Cultural values and road safety in Africa

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Abstract

There is plenty of literature about motor vehicle crashes produced by the last 50 years of traffic safety research. However, there is much less literature linking cultural factors with road safety. In fact, a direct relationship between culture and crashes would be difficult to observe as there are so many factors interacting with culture. Culture also interacts with the driving environment: for example drivers change their behaviour when they drive in another country. At the individual level, culture and driving environment interact also with more proximal environments: family, peers, neighbourhood and social media. Social norms (descriptive or injunctive) and cultural values can be congruent one with another or not, and thus have different impact on driving behaviours. Concerning road users’ characteristics, some risk factors are universal (age, gender, and type of vehicle used), but their importance may vary depending on the country considered. The present report is focused on the influence of culture on road safety, more specifically applied to the African context. A pilot study has been conducted to develop tools and start data collection among African countries on this topic. It consisted in two parts: a first qualitative part based on in-depth semi directive interviews with local road safety experts (from Burkina Faso, Cameroon, Ghana, Kenya and Tunisia) and a second part based on a questionnaire survey targeted at African road users. Only one country, Burkina Faso, totalized enough responses to the questionnaire to be analysed. Results from this study showed that, from a psychological perspective, the main issues in the investigated countries are: safety of vulnerable road users, respect of the law by road users, bribery, and awareness about road risks. Cultural values and religious beliefs were found to influence risk perception and risk taking. In our Burkinabe sample, religious affiliation was a strong differentiator of relation to risks. Public policies will need to be adapted and developed accordingly. In particular, it is highly recommended to increase education efforts and to fit them to the local cultures.
1 Theoretical considerations about culture and road safety

Traffic fatalities in the world have been described as an "epidemic". Indeed, the latest global statistics (WHO, 2013) report of 1.24 million killed and 50 million injured (including 25 million serious injuries). These statistics have stagnated between 2007 and 2010, which still indicates an improvement because traffic has increased by 15% during this period. Road safety measures have helped in containing the phenomenon so that the situation would not worsen.

What is striking about this epidemic is that it is primarily an "epidemic of poverty", as for many other aspects than traffic safety: 90% of those killed are in countries with low and medium incomes (while they only possess 48% of vehicles). It is important to notice that in these countries, vulnerable road users are the major part of fatalities. Indeed a global overview of road fatalities around the world in 2013 (see Figure 1) lead us to identify 4 distinct categories of traffic fatality rates:

- Countries with around 250 deaths per million inhabitants, or more: Africa (Liberia, Congo, Rwanda, Togo, Kenya, Cameroon, Tunisia, Algeria, etc.) and Middle East (Iran, Saudi Arabia, Jordan);
- Countries with around 150-200 deaths per million inhabitants: East Asia (China, India, Indonesia, Russia) and some South American countries (Paraguay, Guatemala, Colombia, Uruguay);
- Countries around 100-150 deaths per million inhabitants: Other American countries (USA, Argentina, Chile, Mexico);
- Countries around 50 deaths per million inhabitants: Europe (but with variability amongst countries: "Sunflower" countries from the North of Europe around 30 deaths per million (Netherlands, Sweden, UK, Denmark, Norway), Western European countries around 50 such as Italy, France or Germany, and Southern/Eastern European countries around 80 such as Poland, Croatia, Greece, Turkey, Romania, Hungary or Estonia).

We must of course be careful with these figures. Notably, there is significant under-reporting (and even more important for non-fatal road injuries) in several countries. The WHO figures are also criticized by some African countries for which a regression estimate (based on several factors, including GDP) is often used instead of reported data in order to compensate for a probable under reporting in local statistics. However, they do indicate a trend with low-income countries having a higher traffic fatality rate (215 deaths per million inhabitants), than the middle-income countries at 195 and the high-income countries at 103. Nevertheless, neither geographical location nor economy alone explain these trends: for example, the Middle East countries have road fatality rates well above those of other countries with similar income.
Countries’ differences in road safety performances are often explained by differences in driving environment. Several factors such as mobility habits, vehicle fleet, roads network, public transportation network, traffic laws, or level of education and enforcement constitute this driving environment. If it seems obvious that these factors indeed have an impact on road safety, still some countries, or states, with comparable driving environments have very different traffic fatalities patterns. These remaining differences could be related to cultural specificities. However, cultural factors usually play "from behind, in the background" and determine indirectly the degree of evolution of the traffic safety system achieved by a country or the level of policies’ social acceptability. However, cultural values may also influence road user behaviours directly. From an individual point of view, cultural values can be considered as a wide range social norm providing information about expected behaviour in a given situation. Cultural values and more proximal social norms may not always be congruent which can generate ambiguous situations. Normative conflicts can also occur between drivers from different cultures. Finally, in order to have a better picture of traffic safety it is crucial to understand, beyond physical and biological factors (such as the mechanisms of crash injury, the effects of factors such as speed, alcohol or distraction on crash risk), which are universal, what are the effects of social and cultural factors which are specific to a country or a population subgroup.

This report explores the interaction between culture and driving environment: if cultural factors are developed through a long historical process, the traffic safety environment of a country relates to more contemporary and immediate factors such as level of enforcement, regulations, mobility or economic factors.
The present introduction is divided into four sections. The first one discusses about how cultural values may be related to traffic safety. The second one deals with distinction between cultural values, social norms and their interactions with risk behaviours. The third part explores how the main risk factors such as gender or age, may have a different impact depending on culture and driving environment. The fourth section provides an overview about how some causes of crash can be related to different cultures and driving environment.

1.1 Cultural values and road safety

Defining culture is not an easy task. Indeed, the concept of culture encompasses such a large range of meanings, and is studied in such a number of disciplines with different approaches that a multitude of distinct definitions has already been proposed (Kroeber & Kluckhohn, 1952). One of the oldest and widely accepted definition has been proposed by the anthropologist Edward Tylor (1871), "culture is that complex whole which includes knowledge, belief, art, law, morals, custom, and any other capabilities and habits acquired by man as a member of society". More recently, Cestac and Assailly (2015) proposed a definition that could fit more specifically to the psychosocial perspective: "culture is a set of informal rules, traditions and values, built in a communal environment and shared by members of a social group".

In this viewpoint the building blocks of cultures are cultural values. Several categorizations of cultural values have been proposed based on large cross-national surveys (Hofstede, 1980; Inglehart, 1997; Schwartz, 1994). The typology and the three basic bipolar dimensions of culture identified by Schwartz (2006) seem particularly appropriate to better understand risky behaviours.

First, Embeddedness vs. Autonomy is a dimension that relates to the interdependence of the social group members. Some cultures (e.g., West Europe and English-Speaking) emphasize Autonomy (either affective or intellectual) of their members, whereas for some other cultures (e.g., Africa, Muslim Middle East, South-Asia or Confucian-influenced countries) the emphasis is more on Embeddedness. In autonomous countries, people tend to value the most the free expression of their opinions (Intellectual autonomy) and the research of “affectively positive experience for themselves” (Affective autonomy, Schwartz, 2006). In embedded countries, people tend to attribute a greater value to relationships, sharing, and traditional activities linking them with other members of the group. This dimension is very similar to the well-known dimension Collectivism vs. Individualism from the Hofstede model (see below). Typically, European countries have very high scores of Autonomy and low scores on Embeddedness, whereas African countries have low scores of Autonomy and high scores on Embeddedness (see Figure 2).

Second, Hierarchy vs. Egalitarianism is a dimension related to the distribution of power between members of society. In countries with high scores on the Hierarchy pole of this dimension (South Asia, Confucian countries, Africa and Muslim Middle East), power is unequally and arbitrarily distributed following a pyramidal shape, whereas in countries with high scores on Egalitarianism (Western Europe
for example) people are considered as moral equals and are expected to be cooperative with other members of society in order to ensure its stability.

Third, Mastery vs. Harmony is a dimension relating to the interaction between people and their environment. In countries with high Harmony scores (e.g., Western Europe) emphasized values are respect of environment and peace, whereas in countries with high Mastery scores (e.g., English-speaking Asian countries) people are usually more ambitious and don't hesitate to transform their environment in order to make it more conform to their needs.

![Schwartz cultural map, 2006.](image)

Most often in cross-cultural psychology research, it is assumed that one country represents one culture. Even if administrative borders do not always correspond to cultural ones (e.g. regional cultures), usually people within a country share common national history, laws, language, and government. They also share external manifestations of culture such as national heroes, rituals and symbols (Hofstede, 2001) that are distinct from their foreign neighbours. Finally, available data on cultural dimensions are usually ordered according to administrative division.

Hofstede (1980, 2001) developed a model of cultural values based on several cross national surveys on more than 80,000 IBM business employees from 40 countries, starting in 1967. Data collection continued since then and included 10 more countries. This work lead to the identification of 6 dimensions of national culture:
- **Power distance**: how the country deals with human inequality?
- **Uncertainty avoidance**: to what extent unknown future generates stress in the society?
- **Individualism vs. collectivism**: to what extent individuals are integrated into social groups?
- **Masculinity vs. femininity**: how are the social and emotional roles divided between men and women?
- **Long-term vs. short-term orientation**: are people’s efforts more focused on the present or the future?
- **Indulgence vs. restraint**: to what extent leisure activities and the public expression of emotions are regulated by social norms?

Large differences between African and European countries are revealed by Hofstede’s model of cultural dimensions. African countries typically have higher levels of *Power distance* and lower levels of *Individualism* and *Pragmatism* (see Table 1).

**Table 1. Hofstede dimensions scores for a selection of African and European countries.**

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<tr>
<th>Country</th>
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These cultural dimensions influence risk behaviours on the road (Cestac & Assailly, 2015). For example, a positive link was found between traffic fatalities rates and Uncertainty avoidance, and Power distance (Gaygisiz, 2009, 2010; Hofstede, 2001; Melinder, 2007; Özkan & Lajunen, 2007), whereas a negative link was found with Individualism (Gaygisiz, 2009).

Links between Schwartz’ cultural dimensions and risk-taking on the road have also been found in previous studies. For example, Özkan & Lajunen (2007) found a negative link between Harmony and traffic fatalities. Few years later, Gaygisiz (2009, 2010) showed that higher levels of road fatality rates were found in countries with high scores on Embeddedness, Hierarchy or Mastery compared to countries high on Egalitarianism, Intellectual autonomy or Harmony. How to explain these links? According to Gaygisiz (2010), in countries with high scores on hierarchy, people accept that all members of society are not equal in front of the law and thus that the rules (including traffic safety rules) don’t apply to the same extend to everyone. This relativism regarding respect of the law can discredit its validity and introduce chaos on roads.

High levels of Embeddedness are often found in countries with high levels of Hierarchy as well and reinforce its effects because of greater respect for traditions and lack of challenge of the hierarchical social model. Now regarding Mastery, it is characterized by self-expression and competition values, which are opposed to peaceful use and share of roads.

