biospheric value orientation. The altruistic and egoistic statements are coded from 5 (strongly agree) to 1 (strongly disagree), while the biospheric statement (since it is only represented by one statement rather than three as with altruistic and egoistic) is coded from 15 (strongly agree) to 3 (strongly disagree).

Qualitative Research: Participant Observation and Semi-Structured Interviews

When doing a mini-research on IKEA Shanghai three years ago, I found it difficult to get in contact with the Chinese and even more difficult to make them answer my questionnaires. In the aftermath, I understood that this is partly due to me being a foreigner (*lao wai*) and the fact that in China, relationships and *Guanxi* (关系) is extremely important (Plafker, 2007, p. 83, 90. 91). Guanxi can be described as "social relations and ties, which establish certain privileges, including access to resources and opportunities" not only between individuals but also between networks (Warren, Dunfee & Li, 2004, p. 356). With this is mind, I considered *ethnography/PO* to be a necessary and crucial method of data collection in addition to the questionnaires. Through ethnography/PO I gained Guanxi, which in turn increased my chance of getting genuine answers. To reduce ethical issues, I chose to assume an overt role, i.e. I disclosed my presence as a researcher (Bryman, 2012, p. 433).

The qualitative data was gathered during the whole duration of the fieldwork (31st of December 2014 to 18th of March 2015) through field notes, PO and semi-structured interviews. Qualitative interviews are more flexible than structured interviews or questionnaires thus gave me the opportunity to capture the respondents' own ideas and opinions. Consequently, it became clearer what the interviewee regarded as relevant or important. It was also a way for me to observe emotions, reactions and expressions that would indicate the intensity of agreement or concern towards certain topics (Bryman, 2012, p. 470). Semi-structured interviews also enabled me to ask questions in the moment of action. This was important in order to answer my research questions, especially regarding "true" behaviours and its relationship to concerns. The semi-structured interviews were based upon questions from the questionnaire. However, following a grounded theory, some questions were restructured along with observations and findings based on what was relevant for the emerging hypothesis and theoretical ideas. Some of the data was collected and observed

during dinners and daily conversations that I had with my good friends Chenchen, Olivia, Lishuang and Hao Guimei. Guanxi came in handy and allowed me to follow a method of purposive and snowball sampling. Interviews with students were often held at the university, as that was the most convenient for them. In other cases, I met students at cafes and restaurants where I was able to repay my Guanxi by treating them a dinner or a coffee. The rural migrants were harder to find. To visit them while they were working was the most successful strategy, though they tended to be very busy. Together with an interpreter, I walked around at cafes, restaurants and small shops asking if they were interested in having a conversation. We (the interpreter and I) also went to Baoshan slum area hoping to find rural migrants in their domestic environment. A small gift was always provided to every respondents and it usually consisted of Norwegian chocolate, small notebooks or the like. In addition to students and rural migrants, I contacted two profiled persons that could offer a different perspective. These were Mr. Ping, a founder of the ENGO called International Fund for China's Environment (IFCE), and Gavin, a programme officer at the Nordic Centre at Fudan University. I tried to get in touch with Shanghai Municipal Water Authority and Shanghai Environmental Protection Bureau, without any luck.

Not counting my daily conversations and dinners with my friends, I held 2 interviews (Mr. Ping and Gavin) outside my targeted groups, 11 interviews with rural migrants where one of these cases was a couple, 8 interviews with students (both rural and urban Hukou) and 1 focus group containing 4 students. Out of the 12 rural migrants, 6 were women and 6 were men, the age ranging from 30 to 64. Among the 12 students, there were 4 boys and 8 girls, the age ranging from 19 to 26.

During interviews, I used a voice recorder. This enabled me to pay full attention to the interviewee and to seize every point they made, the order of words, and enthusiasm in their voice. Immediately after every interview, the recordings were reviewed and transcribed. Field notes from PO were short, brief and clear. As soon as possible, I elaborated the field notes into full and detailed notes. All notes and transcriptions were read and re-read throughout the data collection, before divided into fragments and turned into descriptive codes (Bryman, 2012, p. 568, 576; Saldana, 2009, p. 3). Codes with the same characteristics were then categorized, which in the end resulted in a theoretical framework (Bryman, 2012, p. 570-571; Saldana, 2009, p. 3, 8, 11).

My aim of conducting PO was to be assimilated in the Chinese culture and the targeted groups as much as possible. I saw it as an inevitability to assume an overt role as a researcher, not only as a way to access information and create network, but also due to ethical reasons. I got assistance from key informants to achieve this aim. Language barriers, ethical issues, misunderstandings and suspicions were reduced by the use of native interpreters (Bryman, 2012, p. 439). These key informants were Shanghainese students and professors whom I got to know during my previous stay in the metropolitan.

Ethical Issues: Guanxi and Losing Face

Guanxi can be considered the fabric of the Chinese society and is a natural part of everything from business to the daily life. It is the engine that makes the society work: every single person plays a specific characteristic in the web of relationship. Like circles in water, a single action taken by an individual has an impact on the rest of the network. Opposite to the Western business model where relationships are formed based on business, "deals grow out of relationships" in China (Vanhonacker, 2004, p. 48). Even though China is recognized as a collective society, it is actually the individual self that is located at the centre. The individual is viewed as an architect that constructs and maintains the reflexive entity of Guanxi (King, 1991, p. 73). Acting in the correct way will give status and respect – a "face" – in the web of relations (Vanhonacker, 2004, p. 50). Loosing face may have severe consequences for the lives of the Chinese. I therefore had to act carefully and play my cards right in the Chinese cultural context. One way to do this is through reciprocity and liabilities. This means that while the respondents opened their homes, thoughts and lives to me, they assumed that I would give them something in return. Either, they would ask my help to solve things they could not do themselves, they would expect me to buy them dinner at a restaurant, or they would expect gifts from Norway. Even though the importance of etiquette in China is of descending importance, it still plays a major role in gaining the trust of the Chinese people (Plafker, 2007, p. 80-81). Therefore, basic courtesies like introducing myself, thanking for the participation etc. was crucial in succeeding with the research (Bryman, 2012, p. 225).

Shanghai is the most Westernized city in China, which means that urban and rural citizens alike are used to the presence of a *lao wai.* Nevertheless, invasion of privacy was sometimes an ethical issue, especially regarding rural migrants. Thus, I had to make sure to keep all data confidential. All interviewees got the opportunity to be anonymous and pictures were only

taken with the consent of the participants (Bryman, 2012, p. 143). Furthermore, by applying an overt role, delivering rationales, informing respondents about the research process and the use of a local interpreter, I avoided lack of informed consent (Bryman, 2012, p. 138). The fact that I had a native interpreter and/or native friend with me most of the time further reduced the feeling of invasion of privacy.

Neither the questionnaires, semi-structured interviews nor PO was harmful to the participants. None of the statements in the interviews provided them with stress, loss of self-esteem or in any other way caused harm to the respondents or others (Bryman, 2012, p. 135-136).

CHAPTER 9: DATA ANALYSIS AND EMPIRICAL FINDINGS

Introduction
I arrived Shanghai the 31st of December 2014. The sweet smell of roasted chestnuts and the vibrations of millions of people reminded me of coming home – my second home. My immediate reaction was that not much had changed since my last visit three and half years ago. The streets where buzzing with people rushing from one place to another, the subways overcrowded as ever, and people where still clearing their throats and spitting in public.

I was supposed to meet my good friend Lishuang, the next day. Lishuang moved to Shanghai in year 2000 to get a better education. She was born and raised in Harbin city in Heilongjiang province in Northern China, famous for its cold climate. Instead of Lishuang, it was her dear mother Hao Guimei that turned up on my hotel room. Not speaking a word English (and my Chinese being painfully poor) our communication was pretty much based on body language and waving arms. In the end, I managed to make a call to Lishuang who told me that there had been a great accident at The Bund – 32 people died after being trampled to death in the New Year celebration. Two student from the Fudan University was among the victims and she, as an employee at the university, had to work overtime. Her mother would take care of me she said, and hang up. I got dressed in a hurry and followed Lishuang's mother to a taxi. Driving for about 15 minutes, costing 20 Yuan (about US $3), we arrived at her home where she and Lishuang live together. She told me to sit down and then cooked me a fantastic meal of five stunning dishes. It can be very cold in the winter in Shanghai and most places, except big malls, are freezing inside. Lishuang and Hao Guimei's apartment was no exception. I noticed

that she turned on the Air Conditioner/heater when we arrived**.** I cannot say if she did it because I was there, or if that is something she usually do, but she turned it off before we left again.

Figure 8: Private Pictures. From the Left: Hao Guimei and Lishuang at Their Home

Hao Guimei helped me get sound and safe to my one-room flat in the outskirts of the metropolitan. It was located inside a compound of 32 high-rises. At the residential area, I noticed that there were four different garbage bins: one for food waste, one for glass, one for harmful waste and one for non-recyclable. On the subway station, I also observed two different bins, one marked "recyclable" and the other "non-recyclable". In addition, there where posters located at several bus stations and outside shopping malls, clearly carrying an environmentally friendly message. One of the posters pictured a meadow with green grass, flowers and trees. The text read: "Be civilised, improve the clean standards of your district and make your effort to make the dream of China come true". Another poster pictured two arms around the Earth on a blue background with the words "Hug the world. Hug green". I also noticed that I could see the stars, and the relatively clean air amazed me. Was my topic already out-of-date? Was I too late with my study?

My "worries" were soon disproved.

Figure 9: Private Pictures of Posters Promoting Green Development

I came to realise that the "clean air" was not an everyday luxury. Most of the time, the smog was lying low over Shanghai. Living in the outskirts might have had an impact. Soon, I also learned that the recycling bins were barely used. Everyone seemed to throw away garbage in whatever bin that was available and did not even seem to stop and think about it. As a result, I started to peek into every bin I found and the results were the same. Regardless of what the bin was meant for, it contained everything from paper and plastic, to food waste and harmful waste – all in one.

Figure 10: Private Pictures of Recycle Bins. From the top left: Inside my Residential Area, At the Metro Station, Inside "Food Waste" Bin, Inside "Non-Recyclable" Bin

One day, Hao Guimei came to my flat to help me fix my internet. She found a piece of paper, picked it up, opened the window and threw it out from the 13th floor.

After several days, Lishuang finally had time to meet me. She took me to a fancy and expensive European restaurant. I told her I did not mind going to a local place, but she said she loved European food and went to this restaurant all the time. I had just had time to order my food when she started texting on her phone, sending emails on her tablet and writing some kind of report she had to finish within the hour. I had not seen my friend for more than three years, yet she was too busy even to talk to me. Everywhere I went, people were walking with

their noses stuck in their mobile phones or tablets, not seeming to notice their surroundings at all. They were walking on autopilot, like toys on an assembly line with a "made in China" print in their neck.

Rural migrants are not hard to spot in Shanghai. They clearly stand out, not only in their looks, but also in language, clothing and their occupations. My former Chinese teacher and good friend Chenchen was going to help me with translation in the upcoming interviews. We sat down over a cup of coffee and started talking about how to get in touch with the rural migrants. Chenchen told me that it would not be easy. First, she was very busy trying to juggling between a part-time job, full-time study, internship and getting time for her Swiss boyfriend. Second, the rural migrants would also be occupied with work from early morning to late night usually handling more than one job. Third, if we found someone that were not too busy, the chances of refusal was big because they were usually very sceptical towards a *lao wai*. I did not quite understand the exact reason why they would be sceptical towards me – a blond, blue-eyed student at 5 feet 3, but I came to get a deeper understanding of that issue later on in my fieldwork.

Qualitative Data Analysis
The power of Guanxi came into practice when I started my interviews. Since I had paid for the relatively expensive European meal when I first met Lishuang, she was in a state of reciprocity. I had decided to follow a method of purposive and snowball sampling, and in order to start the process I needed one or more relevant participants. Since Lishuang was working at Fudan University, and "owed" me a favour she introduced me to one of the students there. Expressing a wish for anonymity, I will refer to him as male19. Only 19 years of age, his English was fluent British and he had just moved to Shanghai only recently started his higher education at Fudan. He was born and raised in Sichuan Province – a remote and mountainous area where still a lot of the population struggle under the poverty line.

I asked him if he often thought about global environmental problems, if he was concerned about it, and what he knew about it. He answered me:

> "Yes. From time to time I think of these kinds of problems. You know, seasons change really strangely these years in China. In winter, in my hometown it is a lot colder than it used to be, and in summer it is a lot hotter. But the time of spring and autumn seems

to shrink quite a lot. I think because for my part, the change of global climate will definitely, at last, change the climate where you are living in. So I concern a lot of this actually."

Are there some specific problems at the global level that you are more concerned about?

"Yes, I think that is the acid rain. It really ruins a lot of buildings in my hometown."

His way of turning global issues into local concerns was not uncommon. Actually, all my respondents except one did this. When faced with the question of global problems they would immediately answer me with a concern for local problems, and most of the time air pollution came up as the greatest worry. It was so consistent throughout my interviews that I had to change my question from "*what* do you know about global environmental problems" to "have you *heard of* global environmental problems". Even then, the most repeatedly answer was simply, "yes, I have heard of it" without any more details. There was a slight difference between the students and rural migrants however. All the students had at least heard about global environmental problems, while four of the rural migrants answered that they had never even heard about it. I developed a hypothesis:

H_1: They have little, or no knowledge about global environmental issues, and concern most (or only) about the problems that surrounds them and immediately affects them.

It was natural to follow up with questions about *local* environmental problems – for China in general and Shanghai in particular. I already had the impression that air pollution was their main concern. Being a hot topic in China, it was of clear interest among almost all my respondents. Rural migrants and students alike immediately started to talk about the smog, pointing out the window or showing me the $PM_{2.5}$ index app on their phones. A middle-aged, rural migrant woman and owner of a small noodle-shop (see figure 13 on the right), was an interesting exception. She was very sceptical towards the *lao wai* from the beginning, asking my interpreter a lot of questions about me, who I was, what I did, and what I was going to use the data for. When I assured her that I was not from the government and that she could be anonymous, she finally accepted to be interviewed – as long as it did not take too much of her time. She came from Henan province where she used to live on a farm and do agriculture for a living. Money was the reason why she had moved to Shanghai eight years ago, leaving two of her sons behind and bringing her youngest daughter to help her out in the restaurant. She still

held her rural Hukou and was not willing to tell me how much she earned. She said that she had never heard about neither air pollution nor water pollution. This was quite shocking and strange to me, especially because the smog was so bad that particular day. The PM$_{2.5}$ index showed "very dangerous" levels. I believe that the constant nervousness, scepticism and unnatural answers was rooted in the fact that she was one of the "floating population". Perhaps her business also was illegal and that she was afraid I was doing research for the government. This was a recurring problem for me in encountering the rural migrants, and was one of the issues Chenchen had warned me about from the beginning. Another case where this was prominent was my meeting with a rural family living in the slum area Baoshan in the middle of Shanghai city.

Mistrust and Economic Priority

> *"They do not trust us, they do not know who we are, where we come from, if you are a reporter or journalist, so they concern about if they should keep their secrets"*

It was a cold and rainy day in Shanghai, Friday the 27th of February, and the first day after the Spring Festival. The streets were once again buzzing with busy people rushing to work. I met Chenchen early in the morning and we took the metro to Baoshan station. Hundreds of small "traditional" Shanghainese houses were packed together barely separated by narrow streets. The roofs were broken, it was garbage everywhere and the stench of excrement and rotten food waste was nearly intolerable. Located in the middle of the city centre surrounded by skyscrapers and shopping malls, Baoshan slum is like dead weeds in a bed of roses.

Figure 11: Private Pictures from Baoshan Slum

We found a small house, or rather a room with an open door. In front, there was a small shelter where a woman was cooking by open fire. Inside the room sat two men – one relatively young, another a bit older. We first turned to the woman, since I wanted to balance between genders and needed a female replier. However, the woman was shy and busy with cooking. Her husband was outward and started talking before the woman got a chance.

We mainly talked to the younger of the two men. He was dressed neatly, in a dark suit and nice, shiny shoes. His hair was well done and he was clean. His house however – which turned out to be his shop as well – was very dirty and overcrowded with stuff. The room was no more than approximately 15 m^2 and in the middle of the room there was a ladder. I peaked up the ladder and saw some sleeping bags. In other words, they worked downstairs, and slept and lived upstairs. The room had no doors and it was very cold. There were no Air Conditioning, no electricity and no heat except the fire at the "kitchen". I did not see any toilets. From what I could observe, they were selling bags of rice, oil and flour.

Chenchen introduced us and requested if we could ask them some questions. They were talking for a while in Chinese, which I did not understand. Later, Chenchen told me that she had to convince him that we were not going to ask any difficult or sensitive questions, that he was free to be anonymous, and that it would not take too much time. Similar to the noodle-shop woman, the man asked if we were from the government. Chenchen told me that the government is now replacing many of the shelters with newer and better apartments. If the residents own the flat, they are allowed to live in the new house that is built. Though, residents who do not have an ownership to the place are forced to move. Obviously, the man was hoping for the first option. When he found out that I was a student and not government employee he said: "Oh…So you cannot do anything either."

I also experienced that many of the rural migrants were a bit too "neutral" and inward when talking to me. Chenchen told me a reason for this as well:

> "Because you are a foreigner, they are afraid to lose face. Therefore, they will be very careful with what they answer. Especially if you ask them if they are worried about their kids and health and if they are happier now than before, they usually walk around the bush and try to tell me things indirectly instead of answering you directly. There is no exact answer. They are afraid of losing face. They do not trust us, they do not know who we are, where we come from, if you are a reporter or journalist, so they concern

about if they should keep their secrets. They will not show their opinion and will rather say excuses like *I have no opinion, I have no education, I do not have any knowledge about this* and so on. They are trying to be as neutral as possible, to stay away from any trouble."

Their scepticism towards me as a *lao wai* also led to some difficulties. Chenchen had an explanation for this as well:

> "They *(migrants)* would think that there are two kinds of tourists that come to China. The first type is the typical sightseeing tourist that stays at hotels and goes to see the tourist areas like the great wall, The Bund and so on. The other type is like you – that goes to visit the poor areas. But the way they see it is that you only come to see the worst of China, the shitty side, the bad side, and that you will report it back to your nice country and laugh about it and say *hey, look at those guys, look at how bad they are living!* This might be one reason why they are not so willing to talk."

The family came from Anhui province, a province that is lagging behind in the economic development and where agriculture plays a major part of the daily life. They moved to Shanghai, leaving their two kids behind in Anhui, to make money. They still held their rural Hukou because they were not qualified to meet the standards of an urban. When I asked if they knew anything about global environmental problems, the younger man answered that he had seen many people wearing air pollution masks on the television. Once again, the global problems was taken to be the same as local environmental problems. I just had time to ask him if he was concerned about it before he suddenly burst out:

> "I want to improve our life! We have lived here for 20 years, but still my kids are not allowed to take education here – they have to go back to Anhui and take the education there! It is a bad situation for us – THAT we care about! We don't care about anything else! I do not mind to live a poor life with low standard. I have no other choice. You need to help us – our kids need education! They are not allowed to take exam here in Shanghai – you have to help us!"

It became clear to me from my rural migrants interviews that making money for their kids' education was perhaps the highest priority in their lives. I therefore arrived at my second hypothesis:

H₂: Rural migrants are too concerned about earning money and struggle for a better life to care about environmental issues.

Health Concern
"It feels like you have been eating a piece of metal or something like that. It is really bad"

Another, yet related, concern among all respondents (rural and urban) was their health. When faced with the question of *why* they were concerned about local and/or global environmental problems, all respondents who said they knew something about the topic, answered that it was due to health concerns. This indicates a very egoistic value orientation and supports Stern et. al.'s VBN theory. Individuals with egoistic value orientation would be concerned about environmental problems due to the harm it might have on themselves (Schultz, et.al., 2005, p. 458-459). Eleven of the rural migrants and all (twelve) of the Fudan students expressed a great concern for their health. They also stated that the negative impacts on their health was the main reason why they were concerned about environmental problems – usually referring to air pollution. They would often bring up bodily experiences such as coughing and breathing problems. As one student expressed:

> "Here in Shanghai there are a lot of days that smog becomes a big problem and you cannot help but coughing and you feel very bad in your throat. It feels like you have been eating a piece of metal or something like that. It is really bad."

Case Study: Wáng Yúnlóng
"The only thing I want is to enjoy my life and my family"

Walking in the Baoshan slum we met the 64-year-old man whose name was Wáng Yúnlóng. He carried his two-year old grandson on his arm, standing in the doorway of his home. The flat did not have any doors, the roof was low and the rain was leaking in. He had never heard about water pollution and similar to the other respondents he started to talk about air pollution when I asked him about global environmental problems. Throughout the interview, he had a particular focus on industry and factories.