Other approaches to the study of country differences regarding road safety showed that the link between culture and road fatalities can be explained by differences in driving style (Özkan, Lajunen, Chliaoutakis, Parker, & Summala, 2006a), in driving skills (Özkan, Lajunen, Chliaoutakis, Parker, & Summala, 2006b), or in religious tradition and economical wealth (Melinder, 2007). Moreover, it has been shown that aberrant driving behaviors differed depending on countries (Warner, Özkan, Lajunen, & Tzamalouka, 2011).

Anthropological theoretical models such as Mary Douglas’ cultural theory of risk (see Douglas & Wildavsky, 1982) is also useful to understand the various respects of rules and respects of others' lives on the road. Her cultural theory of risk provides an interesting explanation for the different attitudes to risk according to social position. She distinguishes four visions of the world and of risk: individualists, egalitarians, hierarchical, and communitarians. From these four worldviews, she created a two-dimensional matrix (see Figure 2):

- The Grid dimension indicates an individuals' degree of autonomy.
- The Group dimension refers to the individual’s degree of incorporation and social support.
According to this cultural theory, an individual will be more or less inclined towards risk-taking, depending on his social position in the grid/group model (Dake, 1991). However, several criticism have been raised regarding the strength of the link between these worldviews and risk perception (Oltedal, Moen, Klempe, & Rundmo, 2004) and the possibility of a direct relationship should thus be considered with caution.

Driving environment and habits in a given country can be considered as part of its culture. However, from an individual point of view they are external components compared to cultural values which are internal (Hofstede, 2001). This distinction is important because cultural values are relatively stable and take long time to evolve whereas the driving environment can change very quickly, when an individual visits another country for example. Indeed, foreign drivers change their driving behaviour when they are not in their homeland (Leviäkangas, 1998; Yannis, Golas, & Papadimitriou, 2007). It can be assumed that their cultural values, as other internal components such as habits or attitudes, didn't change when they crossed the border. Their behaviour change would thus be linked solely to a change in the driving environment. This is quite natural because people adapt their behaviours to the environment in which they are. In fact, it is almost a universal recommendation when visiting a foreign country that one should adapt her/his behaviour to local practices (“when in Rome, do as the Romans

Figure 3. Type of cultures, adapted from Douglas (1983).
We could call this a norm of conformity to the local usages, to show respect, avoid offending the hosts and adaptation to local regulations. In the driving domain, some of the expected behaviours are formal (i.e. legal norms) and mostly explicit whereas others are informal (i.e. social norms) and mostly implicit (Deehy, 1968, cited by Wilde, 1976).

Formal rules are part of the local driving environment and include all official regulations of driving decided and enforced by public authorities. These regulations clearly differ between countries and explain to some extent differences in behaviours across countries. Even though it is not easy to demonstrate the efficacy of a single road safety measure among others, taken all together it can be expected that regulations, their enforcement, and media communication about enforcement have indeed an effect on drivers (e.g., Evans, Neville, & Graham, 1991).

Informal rules on the other side usually have to be guessed by observation of other drivers (descriptive norm) or are transmitted by social communication (injunctive norm). For example, a visitor driving for the first time in Crete may be surprised by a local driving custom: drivers are expected to drive on the shoulder lane in order to let (speeding) cars behind them overtake easily. This social norm is enforced by social control (headlights flashing, honking, aggressive gestures). After a few days driving there, tourists get used to it and adapt their driving behaviour to local customs. This example is part of what Zaidel (1992) called a "culture of driving". Several previous studies explored the concept of "informal rules" (e.g., Cialdini & Trost, 1998; Björklund, 2005). In a study by Åberg, Larsen, Glad, & Beilinsson, (1997) most drivers agreed that it was safer to drive at the same speed as other drivers, even if they were speeding, rather than to strictly comply with the legal speed limit.

It has been shown that both driving environment and cultural values have independent effects on risk taking on the road (Cestac, Kraiem, & Assailly, 2016). However, these two variables also clearly interact with each other. For example, when foreign drivers fail to adapt enough their behaviours to the local customs (Leviäkangas, 1998).

The differences between countries concerning the interactions between culture, driving environment and proximal social environment influences can be analysed in the light of the Uppsala model: the relative influences depends on the stage of awareness and prevention reached by the country. Indeed, not only culture and driving environment interact on driving behaviours, but the environment itself is influenced by cultural values. For example, the Scandinavian enforcement system comes from the local culture. The juridical philosophy school of Uppsala in Sweden, founded by Hägerström (see Mindus, 2012) has been often quoted as inspiring the success of Scandinavian policies in public health, alcohol control and traffic safety. This school suggested around the 1920's that the law should be educative and that the adoption of a cautious behaviour may follow a three stages-process (see Figure 3):

- In a first stage, people adopt a cautious and conform behaviour on the road due to the fear of sanction;
- In a second stage, this fear is internalized in a subjective group norm: significant others like relatives or friends begin to stigmatize the non-conform behaviour;
- In a third stage, the process is over, the group norm is further internalized into an individual norm, and there is no more or very little need of enforcement.
Cultural specificities induce differences regarding risk perception. Beck (1992) created the concept of risk society to indicate that individuals felt threatened much more today by risks, that no longer come - as before - from nature but from society itself (e.g., technological risks, global warming, terrorism, or road rage). Moreover, people are informed about risks in the news following a sequential process, one risk usually replacing another in the social agenda. Indeed, it is difficult to worry at the same time about several risk exposures, and only the most salient and dreadful ones at a point in time generate anxiety among individuals. Obviously, events and news stories, and their media coverage are largely contributing to this cycle. One country may thus have a completely different agenda from another.

Moreover, studies about risk perception underlined the large differences between objective and subjective risks. Tocqueville's law (1835) states that when an element of insecurity is greatly reduced, the little remaining insecurity becomes paradoxically more unacceptable to the population. Since evolution of risks differs depending on countries, this also impacts on differences in relative risks perceptions. These differences could also be linked to the dynamics of risk perception (see Slovic, Fischhoff, & Lichtenstein, 1980), depending on whether it is decreasing, stable or increasing.

Some other factors explain why risk perception varies between countries. First, there are some differences in the tendency to evaluate risks as high or low depending on the country size. Countries with a large population naturally experience and report more crashes and other non-intentional injuries than countries with fewer inhabitants. As a consequence, individuals living in countries with many residents are often more sensitive to risks due to the availability of heuristic caused by larger figures of crashes and other non-intentional injuries (Goszczynska et al., 1991). Second, Slovic and coauthors (1980) have suggested that risk perception is likely to vary between cultures depending on

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**Figure 4. The Uppsala model of normative internalization process.**

<table>
<thead>
<tr>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual norm</td>
</tr>
<tr>
<td>Social norm</td>
</tr>
<tr>
<td>No internalization</td>
</tr>
</tbody>
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local media choices. The media can have an effect on risk perception by making some information available and some others not. Information framing (focusing on losses or gains) is also known to have an effect on risk perception.

### 1.2 Cultural values, social norms and risky behaviours

Cultural values are very similar to social norms. The main difference is the size of the reference group. The reference groups for cultural values are broad: the country, the region, the society. Whereas, reference groups for social norms are usually smaller and closer to the individual: family, friends, colleagues, neighbours. Another difference between cultural values and social norms lies in the range of behaviours encompassed by a single value/norm. Values generally include a wide range of behaviours (e.g. people should live in harmony with nature) whereas social norms generally covers more specific behaviours (e.g. one should not litter). Finally, cultural values are built through a long historical process and transmitted via public institutions whereas social norms have a shorter history and are transmitted through parental education and social interactions. But from an individual's point of view, cultural values and social norms are pretty much the same: information about how one is expected to behave in a given situation.

Since the early works of Sherif (1936), we know that most behaviours are influenced by social norms. This is particularly the case in the field of traffic safety. Indeed, the mere presence of a passenger in the car can influence driving behaviours. For example, Delhomme (1994) showed that the driver and her/his passenger tended to adopt the same behaviour regarding seat belt use. Young drivers drive more slowly than usual when their parents are in the car (Delhomme & Delgery, 2006) and faster when their passengers are male peers (Simons-Morton, Lerner, & Singer, 2005).

Talking about social norms we must distinguish between injunctive and descriptive norms (Deutsch and Gerard, 1955). Injunctive norms refer to expectations one perceive from his social environment (i.e., what I believe that others expect me to do) whereas descriptive norms refer to perception of others’ behaviours (i.e., what I believe others do). Both injunctive and descriptive norms were found to influence either risky or safe behaviours on the road. Intentions to violate road regulations such as speed limits or to perform dangerous overtaking were found to be linked with descriptive norms (Forward, 2009). In other studies (Brown, 1998; Fernandes, Hatfield, & Soames Job, 2010), reported drink-driving of participants was correlated with their perceived peer’s drink-driving.

So, with those different norms coexisting, situations of normative incongruence often occur. Cialdini, Reno, and Kallgren (1990) suggested that a person in a situation of contradictory social influences will make a choice by focusing on the most appropriate one in their situation. If a given norm is not focal in a situation, then it will not influence behaviours in this situation. In this view, individuals are thus following a selection process to elicit the most appropriate normative source relating to the situation they are facing. This also underlines the importance of norm salience. Indeed, if a norm is not salient then it is likely that an individual would not notice it and thus unlikely that he would be influenced by that hidden norm.
Still, it is possible that several opposing norms are salient and focal at the same time. In such a case individuals operate a balance between these normative sources and choose the central path. In other words, when there is a conflict between several contradictory normative sources, they moderate each other's influence on behaviour. This was observed for speeding behaviour (Cestac, Delhomme, & Paran, 2014). In this study young drivers were aware of different normative sources and the influence on intended speeding was greater in case of norms congruence that in case of inconsistency between them. In this view, there is an additive effect of norms on behaviours.

Normative conflicts often occur in the traffic area, especially between formal and informal rules (Wilde, 1976) and frequently cause misunderstandings between road users, resulting in crashes. Wilde (1976) gives several examples of normative conflicts. One of them relates to behaviours at amber lights. When arriving close to an amber light, a driver has to make a choice between two behaviours: stopping the car (formal rule) or continue his way (informal rule). Indeed, even if the formal rule (in several countries) urge drivers to stop whenever the traffic light turns to amber, it also stipulate that "when the light turns to amber, if the driver can't stop his car safely anymore, he may pass". This second point is ambiguous and each driver has to decide by himself when he can or not stop safely enough. Depending on his actual speed, distance of following car and distance to the traffic light a driver will thus have to decide whether to stop or pass. The problem occurs when the following car has a different interpretation (norm) of the point beyond which one should drive through amber light. If the first driver stops when the following driver expects him to pass, it often results in a crash.

Cultural values at the individual level can be considered as social norms and may also introduce normative inconsistency. Moreover, it has been shown that social norms influence differently drivers depending on their cultures (Cestac, Kraïem, & Assailly, 2016; Warner, Özkan, & Lajunen, 2009).