"I only know about the pollution from the factories. And after they moved the factories out of the city centre, the air pollution is not so bad as it used to be."

He told me that he did not do anything to help protect the environment, because they lacked the infrastructure for recycling, but his main reason was clear:

Figure 12: Private Picture of Wáng Yúnlóng and His Grandson

 "I have heard about that the government do a lot of effort to ask people to recycle or to put the garbage into different bins. I have heard about this, but I don't do it myself. I love to have it clean in my house. I know you can reuse the rubbish, and we can reuse other things. But this is government stuff – the government and the country should do more. It is not our business. I think the government definitely has something going on, but I am retired so I do not care too much about the policy and the government. The only thing I want is to enjoy my life and my family."

It turned out that he used to work in a steel factory that, according to him, was one of the worst polluting factories in Shanghai. When Wáng Yúnlóng was 55, the government closed down the factory due to environmental problems. He told me he could not get any other jobs after that due to his bad health. I wondered if his bad health was a consequence of his job at the factory.

"Yes definitely! That is why I do not care about the air pollution now, because compared to how it was back then in the factory it is nothing!"

Air Pollution Mask Versus Health Concern
"The smog is what the majority of people in China face every day and you cannot avoid it"

Every day during my fieldwork, $PM_{2.5}$ levels were never below 70. I counted two days with levels below 100, and ten days with levels above 200, rising as high as 370 three days. The air was so heavily polluted that it was almost touchable and I could taste a metallic flavour in my mouth. I bought a package of air pollution masks and wore it every single day. Living in Northern Norway where $PM_{2.5}$ levels rarely exceeds 15, even levels at 70 (which was "really good" according to my respondents) was nearly unbearable. I soon became aware that there were almost only foreigners wearing air pollution masks. Even on extremely polluted days, the majority of the Chinese would not wear a mask. I started asking my interviewees about this curiosity, trying to find out why they did not wear a mask even though they expressed such a deep concern for their health. One young female student called Sharon, expressed a severe concern for the citizens' health in regards to air pollution, but I noticed that she did not wear a mask. Actually, not even one of my respondents wore one! I asked Sharon why she did not wear it if she concerned so much for her health. I expected that the reason would be lack of knowledge or money, especially due to findings of earlier studies and research. To my surprise, she answered:

> "I don't like it. It makes me look ugly!"

Many of the female respondents – both rural migrants and students – seemed to care for their looks. However, in addition to looks, all respondents told me that the main reason was the inconvenience and the discomfort of wearing it. One of the workers at a restaurant I used to go to answered that when he rode his bike it made it hard for him to breathe (ironically).

I was lucky to get in touch with Mr. Ping Zhuang, one of the founders of IFCE. When I brought up this issue, he laughed, looked at me and said:

> "I am not wearing one either! For us I think, it is because of practicalities. You know we are running a lot of tasks, running from one place to another, one meeting to another, we need to talk to a lot of people, traveling in trains etc. It is not convenient! It is not like we do not want to wear it or that we don't care about our health. It is just not convenient."

The battle of discomfort and inconvenience of wearing an air pollution mask versus the great concern for health complications resulting from air pollution, led me to my third hypothesis:

H$_3$: Their busy lifestyle disconnect concerns from actions and affect their behaviours.

It was clear from the beginning that air pollution was the hottest topic among Shanghainese. I was curious why they did not seem to care much about water pollution. I turned to Mr. Ping again, hoping he could give me some wisdom.

"I think the reason is that air and air pollution is something you cannot escape. It is everywhere. Water, if it is dirty, you have a choice - you can walk around it and you can buy clean water. There is still an opportunity to choose not to take part in it. Even though it is dirty everywhere. You cannot do this with the air."

This made sense. It supported previous studies, my observations, and my data that they were mostly concerned about what immediately affect them and the local environment that surrounds them. Looking back at my transcriptions, I noticed that many of my respondents had already given me the answer:

"…the smog is what the majority of people in China face every day and you cannot avoid it. You have to go out…" (Male19, rural)

"Every day you have to face it. And of course you will talk to your friends about it and talk like *how should we survive* and what can we do to protect it – I mean protect your self – from the pollution." (Chenchen, female urban student and teacher, 26)

"…You cannot run from air. You can pay more to buy fresh water. The better water – you can always pay for that. But the air – you have to live in it." (Yifan, 21, high income, urban student)

Short-Term Focus and Government Information

"It is not our business because we will not live here for too long and we will not suffer too much"

There was still one thing that puzzled me: did they not feel concerned about the long-term consequences of not wearing a mask? I found it hard to believe that the inconvenience of

wearing a mask outweighed the great concern for their health. One explanation was given by Male19:

> "I think one of the reasons is because the destructions from polluted air is a relatively long process, I mean, it ruins your life day after day, it does not ruin your health right away. So people are just sometimes lying to themselves: *it is all right, I can go out today, I will not die today. I do not feel any difference.* But the truth is that the health is really getting worse every day. They are lying for themselves."

Several respondents, and especially students, told me that they wore a mask "sometimes" and when it was "really bad". I therefore wanted to find out what was causing them to actually act – to behave according to their concerns. The answers I received can be classified into two influencing factors. However, in most cases, both factors were driving forces for actions. The first factor is *bodily experiences,* which will be elaborated later. The second is *information provided by the government* through advertisements, and television.

Xuewen was one of the urban students with very high income. She emphasised the short-term focus among citizens as well as the egoistic concern for their own health.

> "Maybe some people will think that it is not our business because we will not live here for too long and we will not suffer too much, so I think we need to change the way they *(the government)* focus the publications. They should focus more on people's health, and how it affects people's health. Because everyone will concern about their self and their health and not just the environment which they think is not so important and they do not concern too much about it. But their health they concern very much about. So maybe they *(the government)* need to change the way and get people to listen to the news and show them that bad habits cause bad effects on their health or can cause accidents. Then it might help to change people's thinking and the way people act."

Mr. Ping had the same angle to it. He told me:

> "I think that many of them *(the citizens)* do not even think! That is why I talked about the government being so responsible. You really need to present this right in front of their eyes *(he puts his hand firmly right in front of my face, just inches from my nose).* Let them see: look, you haven't done this, you need to do this! How you do this. If you

do this, how will we see our city, how will we see our lives improving. Otherwise, people are too busy. People are thinking about survival, how to get a house, earning more money or whatever."

Based on all my observations and qualitative data so far I arrived at the fourth hypothesis:

H$_4$: Pro-environmental behaviours and environmental concerns are rooted in economic priority and health concern.

Postmaterialism
"The mindset is to save something…but they do not have this for environment yet"

China's remarkable economic growth makes the postmaterialist theory an interesting angle in my case. To support the postmaterialist theory, the older generation, who themselves have experienced a poor childhood but now lives in prosperity, would show a greater concern towards other values, such as environmental protection. Their kids, born and raised in Shanghai with urban hukou, good education and sound income, would also show a trend of low economic concern and high environmental concern. On the other hand, I would expect to find rural migrants, and rural student with low income, to be more concerned about saving and earning money than caring about environmental issues. With this in mind I asked my respondents what their main concern in life was at the time being. In this way, I gave them full flexibility to answer whatever was on their mind. At the same time, it was a method of discovering their value orientations.

I had to be critical towards the answers that were given, especially regarding the rural migrants. One reason was their scepticism towards me as a *lao wai* and stranger as discussed earlier. The other was my overt role as a researcher. They might have provided me the answers they thought I wanted, perhaps not to lose face. This happened in my interview with an older, rural couple (see figure 13 on the left). Throughout the interview, they showed no interest nor knowledge about environmental issues what so ever. When I, in the end, asked them about their main concern in life, the woman answered "environmental protection" – completely contradicting with what they had said previously. Another influencing factor was the rural migrants' mistrust to the government and their suspicion of me being a government employee trying to arrest them for illegal registration and work.

Figure 13: Private Pictures of Rural Migrants

To my surprise, however, the postmaterialist theory did not seem to hold reliability in my findings. In fact, all my respondents regardless of Hukou, education, income or age (not counting respondents who apparently gave me misleading answers), honestly and straightforwardly admitted their economic priority. That rural migrants earning less than 2 000 Yuan a month had this mindset was no curiosity. What bewildered me the most was that urban students with relative high income and good education had such a priority. I contacted "Gavin" (his self-given English name) – a programme officer at Fudan University's Nordic Centre. Born and raised in southern China, he is currently living in Shanghai where he took his Bachelor's Degree in environmental science. For three years, he lived in Sweden completing his Master's Degree in sustainable development. I thought he would give me an interesting perspective due to his educational background and Chinese origin, but most of all due to his experiences from a different country, a different lifestyle and a different environmental mindset. He confirmed my observations:

> "In Sweden, people have the concept *(he points at his head, as if referring to a mindset)* of saving energy with the intention of protecting the environment. Here *(in China)* people have the concept of *we have to save some money*. According to the

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> government, we should now develop the economy and at the same time protect the environment. But before this, the environment has not gotten a lot of attention. People say that we will protect the environment, but especially for the local companies, when they have inspections they will do very good but later they will just shut down to save money."

I asked him if this was the mindset of the individuals as well, or mostly industrial employees and factory owners.

> "The mindset is to save something, for example the most important is to save money because they are saving for houses. If people have the opportunity, they will save at least 30 percent for housing or emergencies, like sudden illness. But now, the health care is getting better so people do not care too much about this issue anymore. It is a Chinese mindset of saving things. But they do not have this for environment yet. For energy consumption for example – when I was home during the summer I turned the AC on and my mother told me *why do you turn it on, it is not that hot!!* But actually it was 32 degrees – it was a habit from my daily life in the office."

After my talk with Gavin, I got a better understanding of the mindset of the Chinese. In the excerpt above, Gavin told me three things. 1) There is a difference between the older and the younger generation's mindset: while the older generation thinks more about saving money, the younger is more concerned about comfort. 2) They all have a mindset of "saving things" and that they have yet to transfer this mindset to environmental protection. 3) They often act according to habits and do not think their behaviours through.

> H_5: The habit and mindset of "saving" causes them to act without thinking.

Generation Difference, Habits and Mindset of Saving
"I think the younger generation will think differently and be more environmental friendly"

Actually, these three factors (generation, habits and mindset) were interconnected. In my search for pro-environmental behaviours I asked them if, and what kind of, behaviours they performed in their daily life that were pro-environmental. Very often, they answered: "to ride a bike". Their main reason behind it, nonetheless, was to save time, money, and the fact that during rush hours it was more convenient and comfortable than taking a car. However, an

urban student told me that her grandparents would never take a bike. They would always take a car, no matter the distance or traffic. When I asked her why, she plainly answered:

> "They just want to enjoy life and think a lot about comfort, they think more about what is good for them."

When it came to turning off lights and Air Conditioners/heaters, all respondents – rural and urban, students and migrants – replied that they turned it off when they left a room. This corresponded with my PO. I then asked them why they turned it off. Was it due to economic reasons or environmental? The answer from everyone was a unison "both". Nevertheless, some respondents answered that it was a habit and that they did not think about it, or that their parents had told them to do it to save money. In the latter case I followed up with a question of what they thought was the most important reason to turn off the electricity. The answer was usually that the main reason was money but that they knew it was good for the environment as well. The urban 24-year-old student Olivia offers as an example of the general answer:

> "It is not like I do it *(turn off electricity)* because of the environment and because I think it will reduce air and water pollution. It is more like how I am educated – to save energy. It is an everyday habit. I do not think about the environment every time I turn off the light, but I know it is good for the environment."

The connection between generation differences, habits and mindset resulted in the sixth hypothesis:

> H_6: The younger generation is more environmental concern and act more environmentally friendly than the older generation. Change will take time.

Running Away from Environmental Issues
> *"We prefer to travel abroad to a good environment place or go abroad on business to clean our lunges and enjoy the clean environment."*

Throughout my fieldwork, it became more and more clear that there was a great generation difference. The younger generation was obviously very annoyed by the elderly and would often refer to them as "selfish", "rude" or that they "do whatever they want". In late January, I met 22-year-old student Sharon who was born and raised in Shanghai. Even though it was in the middle of Chinese New Year holiday, she wanted to meet me at Fudan University because

she had started on her studies for the next semester. Overall, she was one of the most enlightened respondents I had interviewed and she was clearly interested in the topic. Sharon was also the only one out of all my interviewees that showed a clear biospheric value orientation instead of egoistic. Having my interview with Wáng Yúnlóng in mind, I asked her if she thought the older generation was more concerned about living a comfortable and convenient life than thinking about environmental protection, perhaps because they had experienced a tough and poor childhood and now had the opportunity to live in prosperity.

> "I think so, yes. I think the younger generation will think differently and be more environmental friendly…"

A middle-aged woman sitting on the table behind us then interrupted her:

> "I think they *(the older generation)* are bad for China! Not only for environmental protection, but for many things they are bad. Everything will be better after their deaths! They have different education and they experienced the revolution and the cultural revolution and that made people horrible! That is the real reason. I think the environment and the relationship among people will change after their deaths. Before that, we cannot change. The rich people's children move overseas – they don't care!"

Sharon followed up:

> "Some people wants to move away from China – the rich ones – so they do not pay attention to the local problems. The officers' children do not care about the environment."

During one of my dinners at Lishuang and Hao Guimei's apartment, we talked about the mindset of "saving money first" and that the environment would come second, or third, or even tenth. Lishuang said:

> "I know some people, some very rich people, that leave Shanghai because of the environmental problems – they move to some good environmental places. Because they have enough money to travel around or move to a better place and buy an apartment there. So they leave Shanghai. For me and my friends we have to work in Shanghai. But we prefer to travel abroad to a good environment place or go abroad on business to clean our lungs and enjoy the clean environment, the good water, the good air."

My findings that the rich, well-educated people tend to "buy" their way around environmental problems or run away to places where they do not have to face it, made me conclude that:

> H_7: Postmaterialist theory is supported in regards to environmental concerns but not in regards to pro-environmental behaviours.

Bodily Experiences
> *"When I got off the plane I coughed for three days to get used to this environment"*

All the urban students had been travelling outside China, usually in combination with studies. Two respondents had been to the US, the others had been to Europe and mostly the Scandinavian countries. Interestingly, they all had something in common that distinguished them from the other non-travelling respondents. Even though five of them had not been born in Shanghai, they said that they did not feel any more or less environmentally concerned after moving there. However, they all stated a remarkable different way of thinking – and behaving – after their study abroad. It did not have much to do with the study itself, but rather with the experience of a better environment. Xuewen had studied one semester in Finland and came from a rich family that had travelled together in Europe. When I asked if she had changed after living in Finland, she gave me this answer:

> "Yes I think so. Every time I looked outside the window from the plane when I was travelling in Europe, I saw clear air, the sea was so blue, the clouds so white. Everything is so clear! But when I came back from Finland and was on the plane to Shanghai and watched out the window – I remember it very clearly – the sky was so grey! I did not notice that before. Since I have lived here so long, I did not realise it was so serious! But after traveling in the Nordic countries I know. But maybe I only know on the surface, I do not know how they do it. Maybe they just have developed a habit very long ago, but we are just developing a habit among the very young generation right now."

A similar story was presented to me by the young, urban student Yifan who had studied in California:

> "After I come back to Shanghai I feel – "oh my God" – because I have not been to a foreign country before. So after comparing, this air quality is…ehm…well…I don't

> know how to describe it…after I get off the plane… it was so much worse! In Shanghai, the plants are much less and you cannot see through the air for a long distance because of the small particles in the air. In California, it is completely different and you feel very good living there. But when I got off the plane *(in Shanghai)* I coughed for three days to get used to this environment."

None of the rural migrants had been outside China. Nonetheless, they shared some of the similar experiences. A majority of them came from remote areas with a completely different nature, often working with agriculture. Even though the majority described their life in Shanghai as better because of their jobs and a small rise in income, all of them preferred the environment in their hometown. One woman was especially clear on this topic. Coming from Anhui province, she moved to Shanghai 20 years ago because of her husband. She told me about her hometown and that it was famous for its beautiful, green mountains:

> "My hometown is like heaven. Shanghai is like hell! The differences are huge. My hometown is so beautiful, very clean, very green, but Shanghai….no! *(shaking her head from side to side and wrinkled her nose like she was disgusted about it)*"

Another migrant coming from Northern China was born and raised at a farm. I asked her to tell me about her hometown. She fell into a dream-like state of mind while she described it to me:

> "It has beautiful landscape! It is beautiful! My hometown is a large farm and everywhere it is fresh air and wild animals. I really miss the beautiful stars in my hometown. But here I can only see the "red stars" *(the lights from airplanes).* I can't see the stars here."

From my experiences with the Chinese culture and from the findings during my fieldwork, I know that health and body have central stages in their lives. Every time I was invited to a dinner, each single dish on the table (usually nine) was presented as having a profound positive health impact or in some way or another, contributing to a better body. It was also very common that the respondents talked about the negative impacts of the environmental issues on their bodies. It suddenly struck me that the common factor for all of the most environmentally concerned and those with self-reported and observed pro-environmental behaviours, described a bodily experience of a bad or good environment. They also tended to

present a best-/worst-case scenario comparison. I asked Gavin if he thought people did not wear a mask because they did not think about the long-term impacts on their health:

> "Yeah you get used to it. It is just a habit. There are no seriously immediate effect. For example, one day a couple of years ago it *(PM$_{2.5}$ level)* was over 500. You could see it and you could even feel it! You could just go out the door and sniff the air and go *(clearing his throat loudly)* – and start coughing – <u>that</u> made people wear a mask."

As a result, I concluded with:

> H$_8$: Bodily experiences trigger awareness of environmental problems and concern for their health. This leads to behaviour.

Yet even on days with PM$_{2.5}$ levels above 200, I experienced none of my respondents wearing a mask. Some told me they did not think about it, which supports the fact that they get used to it and that it is a habit. Others told me (mostly rural migrant and rural students with low income) that it was expensive and they only wore it if it was really bad or necessary. When I asked them how they defined "necessary" and "really bad" they once again turned to bodily experiences. For example, if they could feel it in their throat, or smell it. In addition – the urban students most of all – referred to the government and the news as a source of information.

> "You know, the news will tell you if it is bad or not and how the weather is like. And there is also the index on the internet. And I will look outside the window and see if it is not so good." (Female, urban student)

The Government

> *"The government does not care about us. It is like we are not really in the government's view"*

The respondents' relationship with, and meanings about, the government varied greatly and tended to be contradictory. Several of the rural migrants expressed a dissatisfaction with the Hukou system and how they were discriminated by public services. There were also more severe incidents. A middle-aged couple (see Figure 13 to the left) I interviewed expressed a negative attitude towards Shanghai, so I wanted to know the reason why they had moved here in the first place. I could see on Liuwenfang's (the woman) face that it was hard for her, but

she did not mind talking about it. They used to live in Jiangsu province but when they expected their third child, they had to move:

> "We had two kids from before. This was our third baby. It is against the birth control policy, so we had to move to Shanghai to give birth to our son. Then we could go back to pay the fine. If we would have stayed in Jiangsu until he was born, the government would stop us, put us in the hospital and kill the baby while it was in my body. But if we moved here the government would not do this. We stayed here to earn money for our kids' education. In the beginning, we were discriminated by the locals. The Shanghainese look down on people from other places. We feel better now, but we still face difficulties because of our Hukou. First of all, we do not have medical care here in Shanghai, and we do not get discount on electricity and water fee. When we rent apartment here the government has a different policy for us than for local Shanghainese. The government does not care about us. It is like we are not really in the government's view."

This latter part was something that recurred among all target groups. They felt that the government did not really care about the individuals and that their voices would not count anyway so there was no reason to behave differently. The majority of respondents would express a mistrust and scepticism towards information provided by the government (excluding the air pollution warnings for some reason that I could not get an answer to). Yet on the other hand, they would expect the government to tell them exactly how to act environmentally friendly. All respondents apart from one (Sharon, who also was they only one who showed a biospheric value orientation) said it was the government's responsibility to make China become more environmentally friendly. When re-reading my data for the second time I found a pattern between what I have called "the feeling of helplessness", the complex relationship between state and society, and "enforced behaviour".