### 1.3 Culture and universal risk factors

Concerning road users’ characteristics, some risk factors can be considered as universal:

- **Age**: in most countries, young people aged 15 to 25 are more often involved in crashes and in violations;
- **Type of vehicle used**: in most countries, powered two-wheelers users are heavily at risk.
- **Gender**: in most countries, not to say nearly all, male subjects are more involved in crashes and in violations;

Therefore, these three variables may be considered as universal determinants. However, the importance of these risk factors in crashes causation may differ depending on countries:

a) For example, young (and novice) drivers’ over-risk is less prevalent in northern European countries than in other European countries. As a share of all driver fatalities within the EU, the proportion of fatalities for young drivers ranges from 18% in Denmark to 32% in Germany (ERSO, 2015). The respective share of this age group in the total population ranges from 8% in Denmark to 13% in Ireland. An hypothesis could be a systemic effect: if the youth vulnerability exists in every country due to biological, psychological and social reasons (see Assailly, 2011), it may be slightly more moderate.
in northern European countries (Scandinavia and UK) as young people live there in more protective traffic safety environments.

b) The modal share of powered two-wheelers compared to cars differs greatly between countries (Cestac & Delhomme, 2012, p.321). From 2% in Ireland (ACEM, 2013) to 95% in Vietnam (Peden et al., 2004). Obviously, this proportion is influenced by contextual factors such as weather, GNP or traffic density. However, these factors may not explain all the variance between countries. Indeed, Asian countries typically have much greater proportion of powered two-wheelers than other countries with comparable conditions such as African or Southern American countries. It is thus probable that cultural factors, among others, play a role in the preferences for motorcycling vs. car driving.

c) The gender gap concerning involvement in crashes and violations is shrinking in some countries for example males constitute 75% of traffic fatalities in most European countries, they represent 65% of these in Japan.

In the Safe Roads for Youth project (Assailly & Cestac, 2013; Assailly & Cestac, 2019b; Cestac et al., 2016) implemented in Vietnam, Argentina and South Africa, it was observed that the gender gap concerning drunk driving and excessive drinking in these countries was less important than in European countries and that this gender gap was smaller in South Africa than in Vietnam.

Gender differences in drunk driving can be seen as one way in which societies have symbolized and regulated gender roles. Cultural differences in normative drinking patterns help to reveal how (and to what extent) societies differentiate gender roles, for example, by making drinking behavior a demonstration of masculinity. In some countries where women have nearly no access to car driving or to alcohol use, the gender gap is total. At the other end of the scope are Nordic or Anglo-Saxon countries where the gender gap concerning drinking and alcohol-related damages is much lower or even reversed. For example, in the last British survey on 11-18 year olds (Armitage, 2013), 32% of girls and 24% of boys indicated excessive alcohol consumption. Another observation of this decrease in the gender gap was found in Australia (Abbott-Chapman, Denholm, & Wylde, 2008) where female teenagers were found to drink much more alcohol than their mothers’ generation.

### 1.4 Culture and some of the major causes of crashes

One of the major causes of crashes around the world, and particularly in Europe, is driving under the influence of alcohol (SafetyNet, 2009). 25% of all road deaths in Europe are linked to drunk driving (Ecorys, 2014; International Transport Forum, 2008). However, all countries do not have the same statistics regarding this issue. The proportion of traffic fatalities related to drunk driving varies from 5% in Bulgaria to 30% in France, Slovenia, and Ireland (International Transport Forum, 2008).

According to the Ledermann law (1956), the overall alcohol-related harm in a country is correlated to the mean level of alcohol consumption in a country. For example, it has been shown in the traffic safety domain that “An increase in alcohol consumption of 1 litre of pure alcohol per inhabitant per year is on average accompanied by an increase in average accident mortality rates across age groups of 2.65 deaths per 100,000 among males, and 0.61 deaths among females.” (Skog, 2001, p.S44). Furthermore it is estimated that, at any time, an average of 3.48% of all European drivers on the road...
have a positive Blood Alcohol Content (BAC) (Houwing et al., 2011). However, an important heterogeneity exists found between countries, with 0.15% of drivers in Hungary found with a positive BAC and 8.59% in Italy. This variation explains the large differences found between countries regarding alcohol-related road fatalities.

Cestac, Kraïem and Assailly (2016) explored the moderating influence of cultural values and random breath tests on the correlation between social norms and drunk driving, based on the European survey SARTRE 4 (Cestac & Delhomme, 2012) and the responses of 10,023 car drivers from 15 countries. There is clearly a European heterogeneity regarding reported drunk driving, showing a sharp contrast between Northern countries (Estonia, Finland, and Sweden), where the reported drunk-driving frequency is low, and Southern countries (Italy, Cyprus, and Israel), where this frequency is higher.

Room (2001) distinguished two categories of European countries depending on their alcohol consumption styles: Southern “wet” and Northern “dry” countries. These categories explained the differences in drunk-driving frequencies between countries. Indeed, “wet” Mediterranean countries are more permissive with alcohol due to their wine cultures. There, alcohol is drunk frequently but with moderate amounts every day and is often consumed during meals, resulting in the trivialization of alcohol consumption. On the opposite, in “Dry” Northern countries people have a scarcer alcohol use but when they do, they drink more heavily up to drunkenness and have a beer or spirits culture. This opposition has been contested because of the homogenization of alcohol consumption across Europe during the last few decades (Gordon, Heim, & MacAskill, 2012; Room & Mäkelä, 2000). However, Room (2001) suggested that “there has not been much apparent convergence in the cultural positioning of alcohol”. Assailly and Cestac (2019a) detailed the different patterns of alcohol consumption depending on cultures. Several dimensions of alcohol consumption are influenced by cultural values beyond frequency and quantity, such as the use value of alcohol (as a beverage), the expected behaviours associated with drunkenness (socialization, violence, sex, etc.), the social position of the drinkers, context and situations of alcohol intake (during meals or not, associated with celebrations, etc.), or the alcohol consumption by females.

Another approach of country differences in road fatalities focus on the differences concerning driving skills (perception, information processing, decision making, etc). Several works (Sivak, 1987, Sivak, Soler, & Tränkle, 1989a, 1989b; Lajunen et al., 1998; Özkan et al., 2006b; Warner et al., 2013) have shown that driving skills differ depending on the country. A common tool has been created and used for the purpose of these comparisons, the Driving Skills Inventory (Lajunen & Summala, 1995), based on a two factors-structure (technical and defensive skills). For example, Lajunen and Summala (1995) have shown that Finnish drivers are more safety-oriented than Australian ones; according to Warner et al. (2013), Greek and Turkish drivers report higher yearly accident involvement than Swedish and Finnish ones; however, Greek, Turkish and Swedish drivers report higher perceptual-motor skills than Finnish ones, and Greek, Turkish and Finnish drivers report higher safety skills than the Swedish ones. So, there does not seem to be a straightforward correlation between self-reported driving skills and crash involvement.
1.5 Cross-cultural comparisons of road safety, risk perception, attitudes and behaviours

The majority of previous cross-country studies of human factors relevant to traffic safety have not measured cultural values, and most works on this topic have been carried out in Europe and the United States. One study (Nordfjaern, Şimşekoğlu, & Rundmo, 2014) has examined country cluster differences, based on the Culture's Consequences framework, in road traffic risk perception, attitudes towards traffic safety and driver behavior in samples from Norway, Russia, India, Ghana, Tanzania, Uganda, Turkey and Iran.

This study aimed to analyze differences in traffic culture as symbol use and to investigate whether this theoretical cultural framework predicts risk perception, attitudes towards traffic safety and driver behavior. The sample consisted of a total of 2,418 individuals who were obtained by convenience sampling in the different countries. The countries have been segmented into four Culture's Consequences cluster: Norway, Russia and India, Sub-Saharan Africa, and Near East countries.

Norwegians reported overall safer attitudes towards traffic safety and driver behavior than the remaining country clusters. Individuals in Africa reported the highest risk perception. The countries also differed according to traffic culture as symbol use. Contrary to several cultural theories, prediction models revealed that cultural factors were stronger predictors of driver behavior than of risk perception.

Moreover, the social cognitive risk constructs (risk perception and attitudes) explained variance in driver behavior only in the Norwegian and Russia/India clusters. Previous works which aimed to demonstrate that culture is important for the risk perception criterion, may have focused on a criterion variable that is not strongly related to driver behavior.

A last learning from this work is that countermeasures aimed to influence social cognition may have stronger applicability in countries with a more individualistic western cultural orientation.

Individuals in developing countries are to a greater extent exposed to threats and must struggle for survival. Accordingly, they are likely to be more sensitive to risks. There are smaller differences in risk perception among females and males with marginal status or living in developing countries. Due to the lack of studies examining if risk perception is related to traffic behavior in developing countries it is difficult to generalize findings from high-income countries.

Cultural differences in risk perception and attitudes towards traffic safety and risk-taking behavior have so been analyzed in the Norwegian and the Ghanaian public (Lund & Rundmo, 2009). An additional aim was to discuss the applicability of various traffic measures, adapted for low and middle income countries in Africa.

Norway has adopted the “zero vision policy” which supposes that no serious or fatal traffic crashes are acceptable. The zero vision policy assumes that both authorities and individuals in traffic share the responsibility for traffic safety and have a mutual obligation to each other.
The results of this study found differences between Norway and Ghana related to traffic risk perception, risk sensitivity and risk willingness. Ghanaians were exposed to a more hazardous traffic environment than Norwegians. The results showed that Ghanaians perceived the probability of being involved in traffic crashes to be greater than Norwegians did. The severity of consequences if an accident should happen was also considered to be greater by Ghanaians. Ghana has about five times as many inhabitants as Norway and naturally more crashes are reported. This is a possible explanation to why Ghanaians are more sensitive to traffic risks than Norwegians.

Ghanaians were more sensitive to various risks compared to Norwegians and thought it was more probable that they could experience various hazards. This applied for six of the seven dimensions. The Ghanaians respondents perceived the probability of experiencing injuries from nature catastrophes, war, diseases, health precautions, weapons and motor vehicles to be larger than the Norwegians. Perceived risk and sensitivity to risks in general may be related to risk exposure. The Ghanaian people have to struggle for survival to a greater extent than Norwegians and contrary to Norwegians they are also exposed to poverty, diseases and an underdeveloped health care system. These threats might explain why Ghanaians were more sensitive to various risks.

However, concerning habits of health, Norwegians reported that they thought it was more likely that they would experience injuries. This may be due to the fact that health, food, exercise, drinking and smoking has been heavily focused in Norwegian mass media.

Adolescents were more willing than adults to take risks in traffic and in general in both Norway and Ghana. This is in accordance with other studies (Assailly, 2018). Ghanaian adolescents were less sensitive to risks, judged the severity of consequences to be less and were more willing to take risks compared to adults and older adults in Ghana. For example, they perceived the risk of experiencing war as lower than young and older adults in Ghana. In Norway, adolescents were less sensitive to risks and more willing to take risks compared to adults. These results suggest that the tendency for adolescents to perceive risks as smaller and to take more risks compared to other age groups apply in developing countries as well as in high-income countries.

Norwegian males perceived risks as lower compared to Norwegian females. Males perceived consequences from traffic accidents as lower and were less sensitive to risks compared to females. No significant differences between males and females were found between Ghanaian males and females. This does not support the conclusion that there are larger differences in risk perception between males and females in countries with more traditional gender patterns (Hofstede, 1991). Instead, the results imply that gender differences related to risk perception are smaller in developing countries compared to high-income countries despite the more traditional gender role pattern. A possible explanation of this tendency is that individuals in developing countries have to struggle for survival and are exposed to more risks. This may affect males as well as females’ perceptions of risks.