The Feeling of Helplessness and Enforced Behaviour
"Actually, I do not do anything, because I cannot do anything. We have to face our destiny. We have to live with it"

It was my intention to find the respondents' AR, AC and pro-environmental behaviours that led me to the discovery of the "feeling of helplessness". I asked if the respondents did

anything to reduce air and water pollution, and if they felt they *could* actually do something. Contradicting with what I had observed regarding recycling bins, many respondents told me that they did in fact recycle. I later understood that they mistook it for reuse. For example, it was a common practice to reuse fruit peel to make a dishwashing soap. The main intention behind this was, nevertheless, that it was cheaper and that it was better for their health because it would not leave artificial particles on the dishes. However, when I asked about different pro-environmental behaviours, the most repeated answer was:

> "Actually, I do not do anything, because I cannot do anything. We have to face our destiny. We have to live with it." (Chenchen, urban)

And:

> "I do not think I can do something, and I do not know how to do it." (Ma Fu Xiang, rural migrant and small restaurant owner)

The general answers above were often followed up by:

> "I will do what I can do, but it will not make a difference. It is the government's responsibility." (Anonymous, rural migrant)

My last hypothesis is then:

> H_9: A feeling of helplessness leads to an ascription of responsibility to the government and prevent individuals to perform pro-environmental behaviours unless they are told to.

This is perhaps a consequence of the complex state-society relationship in China described earlier in this paper: the embedded relational ties between state and the individuals (Evans, 1996, p. 1120, 1122). In countries where state-society relations are hostile, where there is a general lack of reciprocity and trust between the state and the society, there exists a "Great Divide" (Ostrom, 1996; Øyhus, 2013, p. 2). However, China is in an interphase of closing this divide. My findings show that even though the individuals do not fully trust the government, they feel helpless without them. The CCP still controls their civil society – it has just shifted from a micro to a macro level (Schwartz, 2004, p. 28). I would argue that this shift, in addition to the remarkable growth, has led ENGOs to blossom in a space of interaction, while at the individual level people are left with a feeling of helplessness and emptiness. They are

used to clear guidance and leadership. In a very short period of time they have gone from a state of being fully controlled and focusing on survival, to a state of more flexibility, self-responsibility, and a lifestyle hungering for comfort, convenience and consumption. Additionally, they are faced with external pressures (both nationally and internationally) of environmental protection.

When this peace of puzzle came into place, I tried to figure out what triggering factors were needed in order to make the individuals more environmentally concerned and to actually perform pro-environmental behaviours consistent with these concerns. In a conversation I had with Mr. Ping, he provided me with information that contextualised this issue. In the following excerpt from our conversation, I have bolded the concepts that are of special interest. These will be discussed in the next section.

> "It is not that people do not worry, but because of the system people are not very motivated. Even survival sometimes can be a problem. That is why **China for many years has promoted GDP first**. We have a saying in China: "duō, kuài, hǎo, sheng" which means "many, fast, good and saving". Today they need to change. They must take out "kuài" and make it "hǎo", right? All the leaders are being evaluated on how the GDP goes, so therefore if they want to be promoted, they need to show a good GDP development. When they are being evaluated on this, their **mindset** is not on pollution control, it is more on how to develop in the most efficient and quick way. But now they have changed. It just started some years ago. The government said: in the future we are not going to evaluate leaders only based on GDP, we are also going to evaluate them on other indicators – a more balanced approach. But this is just a few years ago – the pollution started much earlier. It is not that the leaders do not see the pollution. It is not that they do not see the exploitation of natural resources, the use of a wasteful manner in a very polluting manner. But now they know they have to change, they have to take care of EIA and all that. So **things are really changing now**, but it will **take some time**. Garbage wise for example, particularly Shanghai, if you walk in the big shopping malls or at the big streets you see the good side, but if you walk into the smaller streets you can see that the original Shanghainese. They **still live in a very low living standard**. And also, for the **habit** right, you have these

recycling bins, but some of them are not very easy for people to understand. People are saying "which one?" So there is no training, and there is no good indication on which garbage-can should be used, and some are even wrong. It is somehow for show, not really for implementation. For example, when you are crossing the street – in Shanghai in particular – why are there people standing there to prevent people to cross the street before it turns green? People know, it is not like they don't know that they shouldn't cross the street on red light, but some people just want to rush, they want to ignore it. So people are trying to make everybody understand and observe. Maybe in a few years we do not need people to stand there on the street to prevent that, because then people might have become used to it – it will become a habit. So you need **1) training and 2) enforcement**. How often do you see in China that people just open their windows and throw the garbage out? Why? Because there are still people that are not following the rules. I think these kind of concepts need a social or public campaign or training to be effective.

Right now, there are actually some resentments between the original Shanghainese *(urban)* and the new Shanghainese *(rural migrants)* – the new Shanghainese come here to work, and some of them have two-three kids, they ignore the rules. Shanghai is a city with limited resources, so when all these other people just come in and grab from the resources, it is creating a lot of stress in Shanghai. So the differences, I say, when it comes to environmental problems will be the use of resources, garbage creating, littering, and wastewater generation."

So do you think that the "new Shanghainese" are less environmentally friendly than the original Shanghainese?

"I wouldn't generalise it like that. But I would say that it counts for the big proportion of them and that they come from the rural, less developed areas where they are not educated in the environment as here in Shanghai."

They might come from families where they live closer to nature. Do you not think that this might have an impact?

"But do you know how "living close to nature" in China works? Environmentally, they have no habit of treatment. I grew up on the countryside. A lot is composted naturally and reused in the field. Garbage actually being thrown just on the land. But

the population is not that big so there is no need for treatment, it is naturally digested, or naturally disposed. It doesn't show a big impact like it does in Shanghai. So they don't really have a concept. In general, I think that when it comes to garbage recycling and garbage controls, the local **government has a lot of responsibility** in terms of really doing an implementation. If they just do it for show it will not be effective, they really need to **inforce** it – like they do with the traffic – **they need to educate people**. We need to set up a grassroot organisation to help to do the implementation, the training. Like using volunteers, workshops, and also it should be more frequency on **TV**, what we call a **social/public advertising** to show people how to recycle, why you need to recycle, and show the **benefit analysis** and even **graphics** and **figures** to show everybody if you do this it will benefit everybody! It will reduce the municipal cost of maintaining the city. **They need to understand that everybody's action actually benefits yourself – not just other people – people are selfish.** I also think the government can make some **incentive systems** that encourage people. Like they will get something in return. Even just small incentives will help **change habits**. For example, getting a little money back from old bottles. The way I see it: **1) education, 2) graphical or an understandable presentation, 3) enforcement and motivation** – very important. But it is a big effort – it is a system change, right."

What do you think about the recycling system here?

"The recyclable/non-recyclable is not enough. Some cities are doing better. There are a lot of differences. It is very important that the government **standardise** it throughout China, or else people do not know. Every city has a different system. China is big, you really need to standardise so that it is the same everywhere. For example, if it is colour-coded, so that say yellow is food waste – **you do not have to think**. Everywhere in China will be the same – "oh there is a yellow, I can throw food waste in it". People **do not have time** to really read the small letters, the small characters. It must be made very **easy,** so that people almost **automatically can do it**. Otherwise, people do not care. My observation is that they **do not have the time** to stop and think and see."

Categories and Discussion

Following a grounded theory, I coded my transcript right after the interviews, then reread it and added more codes when necessary. In the end of my research, all codes where systematically ordered into concepts. Concepts with similar attributes, or that could be related, was then put together as building blocks for categories to represent phenomena from my findings. These are the categories I ended up with:

1. Been abroad
2. Economic priority
3. Government
4. Feeling of helplessness
5. Lifestyle
6. Generations
7. Bodily experiences
8. Health concern
9. Enforced behaviour
10. Short-term thinking
11. Worst- / best-case scenario comparison
12. Knowledge and information
13. Local not global
14. Habits

It is remarkable that Mr. Ping – within one single conversation – passed by almost all of my categories, not by using the exact same words, but with the same underlying codes and meanings. Let us take a closer look at the bolded words from his interview and how it relates to my categories.

China's great growth in GDP has led to a *mindset* of *economic priority* not only within the government but also among the individuals. Even though the government is changing, it will *take time (generations).* This is because the mindset of "saving money" has become a *habit* and people tend to have a *short-term thinking* of economic benefit and *health concerns.* The short-term thinking, economic priority and health concerns provide a general attention to *local not global* environmental issues. Individuals who have had a *bodily experience* of bad or remarkably good environment, and/or people who have *been abroad,* tend to have a more holistic perspective based on a *worst-/best-case scenario comparison.* They are usually more

concerned about global issues and act more environmentally friendly. Nevertheless, China's history and development as well as the habits and experiences of its civil society, has led to a *feeling of helplessness* among individuals. Even though they actually perform pro-environmental behaviours such as recycling, they feel that it does not make a difference, or they simply do not know how to act or what impacts it may have. Therefore, the *government* has a big responsibility in providing *knowledge and information* to its citizens. The busy *lifestyle* of Shanghai citizens provides the framework for the conduct of information dissemination. Television or application software might be suitable sources because it can be conveyed anywhere, for example on subways. Because people are so busy, there need to be a comprehensible, standardised system all over China where individuals do not have to think – they can just act. However, in order to act without thinking there is a need to develop habits. These habits can be established through *enforced behaviour* motivated by incentives of economic benefits or graphs and statistics showing the positive, individual health impacts.

Quantitative Data Analysis

Hukou

Out of the 150 questionnaires, only 27 of the students were born in Shanghai. This does not mean however, that the remaining 123 students are rural and have rural Hukou. I therefore ran a contingency table between birthplace, what Hukou they held at present time, and if they had changed their Hukou or not. In this way, I could find out how many of the respondents that came from rural areas and still held a rural Hukou. I found that three persons were born in Shanghai with an urban Hukou, yet they stated that they had changed it. This indicates that their parents (at least their mother) is from elsewhere in China. The data showed that 23 students were born in Shanghai, holding an urban Hukou, and had not changed it. This show that their parents also have urban Shanghai Hukou. Out of the 123 persons that were not born in Shanghai, 44 respondents had changed their Hukou into an urban, while 17 persons were born at a rural area still holding their rural Hukou. Lastly, 56 students who were born elsewhere in China had not changed their Hukou yet stated that their Hukou was urban. This implies that they have moved to Shanghai from other big, urban cities in China.