Attitudes were an insignificant predictor of driver behavior in the Ghanaian public. Attitudes and risk perception are usually found as significant predicting variables of risk behavior in traffic in industrialized countries. In Ghana, none of the risk perception measures significantly contributed to explained variance in driver behavior.
It may be that the questionnaire used was unsuitable for the Ghanaian culture. More research in this area is needed to examine this possibility. It may also be that attitudes and risk perception will not be successful predictors of driver behavior in Ghana, i.e. that social cognition models claiming that attitudes are significant predictors of behavior is less suitable in low-income countries. If so, traffic safety campaigns may not be successful in low-income countries. When planning future traffic safety campaigns in developing countries new approaches should be developed locally instead of importing approaches from industrialized countries that do not account for cultural variations. The results showed a significant relation between reported driver behavior and accident involvement in the Norwegian sample but not in the Ghanaian sample. However, Ghanaians were involved in about twice as many accidents. This further suggests that the measures applied in Norway do not fit developing African countries.

Another study has been implemented in the Ivory Coast on respondents with different religions, occupations and beliefs (Kouabenan, 1998). Individuals were evaluated on their fatalism and risk perception related to crashes. The results showed that fatalistic beliefs and mystical practices influenced people’s perception of crashes and led to more risk-taking in traffic and neglect of safety measures. Fatalistic beliefs may cause individuals to be resigned to risks because they cannot do anything to reduce these risks.

It has been established that cultural values and beliefs are likely to play a role in risk taking decisions (Delhomme & Meyer, 1995; Kouabenan, 2007; Cestac et al., 2016; Ngueutsa, & Kouabenan, 2017). A recent Franco-Cameroonian thesis (Ngah Essomba, 2017) studied the influence of culture and beliefs on risk taking decision within the framework of three empirical studies on young vulnerable road users both in Cameroun and in France. The first study, based on semi directive interviews showed that Cameroonian were more likely to report religious and traditional beliefs, whereas French have declared more control beliefs to explain their risky behaviors. Participants in both countries acknowledged the transgression of safety rules, such as running a red light. The second study’s was carried on 4,179 French’s and 396 Cameroonian using self-evaluation surveys. The invulnerability scale to danger has been validated using only one factor as in the original scale. Cameroonian deem themselves more invulnerable than French who have an attitude more prone to risky behaviors. The third study focused on a comparative study between Cameroonian and French in terms of beliefs, cultural values and protection motivation and identifying attitude’s predictors and the intention of running a red light. This last study had been conducted across 156 Cameroonian and 131 French using a self-evaluation survey. Cameroonian have a higher level of religiosity than the French whom are more inclined to run a red light. The results of the 3 studies showed large differences between French and Cameroonian road users regarding beliefs (either religious or not) and their links with risk-taking. It looks that Cameroonian are less aware than French about road risks, they tend to be exposed to risks because of their lack of awareness whereas French people often take risks on purpose, for the thrill of it. Cameroonian exposure to risks is reinforced by a high level of religiosity that may contribute to their unwillingness to consider the danger, because of fatalistic tendency (God decides).

In South Africa, one specific aspect of risk perception is superstition. For example, a study (Peltzer & Renner, 2003) has investigated taxi drivers’ superstition and crashes as well as risk-taking in an urban area in South Africa. One hundred and thirty drivers of minibuses, so-called “taxis” were interviewed
on the basis of a superstition scale, a risk-taking scale and a list of perceived causes of traffic crashes. Drivers showed largely superstitious attitudes and expressed a high degree of risk-taking behavior.

Superstition was positively correlated with the number of self-reported crashes that the drivers had been involved in and the number of crashes they had witnessed. Path analysis revealed a direct path from superstition to crash involvement while the influence of formal education was negligible. Risk-taking was inversely correlated with driving experience and the number of crashes witnessed but not so with the number of crashes involved in. There was no clear pattern of associations between superstition and risk-taking and perceived causes of crashes. Superstition and risk-taking were slightly and inversely correlated with each other. It is concluded that superstition represents an attitude that is associated with a driver’s crash risk.

1.6 Conclusion

From the “Universalist” point of view, major causes of crashes are the same all over the world: young and male drivers are more at risk than old and female ones, it is more dangerous to drive at high speed and while being under the influence of some psychoactive substance than to drive slowly and while being sober. In this introduction, the “Relativist” point of view has been investigated. It was explained that cultural values and local driving environments also have an effect on risky behaviours, either directly or through social norms. Moreover, culture and driving environments interplay with biological and physical factors, and the effects of gender, age, overall alcohol consumption or modal share of vehicles differ depending on countries considered. Of course, important differences in road safety indicators cannot be explained only by cultural factors, nonetheless the “Relativist” point of view is often neglected in designing road safety policies. Obviously cultural changes take a long time and anyway can hardly be targets of public policies. But cultures must be taken into account when designing road safety measures, especially when attempting to import measures that have been successful in a foreign country.
2 Empirical considerations about culture and road safety in Africa

In the framework of the Safer Africa project, it was decided to develop tools and to conduct a pilot study to prepare a larger work about road safety and culture in Africa, based on the theoretical considerations presented above. This work comprised two steps: a first qualitative step included in depth interviews with local road safety experts, the second step was a more quantitative approach and included a questionnaire survey targeted at road users from African countries.

2.1 Qualitative step: interviews with local stakeholders

2.1.1 Method

A first step, with a qualitative approach, has been conducted. The objective was to collect detailed views and feelings from local road safety experts in various African countries. It is important to keep in mind that interviews provide personal views about some topics, they certainly don’t represent the absolute and definitive truth about it, and they are detailed qualitative data that provide information about priority targets to study further in the quantitative phase. It is a common practice in psychology studies to collect experts’ views before building a questionnaire.

Data collection consisted in semi-directive interviews with 8 experts from 5 countries: Burkina Faso, Kenya, Cameroon, Ghana, and Tunisia. Interviews were conducted by psychologists from IFSTTAR and VIAS. Colleagues from ICI-Santé, Handicap International, and ENSTP helped with the data collection process. The respondents were recognized experts of road safety in their respective countries, most of them were members of the Safer Africa consortium.

Interviews guidelines (see appendices #9.1) were built to address 7 main topics:

- Road safety and culture
- Road safety measures
- Mobility
- Behaviors / offenses
- Roadside checks / penalties
- Road Safety Education
- Road Risk

In average, the interviews lasted for approximately 1 hour. It is important to note that it was extremely difficult to find volunteers, agreeing to answer our questions. We often faced a request for compensation that was not possible. This situation could have biased some responses. We also received a negative answer from a country experts, saying that: “We felt a bit uncomfortable responding to questions regarding the quality of road safety in our country which ultimately reflects on the performance of our government. This is especially so because it seems to us that the government is reluctant to participate in the Safer Africa initiative”. We consider these responses as informative about the context in which the cooperation with African countries about road safety is being built. The mistrust is high, especially when cooperation involves people from former settling countries. We
should take this into account when thinking about the development of reliable exchanges between Europe and Africa regarding road safety issues.

2.1.2 Results

2.1.2.1 Burkina Faso

Two road safety experts were interviewed from Burkina Faso and estimated that the level of traffic in this country is very important because it is a transit country between surrounding countries, in particular with the corridor linking Bamako to Niamey through Ouagadougou. One expert evaluated the amount of speeding drivers as very high, more specifically truck drivers who receive bonuses depending on the number of trips they achieve each week: "National roads are two-way roads not separated by a central reservation. The limitation is set at 90 km/h. But we have conducted surveys and also results of some roadside check operations showed that the average speed is around 120 km/h with some truck companies that reach speeds up to 140 km/h". Moreover, he reported that truck drivers frequently take passengers in addition to their already overloaded freight: "Some large trucks can carry up to 30 people in addition to their cargo". Public transports are often overloaded as well: "Public transport vehicles can carry up to 60 people while they only have 10 seats".

According to the local experts, controls are not accepted at all by population. In fact, the controls were almost suspended during 5 years (2006-2011) as a consequence of the political situation and the distrust of the population into police forces: "In March 2006, the government was facing complaints about the racketeering by police officers and gendarmes responsible for roadside checks. It was decided to suspend roadside checks. The suspension lasted for 5 years". Difficulties are still ongoing and the penalties are often not applied. People in Burkina Faso tend to distrust authorities, in particular since the putsch attempt in 2015, and bribery is still a common practice: "A measure that has had some success also is the load control of road transport vehicles. There was a very heavy load of freight vehicles on Burkinabe territory. Infrastructures that were designed to last 15 years were severely damaged after 3 or 4 years only. The government has adopted a priority action plan to control this surcharge from 2010. In March 2010 the overload rate was about 60%, this rate fell to 36% in December of the same year. It was therefore a great success, but after a few years a system of negotiation between the gendarmes and the drivers has been settled and overload rates raised again".

It is estimated by the road safety experts that approximately 85% of passenger vehicles are motorcycles. It is quite frequent that motorcycles are overloaded with more than 2 riders and/or goods.

The interviewees reported that many initiatives and efforts have been taken regarding road safety education: including books, school programs, education trucks for rural areas, TV shows, and training the teachers: "At some point there have been improvements in helmet use. Summer class trips organized by the Road Safety Department at secondary school level in the city of Ouagadougou for students aged between 13 and 18 years old. Thanks to these participations all sorts of conferences were organized in the establishments. As the trips went on, he reported on the increase in the helmet wearing rate in these establishments, which rose to 40%. Unfortunately, however, when it was the task of the public authority to apply the compulsory helmet wearing measure by accompanying it with road checks, the population opposed this measure, and the pupils then gave up wearing the helmet". One road safety expert points
out difficulties linked to the weakness of parental education (in general), and the existence of 60 different ethnic groups and languages in Burkina Faso. Regarding the helmet use, the main obstacle is financial: “It was “back to school” time and parents had to pay a new tuition fee. In addition, following the announcement of the mandatory helmet measure, the price of helmets were tripled or quadrupled. Moreover, a fake news circulated: some voices spread a message that a politician had ordered containers of helmets and had established the law in order to sell them on the Burkinabe market.”

According to the interviewees, the main target to pursue in order to improve road safety in Burkina Faso would be to increase roadside checks and to enforce the laws that already exist: “The priority would be the reinforcement of road checks. For all risky behaviors there are laws that have already been adopted, so it is a matter of enforcing them. For example, we could start doing this for 1 month without verbalizing, so that good habits develop and then begin to verbalize. Another important measure would be to separate road users. There are very few sidewalks and almost no bike lanes, so everyone is on the road. It would be necessary to make arrangements to separate them in order to reduce the risk”.

The number of fatalities, reported as “official numbers” by one of the road safety experts are: 1,125 fatalities in 2013, 950 in 2015 and 857 in 2016. Fatalities are decreasing even though a 30% underestimation is estimated as probable by the expert.