Some of the results are unexpected. For example, one person stated that he/she was born in Shanghai but had changed his/her Hukou into rural. Similarly, six persons stated that they

were not born in Shanghai, had changed their Hukou but still their Hukou was rural. There might be several explanations for this. Perhaps the respondents had rural parents and are in the process of changing to an urban Hukou, or they simply misunderstood the question. Based on my experiences and conversations during the fieldwork, I find the most likely explanation to be that the respondents' parents are a part of the *liudong rekou*. In other words, they might have been born in the metropolitan but hold a rural Hukou due to their parents' origin. Another reason might be that they are born outside Shanghai and still hold their rural Hukou but have ticked off that they have changed it because they are afraid of the possible consequences if someone finds out. Even though Fudan is a prestige university, rural students are still discriminated. A rural student called Starrian shared her experiences:

> "Many people discriminate against my Hukou. Actually, if someone know I am a Fudan student, they won't do that. But if they know where I am from under the condition that they don't know I am a Fudan student, they would do that *(discriminate)* sometimes. For example, some taxi drivers would pay a pity about where I am from and tend to think I haven't seen such good things in Shanghai. And they prefer to think about me as a student from a worse university."

Education

Among the 150 students, 137 respondents, i.e. 91,3%, had a university degree or higher. When running a contingency table for level of education and Hukou, I found that the majority of students with university level education held an urban Hukou. However, the total number of urban Hukou respondents are almost threefold that of rural Hukou respondents, which makes it useless to compare in numbers. Instead, we can look at the percentage. While 90,5% of those with urban Hukou stated that they have university degree or above, as many as 95,8% of the rural Hukou respondents stated the same. Based on percentage, almost an equal amount of rural and urban Hukou students have higher education.
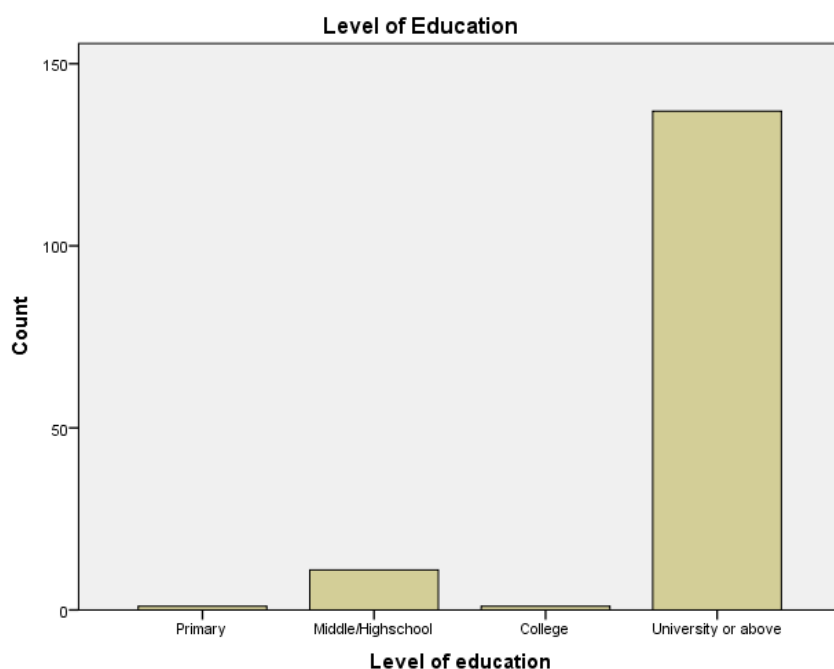
Table 3: Level of Education Students

Income

I wanted to find out if there was any relationship between what Hukou they held and income of the household. The majority of urban Hukou respondents had a monthly income above 8 000 Yuan. Most urban students (22,5%) earned between 8 000-9 999 Yuan a month, while 21,7% earned more than 14 000 Yuan a month. In comparison, the majority of the rural student earned less than 8 000 Yuan a month, and as many as 45,8% of them earned only between 2 000-3 999 Yuan a month. The average monthly income in Shanghai is approximately 7 200 Yuan per person (Chinadaily, 2014), i.e. 14 400 yuan in a household of two persons with income. The monthly minimum wage however, is 1 620 Yuan (Reuters, 2014). Thus, the legal *minimum* wage per household (assuming the household to consist of two persons with income) is 3 240 Yuan a month. In other words, a monthly income between 2 000-3 999 in the *household* is minimum wage – or less – per person. There is no doubt that the rural students earned less than the urban. I also found this in my qualitative data.

Environmental Concern

To find the total environmental concern for each respondent I applied the following procedure through SPSS.

Questions number 10-19 (NEP) were all computed into a total NEP variable to give an indication of the environmental orientation, or worldview. The desire for the three C's as measured in items number 22 and 26, were combined into one variable. I added the two values for concern about local environmental issues (31 and 32) into a total local concern value, and did the same with statement 33 and 34 to create a total global concern value. In addition comes the postmaterialist item, the affective item and the socialisation item. All above-mentioned values were then computed into the *total environmental concern* variable. The level of environmental concern was measured on a scale from *the lowest environmentally concerned* (a minimum score of 19) to *the highest environmentally concerned* (a maximum score of 95). I further recoded these scores into three groups to find out if respondents either were low- (score 19-44), medium- (score 45-69), or high environmentally concerned (score 70-95). Surprisingly, all respondents fell into the two highest categories, i.e. medium- (30%) or high environmentally concerned (70%).

Educational level and Hukou

I then analysed the data to discover if Hukou was an influencing factor. Were the rural Hukou students more or less environmentally concerned than those with urban Hukou? Was there any association between Hukou and environmental concern at all? An analysis of the data through a cross tabulation gave an impression that both rural and urban Hukou respondents tended to be high environmentally concerned. Based solely on Hukou and educational level, these numbers support studies done by Cao, Chen & Liu (2009), Harris (2206) and Shen & Saijo (2007): that well-educated citizens are more environmentally concerned than less-educated persons. It also corresponds with my qualitative data. Nevertheless, we should take into consideration the great difference in numbers between rural and urban students in the questionnaires. Looking at the percentage then, it turns out that 66,1% of the urban and 87,5% of the rural students report to have a high environmental concern. Out of these numbers, we might assume that rural students tend to be *more* environmentally concerned than the urban, which is in contradiction to earlier studies. To find out if this relationship holds, and is not just due to randomness or sampling error, I ran a chi square test. With x^2 value at 4,340 and df at 1, the statistical significance was $p < 0.05$ rejecting the null hypothesis. In other words, we can conclude that there is evidence of a relationship between environmental concerns and Hukou. However, my qualitative data indicates that there are other intervening factors in

addition to education and Hukou. Three influencing factors I found in the qualitative data that can explain the relationship found in the quantitative data is: 1) economic priority (regardless of income and Hukou), 2) bodily experiences, and 3) health concerns.

Economic Priority and the Desire for the Three C's
Next, I took a closer look at what kind of environmental concerns were most prominent in the quantitative data. Due to the findings of the existing literature on environmental concerns and behaviours in China, I was especially interested in the desire for the three C's. Did the students concern about the environment regardless of comfort, convenience and consumption, or was their desire for the three C's so high that their concern for environmental issues got a lower priority?

The mean of the desire for the three C's was $\approx$ 6,8 on a score from 2 (high desire for the three C's) to 10 (low desire for the three C's). This illustrates that the average student showed a low desire for the three C's and a higher priority towards environmental protection. The desire for the three C's variables were recoded into three levels: 1) high desire for the three C's and low environmental concern, 2) medium desire for the three C's and medium environmental concern, and 3) low desire for the three C's and high environmental concern. I found that 16 student fell into category 1, while 87 – hence the majority – fell into category 2, and the rest (47) fell into category 3. This supports the mean, indicating that most of the students show a medium to low desire for the three C's, and a medium to high environmental concern. My qualitative findings found the older generation to have a greater desire for the three C's than the younger. It also found, however, that the main driving forces behind pro-environmental concerns and behaviours were not environmental issues but economic priority and health concerns. They have established habits based on a mindset of "saving money first", though the younger generation are more aware of the pro-environmental consequences of behaviours such as turning off the lights. Because all of the respondents in the questionnaires are quite young, it might confirm H_6: The younger generation is more environmentally concerned and act more environmentally friendly than the older generation. Change will take time.

Once again, I wanted to see if there was a difference between the rural and urban students in regards to the desire for the three C's. A chi-square test showed that there is no significant relationship, and supports the null hypothesis at $p > 0.05$ (0,098). The qualitative hypothesis

H_2 (Rural migrants are too concerned about earning money and struggle for a better life to care about environmental issues), H_3 (Their busy lifestyle disconnect concerns from actions and affect their behaviours), and H_7 (Postmaterialist theory is supported in regards to environmental concerns but not in regards to pro-environmental behaviours) provides explanations for this lack of relationship. There is a generation difference where the older generation's desire for the three C's has led to habits transferred to the younger generation. Rural migrants' main concern in life is to make money for their children's education and to get a better life. Although it may seem that high-income respondents are environmentally concerned, their busy lifestyle is constructed upon the three C's and provide little room for pro-environmental behaviours. All these influencing and intervening factors might be the reason why there is no significant relationship in the quantitative data.

Question number 28 measured the ascribed feeling of responsibility (AR). A high score (on a scale from 1-5) would indicate that a respondent felt a responsibility of their behaviours to reduce air and water pollution. Similarly, a high score (on a scale from 1-5) on statement 30 would show that a respondent was aware of the adverse (environmental) consequences (AC) of their actions. With no missing data, the mean was 3,96 and 3,82 on the AR and AC variables respectively. Computed into a new variable the mean was at 7,78 on a scale from 2-10. These results can be analysed to show a tendency of high awareness of adverse consequences and that (generally speaking) the students felt a high responsibility for the possible consequences of their actions. The percentage of respondents with rural and urban Hukou that showed high AR/AC were almost similar. The data supports the null hypothesis at $p > 0.05$ (0.683), thus found low evidence for a relationship between Hukou and AR/AC. It is necessary to point out that these Likert items concerned *local* environmental issues, which might be a reason for the high mean score. My qualitative findings and the two hypothesis H_1 (They have little, or no knowledge about global environmental issues, and concern most (or only) about the problems that surrounds them and immediately affects them), and H_4 (Pro-environmental behaviours and environmental concerns are rooted in economic priority and health concern), suggest that their high AR/AC is limited to local environmental issues and the feeling of responsibility is rooted in their concern for adverse consequences of their health and/or economy.

The affective component covered in Likert item 21 measures the awareness of seriousness but also a belief towards the specific air and water pollution problems in China. With the highest

score of 5, the mean value of all respondents (no missing data) was 4,13. This supports H_1, showing a high awareness of the seriousness of China's environmental problems. My interest was to find out if a high score had a relationship with educational level and Hukou. If it did, it would support the existing literature that urban and well-educated respondents tended to be more aware of the seriousness of the specific, local environmental problems and consequences. Opposite of the existing literature and earlier studies, my findings found very low evidence for relationship between Hukou and the affective component. Likewise, there was a very low evidence of relationship between level of education and the affective component.