2.1.2.2 Cameroon

The first point raised by the Cameroonian road safety expert interviewed was the huge regional differences inside the country, the North and East are much less developed, with large rural areas and smaller cities than in the South.

He identified an issue regarding the respect of the law: “We have more and more road users who do not respect any rule”, in particular for powered two-wheelers (moto-taxi) in cities like Douala and Yaoundé.

Moreover, he pointed out the lack of traffic laws enforcement: “we have a good legislation but it is not enforced enough. […] It would be necessary to have specific municipal police forces enforcing road safety in the biggest cities”, police lacks basic means for intervention, and thus they can’t chase the motorcyclist’s drivers breaking the laws. A strong effort has been made against corruption in the police since one year: “Bribery has been greatly reduced with the introduction of an Independent Police Complaints Commission. Bad practices are severely enforced and some policemen were dismissed for their misconduct”.

Some measures have been effective for black spots: “There is a triangle Douala-Yaoundé-Baffoussam, known as “death triangle”, on which there was a large amount of crashes during the last 10 years. Speed cameras have been installed on these roads and the average speed has been efficiently reduced”. Another measure hasn’t proved very efficient: “It was decided to implement central reservation on the highway from Yaoundé to Douala, in order to separate opposite flows. However, the design of the central reservation wasn’t very good because it was impinging on the driving lanes, which ultimately engendered crashes, especially for large vehicles that had a reduced space to use”.

Despite the existence of a law making the helmet mandatory to wear for motorcyclists, 90% of motorcycle taxi don’t wear helmet: “the main problem is the level of education of these motorcycle taxis, they are not conscious of the risk they take by not wearing a helmet, so they consider it as too expensive
for its utility”. Motorcycles are often overloaded: “It is frequent to see motorcycles with up to 3 passengers behind the driver”.

According to the road safety expert for Cameroon, there is a strong need for local police forces in main cities: “Policemen are not numerous enough to conduct checks. A local police force could also be used for education and prevention purposes. In particular in Douala where there have been many road crashes with drivers jumping the red lights”. Another top priority would be to improve infrastructures.

Pedestrians are at very high risk: “there is a lot of pedestrians in Cameroon. It is frequent that sidewalks, when there are some, are occupied by street sellers and their goods, forcing pedestrians to walk on the roads”. There is a strong need for 30km/h zones, in particular near schools, where it is not always the case.

Road safety used to be taught at school during moral lessons, however this education has now been entrusted to NGO’s but they have limited means and funding for this task, so the level of road safety education is rather low. It is not common in families to teach kids about road risks. Moreover it is not a frequent topic in media.

As a summary, according to the interviewee, priority targets are: increasing police means, road users’ education, and maintenance of roads.

### 2.1.2.3 Ghana

Three road safety experts from Ghana have been interviewed separately. They described the situation of road safety in Ghana from their point of view. Below is a summary of what they said on the topics from the interview guidelines.

In Ghana, most of the people walk or take the (mini)busses. As a consequence, just as in Ivory Coast, pedestrians make up the majority of road fatalities, while in Benin and Togo most of them are motorcyclists (approximately 40%). The road infrastructures in Ghana are particularly problematic. One of the main issues concerns the design of the national highways of the country which does not respect the safety criterions. For example, there is no formal entrance and exit on the highway and drivers can come in and out whenever they want. In cities, public transport such as busses, mini-busses and shared taxis are used by 80% of the population. 13% of the population has a private car and less than 10% a motorcycle. Thus, about 20% of the population has a private means of transport.

The problematic behaviors of road users in Ghana can be explained by (1) the lack of knowledge, (2) the lack of enforcement of road safety policies, (3) the lack of appropriate road infrastructures. Indeed, as there is no pedestrian crosswalk, people tend to cross anywhere and anyhow which cause accidents in the city but also on motorways.

One expert said that, even if the government is aware of the challenges in road safety, the current resources are too limited and there are other political priorities than road safety. On this point another expert disagreed and said: “From my interactions, at the ministry level, both with the ministry of transports and the ministry of roads and highways, including department of roads, Ghana highway authority ... there is a very very strong awareness about road safety. I think that, what is missing, is the link between awareness and what they are actually doing to improve the situation”. However, one expert considered that there is still no holistic view about road safety, and that most decisions are only by reaction (after a big crash for example) and not coordinated between pillars.
According to the experts, there is an urgent need to enforce driving rules, and to strengthen police controls to reduce the feeling of impunity of road users. Even though things have already been improved, particularly as regards to the acquisition of a driving license. Ghanaians have now to attend road safety courses and to go through several theoretical and practical tests to get their driving license. Some interventions were conducted around schools in order to improve infrastructure, to reduce drivers’ speed when driving nearby a school, and billboards on road sides were used to show road fatalities figures. Another successful intervention was about drink-driving, in particular for the public transport drivers of buses. The officials go to the terminals and test the drivers. If there are above the limit, they will not be allowed to drive. This kind of interventions is mainly carried on at Christmas or Easter, when a lot of people drink. 

Risky drivers are often perceived as good drivers: “There is a tendency to think that taking risky maneuvers is actually good driving. There is a bit of an impatience culture about people who are slow on the road … other drivers will tend to blow their horns a lot [against them] and there is a bit of intimidation for those who are driving more carefully”. The experts mention a lack of respect of the law, but they consider it as much lower than in other countries such as Kenya or Nigeria, where the lack of respect of the law is much higher.

Ghanaian experts said that enforcement is often not efficient because of bribery: “For the policemen who are enforcing, they are not enforcing it from the perspective of safety, they are just enforcing it because they have to do it and that’s what often leads to the issues around bribery”. The mandatory wearing of helmets for PTW is not enforced enough by the police forces. Moreover, some experts estimated that there is not enough road safety education and that some drivers, including professionals do not know well the road rules.

Official statistics are probably somewhat underestimated, however there is a detailed data gathering system allowing to make statistics by travel mode. It is estimated that more than 2,000 people died in 2017 in a road accident. In 2016, the number of deaths following a road accident is estimated at more than 2,800 people, including: 40% pedestrians, 20.9% motorcycle drivers, 17% bus users, 10.3% car users and 6.8% car drivers. The estimated causes are alcohol consumption in 10% of cases and speeding in 50% of cases.

### 2.1.2.4 Kenya

One road safety expert from Kenya has been interviewed. She identified several risk factors including speeding and drunk driving. But she mentioned a specificity among Kenyan drivers which is drugged driving that is estimated as quite more common than in other countries: “people take cocaine, they chew a lot of “khat” to stay awake so they are able to drive for long hours”. Most powered two-wheelers (more than 60%) don’t hold a valid driving license. Most fatalities are pedestrians: “In Kenya most of the roads are for motorized vehicles but 60% of our population are pedestrians, roads are very narrow and people walk on the road, so the higher number of deaths (52%) are pedestrians […] Pedestrians never look at traffic lights, they just cross!”

There is a very low respect of the rules in general, even more from officials that have privileges on the road: “It is like if enforcement was targeted for the poor people and not for the rich.”
Corruption and bribery is frequent, it is linked to the administrative system with traffic police officers nominated for 2 years: “When you are a traffic police officer it is only for 2 years, not for life, it is very frustrating to train them, after spending the money they will be transferred to normal police and will never work in traffic anymore. Plus the bribes of corruption: they try to collect as much money as possible before being transferred”.

Road safety measures are often considered as a challenge for drivers on how to find a way to overcome the measure: “The reason people look at laws as challenges to overcome is because nobody really explains them why something is being done. Here is an example: there was a law that was actually enforced very hardly during the past two years they put a really a lot of effort into enforcing it, it was the speed of public vehicles that have been controlled by a device mounted on the vehicles engines. The maximum speed that this gadget would allow was 80 km/h. Somehow, someone found a way to hack the device so that it will record a speed of 80 km/h whereas in fact the vehicle was driving at way higher speeds, up to 120 km/h”.

Alcohol breathalyzer roadside checks have been very effective but there was a problem because most of the pubs and bars are along the highways, and the bar owners have a done a law suit against the National Transports and Safety Authority, because their clients changed their habits and went by foot to bars in the residential areas next to them.

There is a lack of communication and advocacy of road safety measures: “All road measures have been difficult to accept. The problem is not the measures, it is how the measures are introduced. If we want the law to be accepted, we have to back it up with education and advocacy, but this has not been done here. It is only punitive but not communicative. We had speed guns with the help of the World Bank, but nothing on the road was telling what appropriate speed should be on this road. The authority said that speed limits were given in the newspapers, but most roads outside the cities are not marked and there is no road sign”.

The priorities would be to improve the skills and knowledge of people working for the national traffic safety authority which are not always competent enough on specific topics, and to increase communication and education efforts targeted at the population. Official statistics are probably underestimated, and there is a need for more transparency about how the data are collected. Kenya highway authority receive a budget for safety but use for something else, so it cannot really be considered as funded.

2.1.2.5 Tunisia

One road safety expert from Tunisia has been interviewed. According to him, the main issues regarding road safety in Tunisia are speeding and powered two-wheelers (in particular PTW with small engine size): “PTW represent one third of the victims of the road”.

Within this specific category of small engines PTW drivers, there is a lack of respect of the law. Most of them don’t hold the required (theoretical) license and don’t wear helmets: “In Tunisia we have a regulation which was established in the year 2000 which stipulates that the driving of small engine size PTW between 49 cc and 125 cc is subject to the obtaining of a driving license which includes a theoretical test only. Unfortunately this law is not respected by the vast majority of small engine sizes motorized two-wheeler’s drivers”.

A recent measure about the mandatory use of seatbelts in towns by car drivers and passengers (front and back seats) was taken by the government. This measure is estimated by the road safety expert as being successful: wearing rates increased and both fatalities and injuries decreased by 6% compared to 2016. “This measure produced results in 2017 with a diminution of 81 road fatalities and 637 injured compared to 2016. It is probable that the severity of injuries decreased as well. As an expert I attribute these encouraging figures to the application of this measure, however this is still awaiting confirmation by the authorities”.

Some past measures were not so successful: the implementation of the demerit point system in 2000 faced a strong opposition, in particular from professional drivers resulting in largely revised, much softer, measures. Several infractions, such as not marking the stop, not wearing the seatbelt or “small” speeding (less than 50km/h above the limit) were excluded from the measure.

Several priorities have been defined, an important national plan for road safety has been decided and is beginning to be implemented. These priorities include: increasing communication towards population to raise risk awareness, evaluating the measures, implementing road safety education at school, and revising the demerit points system. These measures have been scheduled for 2018.

In 2017, official data recorded 6,943 personal accidents with 1362 fatalities and 10368 injuries. Data are considered as very reliable by the local expert.

2.1.3 Conclusions

Many common points between the 5 countries (Burkina Faso, Cameroon, Ghana, Kenya and Tunisia) and more specifically between the 4 sub-Saharan African countries, arose from the interviews: in all countries there is an issue regarding powered two wheelers, often not holding appropriate driving license and not wearing helmet, and sometimes overloaded.

In the 4 sub-Saharan African countries there is a very strong issue regarding pedestrians, often lacking infrastructures (sideways, crossings, lighting, etc.).

In all countries there is a low level respect of the law, in particular speed regulations, partially linked in the central African countries with bribery.

All the road safety experts interviewed mentioned a lack of awareness about road safety in the population of their respective country. They all pointed the need for more communication and road safety education.

However, some differences appeared. Tunisia seems to be much better organized than the four other countries and is already on a positive slope regarding road safety, most pending issues are planned to be addressed soon, in particular the improvement of the demerit points system. The level of drink-driving is much lower than in the four other countries, and fatalities are decreasing.

People in Burkina Faso seems particularly hostile to enforcement and police checks. It is possibly linked with the putsch attempt in 2015 that could have generated or reinforced the distrust of Burkinabe against military forces.
A strong effort has been recently launched to fight bribery in Cameroon and it is hoped that this measure will be efficient to increase the respect of traffic laws.

Of course, these interviews provide only a subjective, qualitative approach to the situation in the countries considered. The answers given by local road safety experts are their personal views on the situation of road safety in their own countries and may not reflect the absolute and definitive truth about it. It is possible that a social desirability bias occurred for some experts because it is not easy to recognize faults in front of a surveyor from a foreign country. More specifically, this could explain the gap between the situation of road fatalities in Tunisia and the quite positive view given by the local expert (see also Safer Africa deliverable 3.1, Mignot et al., 2018). It is also possible that it reflects the trust in decisions that were just taken and are expected to produce positive effects in the next years.
2.2 Quantitative step: pilot survey among road users

2.2.1 Sample

Data were collected from December 2018 to March 2019. Most questionnaires from Burkina Faso and Togo were administered face-to-face. The remaining participants responded online. Colleagues from IFSTTAR, Handicap International, SITRASS and ENSTP helped with the data collection process.

<table>
<thead>
<tr>
<th>Country</th>
<th>N</th>
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<tbody>
<tr>
<td>Benin</td>
<td>3</td>
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<tr>
<td>Burkina Faso</td>
<td>126</td>
</tr>
<tr>
<td>Cameroon</td>
<td>41</td>
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<tr>
<td>Chad</td>
<td>2</td>
</tr>
<tr>
<td>Guinea</td>
<td>1</td>
</tr>
<tr>
<td>Mali</td>
<td>4</td>
</tr>
<tr>
<td>Morocco</td>
<td>1</td>
</tr>
<tr>
<td>Niger</td>
<td>1</td>
</tr>
<tr>
<td>Senegal</td>
<td>4</td>
</tr>
<tr>
<td>Togo</td>
<td>25</td>
</tr>
<tr>
<td>Tunisia</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>209</strong></td>
</tr>
</tbody>
</table>

Given the final distribution of responses, analyses were conducted for Burkina Faso only. For Cameroon and Togo, the samples were too small and almost exclusively composed of male participants.

The participants from Burkina Faso were 43% female, with 47% Catholics, 35% Muslims, and 11% Protestants. 11% reported experiencing one accident or more during the previous year. 72% declared owning a driving license for cars, 32% for motorcycles, 36% for mopeds and 32% for trucks. All of them were living in the urban area of Ouagadougou.
2.2.2 Measures

The main topics measured in the questionnaire (see appendices #9.2) are listed below:

- Cultural values (Conformity and Tradition), taken from the Portrait Values Questionnaire (Schwartz, 2003).
- Mobility, travel habits.
- Risky behaviors as a pedestrian, powered two-wheeler and driver.
- Level of road safety awareness and risk perception.
- Level of knowledge about road rules.
- Relation to authority and police checks.
- Attitudes.
- Personal values (Discourtesy, Conditionality, Authority rejection, and Road libertarianism).
- Personality (Sensation seeking).

Most answers were collected using 1-5 Likert scales. Several items were taken from a previous study conducted in France (Cestac et al., 2018).

The "Conditionality" dimension consists of items such as: *in some cases, it is legitimate to violate road safety rules*. It corresponds to an individual level of perceived conditionality of rules, that is, a personal tendency to relativize the scope of the rules and to consider some situations as justifying the possibility of a violation. Conditionality was measured by five items (Q27-Q31), Confirmatory Factor Analysis (CFA) confirmed the one-dimensional structure of this factor but Cronbach's alpha was poor ($\alpha = .50$).

The "Discourtesy" dimension is composed items such as: *I sometimes park on a sidewalk or pedestrian crossing*. A high score on this dimension indicates a personal tendency towards incivility and disrespect towards other users. Discourtesy was measured by four items (Q23-Q26), CFA revealed two different factors that were named: "discourtesy speed" (Q23 and Q24, $r = .37$) and "discourtesy park" (Q25 and Q26, $r = .50$).

The "Authority rejection" dimension is composed items such as: *speed controls are not frequent enough/too frequent*. It expresses an individual tendency to contestation of power and the expression of a form of rebellion, of questioning the authority of the police. A high score on this indicator reflects a higher rejection level than a low score. Authority rejection was initially measured by four items but one item (Q34) was dropped to preserve the one-dimensionality and the homogeneity of the factor ($\alpha = .64$).

"Road Libertarianism" consists of items such as: *the penalties for crossing a red light are not severe enough/too severe*. It corresponds to a personal orientation of values, a "political" positioning towards the regulation of road behavior. People who score high on this dimension have a more libertarian view of travel organization, that is, they tend to think that road behaviors can (and should) be self-regulated. They would prefer that drivers are given more freedom to decide on which is the appropriate behavior depending on the driving situations encountered. This state of mind could also reflect a desire to enjoy privileges among drivers who consider they have a higher status than others,
for example related to the power of their vehicle. Road Libertarianism was measured by four items (Q36-Q39, α = .73), CFA confirmed the one-dimensionality of this dimension.

Conformity was measured by four items (Q40-Q43, α = .90) such as: I believe that people should do what they’re told. I think people should follow rules at all times, even when no-one is watching. This value was taken from the Schwartz model of basic human values, and “derive from the requirement that individuals inhibit inclinations that might disrupt and undermine smooth interaction and group functioning. [...] conformity values emphasize self-restraint in everyday interaction, usually with close others” (Schwartz, 2012). CFA confirmed the one-dimensional structure of this factor.

Tradition was measured by four items (Q44-Q47, α = .75) such as: I believe it is best to do things in traditional ways. It is important for me to follow the customs I have learned. This value was also taken from the Schwartz model of basic human values. It expresses an attachment to “respect, commitment, and acceptance of the customs and ideas that one's culture or religion provides” (Schwartz, 2012). CFA confirmed the one-dimensional structure of this factor.

Sensation seeking was measured by four items (Q48-Q51, α = .59) such as: I like to do frightening things. It is a measure of a personality trait indicating one’s attraction for thrill and novel experiences. The Brief Sensation Seeking Scale (BSSS-4) was validated by Stephenson et al. (2003). CFA confirmed the one-dimensional structure of this factor.

2.2.3 Results

2.2.3.1 General results

Average answers and standard deviations for all the questionnaire items are given in Table 3. Risk perception for motorcycle accidents (M = 4.1) is very high compared to other transports modes. This certainly matches with the situation of motorcyclists in Burkina Faso whom indeed are exposed to high levels of risks. So our sample of Burkinabe seems quite aware of the risk associated with driving a motorcycle. On the other side, the perceived risk for pedestrians (M = 2.2) seems to be comparatively underestimated given the actual risk exposure of pedestrians in Burkina Faso (see Figure 5).
The reported use of cannabis, alcohol and the reported frequency of drink-driving and drink-walking are very low. Even if our sample is not representative of the population in Burkina Faso, this result is in line with knowledge about alcohol consumption in Africa which is much lower than in European countries for example, with almost twice less current regular drinkers (32% in Africa and 60% in Europe) and 40% less alcohol per capita (WHO, 2018). In Burkina Faso, most drinkers have the local traditional beer named *dolo*, and the level of alcohol consumption remains in the average of the African region.

The reported use of a helmet by motorcyclists in our sample is quite low (M = 2.5) with 50% of our sample declaring never using a helmet and only 24% declaring wearing a helmet very often. This result confirms the information given by the road safety expert during the interview about helmet use which is very low.
Table 3: Means and standard deviations for the questionnaire items.

<table>
<thead>
<tr>
<th>Question</th>
<th>Mean</th>
<th>St. D.</th>
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</thead>
<tbody>
<tr>
<td>Age</td>
<td>35.43</td>
<td>9.70</td>
</tr>
<tr>
<td>Perceived general probability of accident</td>
<td>2.35</td>
<td>1.25</td>
</tr>
<tr>
<td>Perceived probability of accident when travelling by Foot</td>
<td>2.20</td>
<td>1.22</td>
</tr>
<tr>
<td>Perceived probability of accident when travelling by Motorcycle</td>
<td>4.12</td>
<td>1.12</td>
</tr>
<tr>
<td>Perceived probability of accident when travelling by Car</td>
<td>2.93</td>
<td>1.11</td>
</tr>
<tr>
<td>Reported caution when crossing a street as a pedestrian</td>
<td>4.41</td>
<td>1.09</td>
</tr>
<tr>
<td>Reported binge drinking</td>
<td>1.49</td>
<td>1.13</td>
</tr>
<tr>
<td>Reported frequency of cannabis use</td>
<td>1.02</td>
<td>0.18</td>
</tr>
<tr>
<td>Reported frequency of drink-driving</td>
<td>1.17</td>
<td>0.59</td>
</tr>
<tr>
<td>Reported frequency of drunk walking</td>
<td>1.25</td>
<td>0.80</td>
</tr>
<tr>
<td>When I drive I comply with the speed limits</td>
<td>3.80</td>
<td>1.40</td>
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<tr>
<td>When I use a powered two-wheeler I wear a helmet</td>
<td>2.46</td>
<td>1.69</td>
</tr>
<tr>
<td>When I’m in a car, I put on my seatbelt</td>
<td>3.68</td>
<td>1.63</td>
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<tr>
<td>Discourtesy speed</td>
<td>2.30</td>
<td>1.18</td>
</tr>
<tr>
<td>Discourtesy park</td>
<td>1.74</td>
<td>1.03</td>
</tr>
<tr>
<td>Conditionality</td>
<td>2.29</td>
<td>0.91</td>
</tr>
<tr>
<td>Authority rejection</td>
<td>1.87</td>
<td>0.85</td>
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<tr>
<td>Road libertarianism</td>
<td>2.22</td>
<td>1.07</td>
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<tr>
<td>Conformity</td>
<td>4.54</td>
<td>0.91</td>
</tr>
<tr>
<td>Tradition</td>
<td>4.11</td>
<td>1.00</td>
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<tr>
<td>Sensation Seeking</td>
<td>2.06</td>
<td>0.95</td>
</tr>
<tr>
<td>Destiny decides for road accidents</td>
<td>2.03</td>
<td>1.49</td>
</tr>
<tr>
<td>God decides for road accidents</td>
<td>1.73</td>
<td>1.22</td>
</tr>
</tbody>
</table>

2.2.3.2 Effect of religious affiliation

Religious affiliation is linked with differences in cultural values, indeed, in our Burkinabé sample Catholics (M = 4.3) showed a stronger attachment to Tradition, F(98, 1) = 5.3, p = .02, η² = .05, than Muslims (M = 3.9). The level of Road Libertarianism was also linked with religious orientation, with Muslims (M = 2.5) showing higher levels, F(102, 1) = 6.2, p = .01, η² = .06 than Catholics (M = 2).