Pro-Environmental Behaviours

To find the total environmental behaviour I computed the Likert items for self-reported pro-environmental behaviours (23, 25, 27 and 29) and added the value of AR/AC to include the intentional behaviours. On a scale from 6-30 where 30 indicates a high pro-environmental behaviour, the mean (one missing respondent) fell on 23,3. When grouping the pro-environmental behaviours into three, as done with the environmental concern values, this mean show that the majority of the respondents lie between the upper end of medium (34%) and the lower end of high pro-environmental behaviour (65%). Only one person fell into the lowest category of pro-environmental behaviour and this person held an urban Hukou. I was curious if there was a relationship between behaviour and Hukou. With a contingency coefficient of 0.61 and a significance level of 0.759, the null hypothesis was supported showing a very weak relationship between the two variables. If we look at the pro-environmental behaviours and income, there does not seem to be any significant relationship either. However, my numbers in each variable are too low to draw a firm conclusion. Nonetheless, some observations are interesting. There are only two respondents who states they have an income of less than 1 999 Yuan. Both of these respondents fall into the high pro-environmental behaviour category, and both have rural Hukou. Of the 27 persons with income above 14 000 Yuan, 13 can be categorised into the medium pro-environmental behaviour category, and 14 in the high pro-environmental behaviour group. Of the 92 respondents that scored highest on the pro-environmental behaviour, 43 earn below 7 999 Yuan a month, and 49 respondents earn above 8 000 Yuan a month. Based on these numbers, there seem to be an even distribution of income groups across pro-environmental behaviour groups. In other

words, my findings do not support income to be an important influencing factor for pro-environmental behaviours.

All of the rural Hukou students fell into the medium or high pro-environmental behaviour group. The majority was categorised as the latter, including the two poorest and the richest. Of the urban respondents, only one person was categorised into the low pro-environmental behaviour group, and had an income between 8 000-9 999 Yuan a month. Out of the 42 urban respondents that earned less than 7 999 Yuan a month, 14 were categorised as medium, and 28 as the high pro-environmental behaviour group. Of the 77 urban respondents who earn more than 8 000 Yuan a month, 29 fall into the medium category while 47 falls into the high pro-environmental behaviour category. Looking at the total scores in percentage, 63% of the total urban, while nearly 71% of the rural students, perform a high-pro-environmental behaviour. This demonstrates that (among students) neither Hukou nor income had any significant impact upon pro-environmental behaviours.

My qualitative research supports these findings. Actually, many rural migrants (and two of my interviewees) have jobs where they collect and separate garbage and bottles. I interviewed one man I met in a back alley, attaching bottles to his bicycle that was already jam-packed. He was probably in his late 40's or early 50's, no taller than 5 feet 2. His skin was darker than most Chinese – which I observed was the case with most rural migrants because they spend much of their time working outside. His fingers and hands were extremely rough and swollen, his nails brown and cracked, showing signs of an unhealthy diet, smoking and experiences with a tough and cold climate. The teeth were no better. Missing at least one, as far as I could see, and the rest were soon to follow. Brown, yellow and with dental cavities in plain sight. He was wearing many layers of clothes – sweatpants, a yellow reflex vest, and a light blue jacket with reflex stripes. I recognized his jacket – it was a government employee jacket. He told me he worked for the government, classifying garbage and collecting bottles. Throughout the interview he showed a remarkable good knowledge about recycling and both local and global environmental issues. I wondered where he got all this information from; perhaps he was interested in the subject? He answered me:

> "Our job is assigned by the government, so regularly we will go to the city centre to have meetings. On the meetings, we have heard about the global environmental problems. For example, I know that there are other cities around the world, and even

in China, that does it better than Shanghai, and they show us what they do so that Shanghai can learn from them. If you do not collect the garbage, it will become a problem for the environment. But in our daily life I do not see any difference. When I go back from the meetings I do not make any changes. I learn about the environmental issues on the meetings, but it is still back to the ordinary daily life. I know it is important, but I don't care too much about it, because I can't do anything."

This group of rural migrants working for the government is especially interesting because they confirm some of my hypotheses. They are rural with low education and their wages is at a minimum. According to existing studies, this group is less environmentally concerned than their urban, well-educated and rich counterpart is. Yet the rural migrants working with recycling have quite a good amount of knowledge about both local and global environmental issues. They also learn how to perform pro-environmental behaviours. This information comes from the government and supports my qualitative findings in H_4 (Pro-environmental behaviours and environmental concerns are rooted in economic priority and health concern) and H_9 (A feeling of helplessness leads to an ascription of responsibility to the government and prevent individuals to perform pro-environmental behaviours unless they are told to). What I learned is that their rural Hukou is actually a driving force for pro-environmental behaviours because it has "forced" them to take these kind of jobs. Though it is restricted to their working environment only, almost all their waking hours consist of working. Hence, they act environmentally friendly most of the time.

Figure 14: Private Picture of Rural Migrant Working with Recycling for the Government

<u>*Environmental Concerns and Pro-Environmental Behaviours*</u>

Then, is there a relationship between environmental concerns and pro-environmental behaviours? If so, does Hukou influence this relationship?

I ran a Pearson's *r* on the two interval variables "environmental concern group" and "pro-environmental behaviour group". The coefficient correlation is positive with a significance level at $p < 0.05$ (0.001) and gives a high level of evidence that the correlation exists in the population. Nevertheless, the correlation is of medium strength at 0.265. A scatter diagram shows a broadly linear relationship between the two variables.
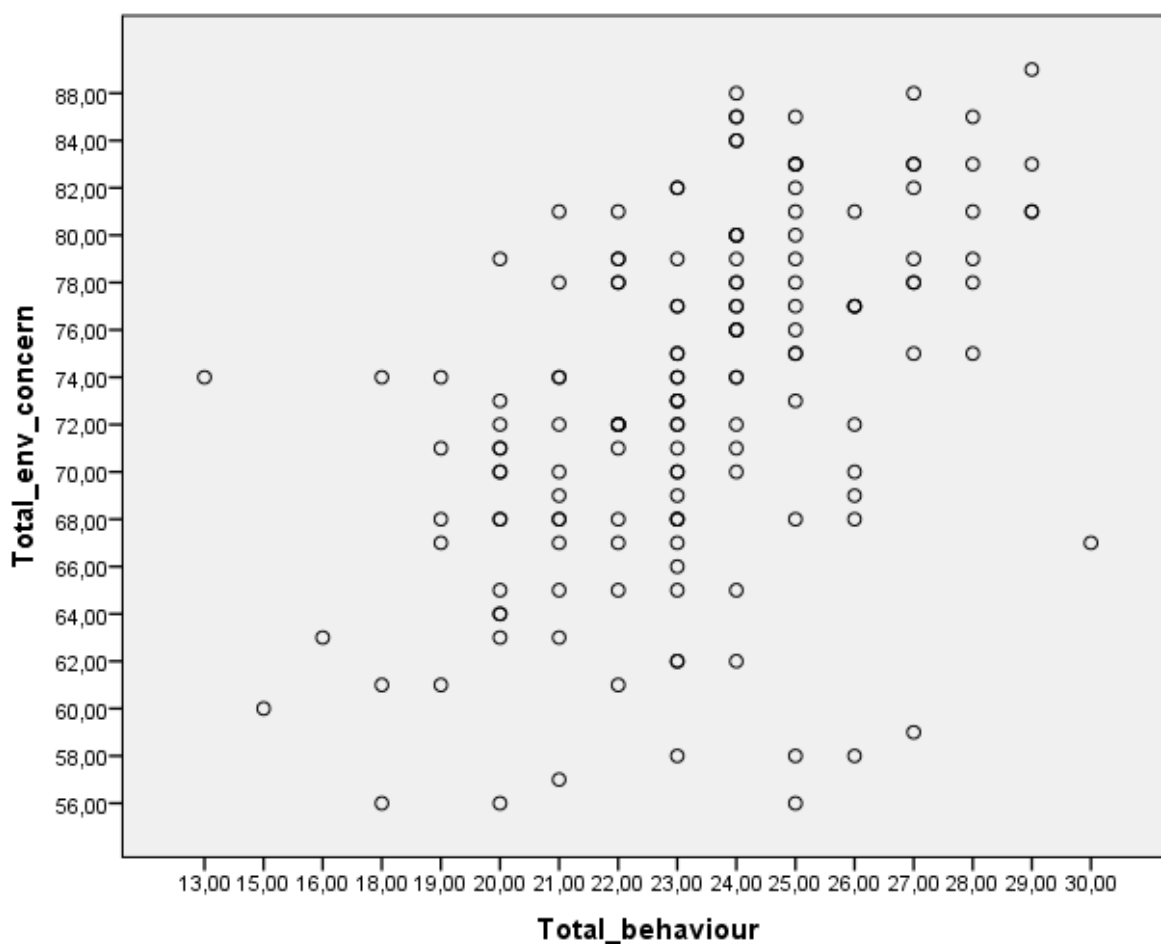

Table 4: Environmental Concern and Pro-Environmental Behaviour

In other words, there seems to be medium evidence that persons with high environmental concern also act environmentally friendly.

CHAPTER 9: DISCUSSION

Bodily experiences and the feeling of helplessness play a major role in the respondents' pro-environmental concerns and behaviours. This regards all groups: rural migrants and both rural and urban students. The feeling of helplessness originates from a general mistrust to the information given by the government. Respondents feel that the government is putting up a show: that they can "talk the talk, but not walk the walk". They experience that the government promise a lot but they do not see any clear results. They only observe that it is getting worse. Common phrases were that "I am nobody", "I can do nothing", "I have no power" and "the government does not care about us". The individuals felt that even though they acted environmentally friendly, it would not matter because their actions would not make a significant difference. This was true for all respondents and was in all cases related to a feeling of powerlessness in regards to the government and the size of the population. Despite the mistrust towards the government, all respondents except one stated that it was the government's responsibility to protect the environment and provide sufficient information.