It is clear that religious beliefs play an important role in guiding behaviours of Burkina Faso citizens. This result confirms previous findings in other African countries (Ngah Essomba, 2017). The following analyses thus distinguish between the Catholic and the Muslim subsamples.

Table 4 shows the correlation between the questionnaire items for the whole sample, including Catholics, Muslims and other categories of religious affiliation. Table 5 for the Catholic subsample and Table 6 for the Muslims subsample show clearly different patterns of relations between variables.
Table 4. Correlations, whole sample (n = 126).

<table>
<thead>
<tr>
<th></th>
<th>Q11</th>
<th>Q12</th>
<th>Q13</th>
<th>Q14</th>
<th>Q15</th>
<th>Q16</th>
<th>Q17</th>
<th>Q18</th>
<th>Q19</th>
<th>Q20</th>
<th>Q21</th>
<th>Q22</th>
<th>Discourtesy Park</th>
<th>Discourtesy Speed</th>
<th>Discourtesy</th>
<th>Authority Rejection</th>
<th>Conformity</th>
<th>Road Libertarianism</th>
<th>Tradition</th>
<th>Sensation Seeking</th>
<th>Destiny decides for road accidents</th>
<th>God decides for road accidents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>.01</td>
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<tr>
<td>Q11 Perceived risk of an accident</td>
<td>-.09</td>
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<td>Q12 Perceived risk: pedestrian</td>
<td>-.05</td>
<td>.05</td>
<td>.12</td>
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<td>Q13 Perceived risk: motorcycle</td>
<td>.01</td>
<td>.12</td>
<td>.22</td>
<td>-.01</td>
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<tr>
<td>Q14 Perceived risk: car</td>
<td>.22</td>
<td>.02</td>
<td>.23</td>
<td>.08</td>
<td>.24</td>
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<tr>
<td>Q15 Risk avoidance: pedestrian crossings</td>
<td>.01</td>
<td>.08</td>
<td>.10</td>
<td>.00</td>
<td>.22</td>
<td>.09</td>
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<tr>
<td>Q16 Alcohol consumption</td>
<td>.09</td>
<td>-.24</td>
<td>.13</td>
<td>.09</td>
<td>.00</td>
<td>.12</td>
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<tr>
<td>Q17 Cannabis consumption</td>
<td>.01</td>
<td>-.08</td>
<td>.02</td>
<td>.09</td>
<td>.20</td>
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<td>.41</td>
<td>.25</td>
<td>-.13</td>
<td>-.04</td>
<td>.09</td>
</tr>
</tbody>
</table>

Note: Correlations with p < .05 are marked in bold.
Table 6. Correlations, Muslim sample (n = 44).

| Gender | Q11 Perceived risk of an accident | Q12 Perceived risk: pedestrian | Q13 Perceived risk: motorcycle | Q14 Perceived risk: car | Q15 Risk avoidance: pedestrian crossings | Q16 Alcohol consumption | Q18 Drink driving last year | Q19 Drink walking last year | Q20 Complying with speed limits | Q21 Helmet wearing | Q22 Seatbelt use | Discourtesy Speed | Discourtesy Park | Discourtesy | Conformity | Tradition | Sensation Seeking | Destiny |
|--------|----------------------------------|--------------------------------|--------------------------------|------------------------|----------------------------|--------------------------------------|-------------------------|-----------------------------|-----------------------------|-----------------------------|----------------|----------------|----------------|---------------|-----------|-------------|-------------|
| -13    | -.17                             | -.05                           | -.09                           | .08                    | .04                        | -.03                                | -.15                    | -.27                        | -.242                       | .09                         | .10            | -.17          | -.17          | -.17          | -.17      | -.23          | -.20          |
| Q11    | .23                              | .06                            | .29                             | .13                    | .06                        | -.31                                | .07                     | .07                         | .26                         | .05                         | .07            | -.23          | -.23          | -.23          | -.23      | -.40          | .04           |
| Q12    |                                 |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| Q13    |                                 |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| Q14    |                                 |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| Q15    |                                 |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| Q16    |                                 |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| Q18    |                                 |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| Q19    |                                 |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| Q20    |                                 |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| Q21    |                                 |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| Q22    |                                 |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| Disc   |                                 |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| Park   |                                 |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| Discourtesy |                       |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| Conditionality |                       |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| Authority |                       |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| Rejection |                       |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| Road   |                                 |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| Libertarianism |                       |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| Conformity |                       |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| Tradition |                       |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| Sensation Seeking |                       |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| Destiny decides for road accidents |                       |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |
| God decides for road accidents |                       |                                |                                 |                        |                            |                                     |                        |                             |                             |                             |                |               |               |               |           |               |               |

Note: Correlations with p < .05 are marked in bold.
We conducted several linear regression analyses on risk perception and risk taking. As can be seen below, Muslim and Catholic participants have different patterns of risk perception and different predictors of risk-taking.

The risk perception for motorcyclists (see Table 7) is predicted by Road libertarianism and Conformity among the Catholics whereas it is predicted by Conditionality among Muslims. The part of explained variance is much higher in the Catholic group than in the Muslim group. The links between predictors and risk perception among the Catholic sample seems logical: the more one think it is important to conform to road rules the more he or she will consider that motorcyclists are at risk (because they often don’t follow the rules), on the contrary the more one tend to consider that rules are useless and that behaviors are self-regulated, the less he will tend to think that motorcyclists are at risk. In the Muslims sample we observed of positive link between Conditionality and risk perception for motorcyclists. This result is more surprising because if one thinks that risk is high, it could be expected that he or she will be keener on the strict observation of laws. It is possible that our Muslim respondents that have a conditional view on road regulation are aware that this view might increase the risk for motorcyclists but accept this increase of risk. Note that no difference was found between Catholics and Muslims regarding the frequency of PTW use, nor regarding the perceived level of risk for motorcycles which is high in both groups.

Table 7. Regression analysis on Q13, Risk perception for motorcycles, Standardized estimates.

<table>
<thead>
<tr>
<th></th>
<th>All n = 120</th>
<th>Catholics n = 57</th>
<th>Muslims n = 43</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>0,03</td>
<td>0,04</td>
<td>0,09</td>
</tr>
<tr>
<td>Gender</td>
<td>0,09</td>
<td>-0,08</td>
<td>0,23</td>
</tr>
<tr>
<td>Discourtesy Speed</td>
<td>0,03</td>
<td>0,01</td>
<td>-0,01</td>
</tr>
<tr>
<td>Discourtesy Park</td>
<td>-0,03</td>
<td>0,06</td>
<td>-0,25</td>
</tr>
<tr>
<td>Conditionality</td>
<td>0,2</td>
<td>0,18</td>
<td>0,44*</td>
</tr>
<tr>
<td>Authority Rejection</td>
<td>0,03</td>
<td>0,16</td>
<td>-0,05</td>
</tr>
<tr>
<td>Road Libertarianism</td>
<td>-0,02</td>
<td>-0,27*</td>
<td>-0,16</td>
</tr>
<tr>
<td>Conformity</td>
<td>0,27*</td>
<td>0,46***</td>
<td>-0,25</td>
</tr>
<tr>
<td>Tradition</td>
<td>0,11</td>
<td>0,22</td>
<td>0,43</td>
</tr>
<tr>
<td>AdjR²</td>
<td>0,08</td>
<td>0,31</td>
<td>0,06</td>
</tr>
</tbody>
</table>

As can be seen in Table 8, risk perception when travelling by car is predicted by different factors than risk perception when travelling by motorcycle. In the Catholics sample, Conditionality and Authority rejection are predictors of risk perception for car users. Again a positive link between Conditionality and risk perception for cars has been found. In this case, it is possible that our Catholic respondents that have a conditional view on road regulation are aware that this view might increase the risk for cars users but accept this increase of risk. Moreover, the link between Authority rejection and risk perception for cars is also positive. The more people from this group tend to reject authority, the higher risks they perceive for car users. This is somewhat counterintuitive because one could have expected that the higher the risk a person perceive, the higher the demand would be for a control of
it. One explanation could be that those people who perceive high risks, are in fact those who take risks and are aware of it, and thus reject authorities controlling their behaviors. In the Muslims sample, none of the factors included in the regression model were significantly linked with risk perception for cars. There was no difference between Catholics and Muslims regarding the perceived level of risk perception for cars. Both groups perceived a lower level of risk for cars than for motorcycles, $F(1, 90) = 103.4, p < .01, \eta^2 = .53$.

Table 8. Regression analysis on Q14, Risk perception for cars, Standardized estimates.

<table>
<thead>
<tr>
<th></th>
<th>All</th>
<th>Catholics</th>
<th>Muslims</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n = 115</td>
<td>n = 53</td>
<td>n = 42</td>
</tr>
<tr>
<td>Age</td>
<td>-0.12</td>
<td>0.03</td>
<td>-0.01</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.02</td>
<td>0.15</td>
<td>-0.09</td>
</tr>
<tr>
<td>Discourtesy Speed</td>
<td>-0.08</td>
<td>0.07</td>
<td>-0.16</td>
</tr>
<tr>
<td>Discourtesy Park</td>
<td>0.11</td>
<td>-0.02</td>
<td>-0.16</td>
</tr>
<tr>
<td>Conditionality</td>
<td>0.24*</td>
<td>0.33*</td>
<td>0.09</td>
</tr>
<tr>
<td>Authority Rejection</td>
<td>0.19</td>
<td>0.31*</td>
<td>-0.04</td>
</tr>
<tr>
<td>Road Libertarianism</td>
<td>-0.12</td>
<td>-0.21</td>
<td>-0.12</td>
</tr>
<tr>
<td>Conformity</td>
<td>0.09</td>
<td>0.07</td>
<td>-0.07</td>
</tr>
<tr>
<td>Tradition</td>
<td>-0.13</td>
<td>-0.25</td>
<td>0</td>
</tr>
<tr>
<td>AdjR²</td>
<td>0.08</td>
<td>0.25</td>
<td>-0.23</td>
</tr>
</tbody>
</table>