The demanding lifestyles of Shanghai residents have made them too busy to care about environmental issues. Generally, the respondents show low environmental concern for global problems. More attention was given to local environmental problems, though almost only in regards to egoistic values. Health concerns and economic priority were triggering factors for environmental concerns but did not always lead to pro-environmental behaviours. Respondents who had been travelling abroad (usually urban), or respondents which origin is from rural places with good environment, deviated from the rest. They reported a best-case scenario and a good bodily experience of a clean environment. When arriving (or returning) to Shanghai, they encountered new bodily experiences when confronted with the heavily polluted air, such as coughing, the sight of smog hovering above the city, or the chore and expense of buying bottled water. In other words, they experienced a worst-case scenario. Their bodily experiences and their health concerns then resulted in a worst-/ best-case scenario comparison. These experiences made them more concerned about local *and* global environmental problems in general, and air and water pollution in specific. Their increased concern also led to a pro-environmental behaviour.

Students' busy lifestyle, urban citizens' demanding and hectic everyday life, and rural migrants struggle for a better life all leads to a behaviour of "just do it". People do not think –

they just act. They have neither the time nor the interest to make a change unless it benefits themselves and their lifestyle. Even then, it is not enough with information and knowledge. They need clear instructions on exactly how to perform, and preferably: it should be mandated through laws and regulations. If presented with graphs, statistics and clear evidence (in preference through advertisements and television) of personal economic profit and health benefits, they would change their mindset and start acting. Based on the findings of "bodily experience" I developed the following theory.

Through information and enforced behaviour, the Chinese citizens will become more aware of environmental issues. This would gradually create habits, which in the end will change their mindset from *saving money* to *saving the environment.* The importance of parental influence and the fact that it takes time to change, implies that the next generation will inherit these habits and awareness, hence become more environmentally concerned and perform more pro-environmental behaviours than the current generation.

I will argue that while NEP, VBN and the TPB theories have valid variables and good theoretical frameworks, neither are perfectly suited for the Chinese context. The complex state-society relationship, the feeling of helplessness, the strong impact of bodily experiences, habits, economic priority and the great concern for personal health, all suggests that the above-mentioned theories have a common misconception. They have taken it for granted that it is environmental concerns that lead to pro-environmental behaviours – and not the other way around.

CHAPTER 10: CONCLUSION

Research Limitations

China is enormous. Drawing clear conclusion for the whole country, or even Shanghai only, based purely on three months of fieldwork and 150 questionnaires, would be an optimistic generalisation at best. The aim of this research was not to conclude with a firm answer but rather provide a tool to bridge the environmental concern-behaviour gap. This study (in contrast to existing research discussed in this paper) used a mixed-method research. Language barriers, low Guanxi, and lack of time limited my possibility to hand out questionnaires to rural migrants. Language and "lost-in-translation" problems were clear issues in regards to my

rural migrant interviews. Moreover, to test the reliability and validity of my findings, there is a need for more research containing the same definitions of environmental concerns and pro-environmental behaviours used in this study.

Summing Up and Conclusion

The world's leaders have realised that it is time to change, and are starting to implement green initiatives to mitigate and help reduce climate change. China is no longer the Sick Man of Asia but has emerged as the Green Asian Dragon. The state encourages green growth, green development and green urbanisation, its energy efficiency has improved, renewable energy sources are expanding, and CO_2 emissions appears to have stabilised. Yet, due to its size and growth, China is still the world's biggest contributor to CO_2 emissions. Internally, it is facing severe environmental degradation. Local air and water pollution are serious problems. The fact that environmental issues do not consider national boundaries, and China's important role in the international community, makes environmental issues in China a crucial topic in the fight against climate change.

Government initiatives cannot succeed without getting its citizens on board. Awareness of environmental issues is necessary, but there is little use in environmental concerns without pro-environmental behaviours. An environmental concern-behaviour gap exists, and it needs to be closed.

This research has provided a tool to help close this gap by contributing to the existing literature on the topic. Taking into account the huge population-wave of rural migrants, the shift in lifestyles and demands, as well as findings from previous studies, my research incorporated Hukou as a possible influencing factor and the rural migrants as a unique social group. Definitions of environmental concerns and pro-environmental behaviours were designed to suite the Chinese context. Following a mixed-method research, this study provided a more fruitful way of finding the "true" behaviours among Chinese individuals. It was also a way of discovering the relationship between environmental concerns and pro-environmental behaviours in order to find the triggering factors that may enhance the latter.

This paper has argued that existing concern-behaviour theories are not suitable for the Chinese context because they tend to present concerns as a precursor to behaviours. The discussed findings of this research, however, show the opposite. While education and

information seem to have a positive influence on the environmental awareness, it does not seem to have a profound impact on environmental concerns or behaviours. Instead, my research found that bodily experiences provided a stronger triggering factor. Experiences of either a best- or a worst-case scenario created a greater concern for both local and global environmental problems and resulted in a more environmentally friendly behaviour. The richest respondents tended to run away from – or buy their way out of – environmental problems. The poorest and rural respondents, on the other side, were too concerned about getting a better life and taking care of their children to be concerned about environmental problems or perform pro-environmental behaviours. Instead, a great concern for individual health and an economic priority among all respondents seemed to have an impact. When faced with clear facts or evidence that environmental issues and behaviours could have economic and/or health impacts, the respondents became more environmentally concerned. Nevertheless, their lifestyle is so busy that they do not have the capacity to make an individual change of habits. To do this, they need enforced behaviour, e.g. through governmental laws and regulations. Enforced behaviour over an extended period will change habits and convert their mindset of saving money to a mindset of saving the environment, thus enhancing pro-environmental behaviours.

Further Recommendations

Both rural and urban Shanghai citizens live extremely busy lifestyles and have a general lack of knowledge about environmental issues. My observations and findings show that individuals do not have the time to think before acting. Even though they are aware of environmental issues, it does not necessarily lead to pro-environmental behaviours. Despite their expressed disbelief in the government's political performances, the state-society relationship and feeling of helplessness leaves the government with a big responsibility as an information disseminator. Knowledge and information about economic benefits and positive health impacts provided through graphs, statistics or other easily understandable advertisements on TV or application software might be an impetus for increased environmental concerns and behaviours. Furthermore, it should be a standardised system to avoid misunderstandings, and create the opportunity to act without thinking while saving time. Based on the great importance of bodily experiences, the last recommendation would be to implement enforced behaviours, perhaps through incentives, in order to change the mindset and create pro-environmental behaviours.

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APPENDIX: QUESTIONNAIRE

Hello

My name is Sandra B. Sotkajærvi and I am a Norwegian student at the University of Agder. I am doing research for my Master thesis on *the link between environmental concern and pro-environmental actions in Shanghai*.

This questionnaire will gather data on level of environmental concern as well as self-reported pro-environmental actions. Hopefully, this study will provide a better understanding of the link between attitudes and actions and will contribute to a sustainable development in Shanghai.

In this regard, I would be very grateful if you could spend 10 minutes of your time to fill out this questionnaire. It is completely anonymous and will not be used for any commercial reasons or for any other purposes. If you for some reason do not want to answer a question, you are free to skip to the next one.

Thank you very much for your cooperation.

Sandra Baldvinsson Sotkajærvi

PLEASE TICK OFF OR FILL IN ANSWER:

1.

GENDER		Female		Male	

2.

AGE	10 - 19		20 - 29		30 - 39		40 - 49		50 +	

3.

LEVEL OF EDUCATION	PRIMARY		MIDDLE SCHOOL/ HIGH SCHOOL		COLLEGE		UNIVERSITY OR ABOVE	

4.

WHERE DID YOU TAKE THE FOLLOWING EDUCATION (city/ town)?	PRIMARY	MIDDLE/ HIGH SCHOOL	UNIVERSITY (INCLUDING COLLEGE)

5.

ARE YOU BORN IN SHANGHAI? IF NO – PLEASE SPECIFY BIRTHPLACE	YES		NO		OTHER BIRTHPLACE	

6.

WHAT HUKOU DO YOU HOLD?	URBAN		RURAL	

7.

HAVE YOU CHANGED YOUR HUKOU?	YES		NO	

8.

HOW MANY PEOPLE ARE THERE IN YOUR HOUSEHOLD?	1		2		3 OR MORE	

9.

WHAT IS THE MONTHLY INCOME (元) OF YOUR HOUSEHOLD?	0 - 1999		2000 - 3999		4000 - 5999		6000 - 7999	
	8000 - 9999		10 000 – 11 999		12 000 – 13 999		14 000 OR ABOVE	

PLEASE TICK OFF (ONE ANSWER PER QUESTION):

DO YOU AGREE OR DISAGREE THAT…	**Strongly Agree**	**Mildly Agree**	**Unsure**	**Mildly Disagree**	**Strongly Disagree**
10. Humans have the right to modify the natural environment to suit their needs					
11. When humans interfere with nature it often produces disastrous consequences					
12. The earth has plenty of natural resources if we just learn how to develop them					
13. Plants and animals have as much right as humans to exist					
14. The balance of nature is strong enough to cope with the impacts of modern industrial nations					
15. Despite our special abilities humans are still subject to the laws of nature					
16. Humans are meant to rule over the rest of nature					
17. The balance of nature is very delicate and easily upset					

18. Humans will eventually learn enough about how nature works to be able to control it					
19. If things continue on their present course, we will soon experience a major ecological catastrophe					
20. Industrialisation and economic development should have priority over air and water pollution					
21. China's industrialisation is causing serious air and water pollution problems					
22. The comfort and convenience of driving a car is more important than to reduce air pollution in Shanghai					
23. When possible, I consciously choose to walk, take the public transportation or bicycle to reduce air pollution					
24. I try to save electricity due to economic reasons					
25. I recycle to help reduce air and water pollution					
26. It is more important to have a warm, bright and comfortable house/apartment than to save energy/electricity					

27. I turn off the Air Conditioner/heater whenever leaving the room/flat to reduce CO2 emissions					
28. What I eat and drink do not have any effect on air and water pollution					
29. I consciously choose to reduce meat intake to reduce air and water pollution					
30. There is not much I can do to reduce air and water pollution					
31. Local air and water pollution are serious environmental problems					
32. Local air and water pollution are *not* serious environmental problems					
33. Global air and water pollution are serious environmental problems					
34. Global air and water pollution are *not* serious environmental problems					
35. Humans should live in harmony with nature according to the Confucian notion of balance between heaven (tian), earth (di) and humans (ren)					

PLEASE TICK OFF (ONE ANSWER PER QUESTION):

I am concerned about air and water pollution because of the consequences for…	Strongly Agree	Mildly Agree	Unsure	Mildly Disagree	Strongly Disagree
36. Humanity					
37. Me					
38. People in the community					
39. My health					
40. Future generations					
41. My lifestyle					
42. Plants, animals, marine life and birds					