We conducted a regression analysis on risk avoidance as a pedestrian (see Table 9). Conformity was found to be a strong predictor of risk avoidance among the Catholics sample but not among the Muslims sample. Both groups reported a high level of risk avoidance and no difference was found between groups regarding this behaviour, however it seems like the motivations underlying it are quite different between Catholics and Muslims. Conformity is a cultural value taken from the Schwartz model. It expresses the feeling that one should follow the rules and avoid disturbing other members of the group. In both Catholics and Muslims the level of Conformity is high – it is usually the case in embedded, collectivistic cultures – but the link between Conformity and risk avoidance as a pedestrian is only found among Catholics. It means that risk avoidance among Muslims is linked to other motives than Conformity. It is possible that norms are more interiorized among Muslims than among Catholics. Another factor is linked with risk avoidance as a pedestrian among Catholics: Discourtesy Park. This could be understood as those who sometimes park their car on a pedestrian crossing know that it is not always a safe place and tend to avoid more this risk when they are walking.
A regression analysis of reported speeding have been conducted (see Table 10). However, the overall explained variance is null in both Catholics and Muslims groups. It means that none of the tested predictors were linked to this behaviour or that effects sizes are negligible. Contrary to what was observed in a previous study conducted in France (Cestac et al., 2018) using the same questions, where Conditionality and Conformity were found to be linked with speeding. We have to be cautious because the French sample was representative of French drivers whereas the present Burkinabe sample is not, but we can consider as a hypothesis to be confirmed that risk taking is culturally determined and that different factors are at play depending on the country considered.
We conducted a regression analysis on reported seatbelt use (see Table 11). Only one factor was significantly linked to seatbelt use in the Catholics subsample: Road libertarianism. The higher the level of Road libertarianism, the lower the level of seatbelt use. This effect seems quite logical given that Road libertarianism measure a tendency to prefer self-regulation of road behaviours, freedom of choice regarding decisions when driving and the desire to enjoy privileges based on the status. The effect was not significant among the Muslims subsample, however one can think that the small sample size did not allow revealing this effect in this group. It would be worth conducting a larger survey to test if this assumption is confirmed or not. Whatever, only 7% of seatbelt use variance is explained, so other factors explaining this behaviour will have to be identified in future studies.

| Table 11. Regression analysis on Q22, Risk taking: seatbelt, Standardized estimates. |
|----------------------------------|----------|----------|----------|
|                                  | All n = 115 | Catholics n = 55 | Muslims n = 41 |
| Age                              | 0.04      | -0.09     | 0.02     |
| Gender                           | 0.01      | -0.02     | 0.1      |
| Discourtesy Speed                | -0.16     | -0.11     | -0.32    |
| Discourtesy Park                 | 0.19      | 0.25      | -0.11    |
| Conditionality                   | -0.11     | -0.03     | -0.2     |
| Authority Rejection              | 0.06      | 0         | 0.12     |
| Road Libertarianism              | -0.12     | -0.33*    | -0.26    |
| Conformity                       | 0.31*     | 0.35      | -0.22    |
| Tradition                        | -0.15     | -0.11     | 0.28     |
| AdjR²                            | 0.06      | 0.07      | 0.09     |

Overall, the analyses done revealed that age and gender were not predictors of risk perception nor risky behaviours in our sample. This is surprising given that these two factors are usually strong predictors of attitudes, perceived risk and risk-taking in developed countries. Further analyses based on larger samples will have to confirm and explore this result.

Some personal and cultural values were found to be linked with risk perception and behaviours, but most of the time, the amount of explained variance was much higher among the Catholics subsample compared to the Muslims subsample. It is possible that models of risk-perception and risk-taking developed in western countries with a Catholic tradition, are better adapted to explain risk-perception and behaviours of people in Burkina-Faso with Catholic values than those with Muslim values. Again, this would have to be confirmed with larger samples.
2.2.3.3 Comparison with a French sample

Several items of the questionnaire were used in a previous study conducted in France (Cestac et al., 2018). The French study was based on a representative sample of 1021 French drivers. Data on the French sample have been collected one year before the Burkinabe sample. As can be seen in Table 12, differences were found for a majority of items. However, effects sizes are often very small. Nonetheless, for two items, effects sizes reach quite a high level ($\eta^2>.20$): perceived severity of penalties for “small” speeding (Q37) and religiosity (Q47).

It looks like French respondents are much more sensitive than Burkinabe regarding speeding penalties. This obviously reflects large differences in exposure to this kind of penalty. Indeed, speeding enforcement is much higher in France than in Burkina Faso, with a dense network of automated cameras. This could also explain that, to a lesser extent though, French drivers feel more upset than Burkinabe drivers by roadside checks by the police (Q32 and Q33) and think that speed controls are too frequent (Q34).

Burkinabe respondents report a much greater importance of religious beliefs in their lives than French respondents. This result confirms again previous ones (Ngah Essomba, 2017) showing that religious beliefs and values are strong motives underlying behaviours in African countries. In France, on the contrary, the level of religiosity is rather weak, one of the weakest of developed countries, with approximately 29% of atheists, 34% of people feeling “non-religious” and most people reporting a religious affiliation not having a regular practice of religious rituals (WIN/Gallup International, 2012).

Some other effects reach moderate sizes ($\eta^2>.05$). For example, Burkinabe drivers report higher levels of social influence (Q24) than French drivers. It is possible that the social pressure is greater in Burkina Faso than in France. Further research would be needed to explain this difference. One hypothesis that could be tested is the cultural difference regarding values and social norms. Indeed, African cultures are typically more collectivists than European ones, and other people are of utmost importance for most African people, who often have a collectivist-based self-identity called Ubuntu (Berry et al., 2012, p.125).

Many differences were found regarding personal and cultural values: If French respondents exhibited higher levels of Authority rejection and Road libertarianism than Burkinabe ones, on the opposite, Burkinabe respondents showed higher levels than French ones of Conformity and Tradition. These results are quite in line with what is known about levels of individualism and collectivism in both countries. Indeed, while Authority rejection and Road libertarianism are typically individualistic values, Conformity and Tradition are typically collectivistic ones.
<table>
<thead>
<tr>
<th>Question</th>
<th>Burkina Faso (N = 126)</th>
<th>France (N = 1021)</th>
<th>F</th>
<th>Eta²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q20. When I drive I comply with the speed limits</td>
<td>3.8 (1.4)</td>
<td>4.04 (0.92)</td>
<td>6.5*</td>
<td>0.01</td>
</tr>
<tr>
<td>Q24. I have already broken the rules on the road at the request of ...</td>
<td>2.1 (1.4)</td>
<td>1.4 (0.78)</td>
<td>68.7***</td>
<td>0.06</td>
</tr>
<tr>
<td>Q25. I sometimes park on a sidewalk or pedestrian crossing</td>
<td>2.03 (1.36)</td>
<td>1.72 (0.97)</td>
<td>9.5**</td>
<td>0.01</td>
</tr>
<tr>
<td>Q26. I sometimes park a few minutes on a reserved place</td>
<td>1.71 (1.23)</td>
<td>1.45 (0.88)</td>
<td>8.4**</td>
<td>0.01</td>
</tr>
<tr>
<td>Q27. I allow myself to exceed speed limits when I’m in a hurry</td>
<td>2.47 (1.36)</td>
<td>3.35 (1.16)</td>
<td>1.2ns</td>
<td></td>
</tr>
<tr>
<td>Q28. In some situations, it is legitimate to violate the rules of road</td>
<td>2.47 (1.59)</td>
<td>3.06 (1.19)</td>
<td>24.4***</td>
<td>0.02</td>
</tr>
<tr>
<td>Q29. I sometimes park on a sidewalk or pedestrian crossing</td>
<td>2.03 (1.36)</td>
<td>1.72 (0.97)</td>
<td>68.7***</td>
<td>0.06</td>
</tr>
<tr>
<td>Q30. It is better to drive at the same speed as the flow of vehicles</td>
<td>2.34 (1.61)</td>
<td>2.87 (1.28)</td>
<td>17.6***</td>
<td>0.02</td>
</tr>
<tr>
<td>Q31. We should have the right to cross a white line if we are behind</td>
<td>2.05 (1.44)</td>
<td>2.84 (1.41)</td>
<td>34.9***</td>
<td>0.03</td>
</tr>
<tr>
<td>Q32. When I pass near a roadside check by the police, I feel very worried</td>
<td>1.52 (0.96)</td>
<td>2.41 (1.22)</td>
<td>60.7***</td>
<td>0.05</td>
</tr>
<tr>
<td>Q33. When I pass near a roadside check by the police, I feel very annoyed</td>
<td>1.52 (0.93)</td>
<td>2.38 (1.22)</td>
<td>54.9***</td>
<td>0.05</td>
</tr>
<tr>
<td>Q34. Speed controls are too frequent</td>
<td>1.85 (1.18)</td>
<td>3.1 (1.47)</td>
<td>123.1***</td>
<td>0.10</td>
</tr>
<tr>
<td>Q36. The penalties for crossing a red light are too severe</td>
<td>2.5 (1.5)</td>
<td>3.23 (1.15)</td>
<td>41.6***</td>
<td>0.04</td>
</tr>
<tr>
<td>Q37. The penalties for speeding less than 20km/h are too severe</td>
<td>1.89 (1.17)</td>
<td>3.82 (1.02)</td>
<td>34.1***</td>
<td>0.05</td>
</tr>
<tr>
<td>Q38. The penalties for speeding more than 50km/h are too severe</td>
<td>2.22 (1.34)</td>
<td>2.72 (1.24)</td>
<td>16.2***</td>
<td>0.01</td>
</tr>
<tr>
<td>Q40. It is important for me to be polite to other people all the time</td>
<td>4.43 (1.13)</td>
<td>4.54 (0.74)</td>
<td>1.2ns</td>
<td></td>
</tr>
<tr>
<td>Q41. I believe that people should do what they're told</td>
<td>4.45 (1.17)</td>
<td>3.66 (1.07)</td>
<td>58.5***</td>
<td>0.05</td>
</tr>
<tr>
<td>Q42. It is important for me to be obedient</td>
<td>4.65 (1.03)</td>
<td>3.52 (1.07)</td>
<td>124.3***</td>
<td>0.10</td>
</tr>
<tr>
<td>Q43. It is important for me always to behave properly</td>
<td>4.56 (1.04)</td>
<td>3.99 (0.9)</td>
<td>42.9***</td>
<td>0.04</td>
</tr>
<tr>
<td>Q44. I believe it is best to do things in traditional ways</td>
<td>3.96 (1.39)</td>
<td>3.57 (1.09)</td>
<td>12.8***</td>
<td>0.01</td>
</tr>
<tr>
<td>Q45. I think it's important not to ask for more than what you have</td>
<td>3.65 (1.57)</td>
<td>3.33 (1.22)</td>
<td>6.9**</td>
<td>0.01</td>
</tr>
<tr>
<td>Q46. It is important for me to be humble and modest</td>
<td>4.47 (1.1)</td>
<td>3.86 (1.03)</td>
<td>38.3***</td>
<td>0.03</td>
</tr>
<tr>
<td>Q47. Religious beliefs are important to me</td>
<td>4.27 (1.19)</td>
<td>2.07 (1.3)</td>
<td>323.2***</td>
<td>0.22</td>
</tr>
<tr>
<td>Q48. I would like to explore strange places</td>
<td>3.16 (1.71)</td>
<td>3.01 (1.38)</td>
<td>1.2ns</td>
<td></td>
</tr>
<tr>
<td>Q49. I like to do frightening things</td>
<td>1.69 (1.28)</td>
<td>1.92 (1.06)</td>
<td>5*</td>
<td>0.00</td>
</tr>
<tr>
<td>Q50. I like new and exciting experiences, even if I have to break the rules</td>
<td>1.73 (1.31)</td>
<td>2.21 (1.14)</td>
<td>18.5***</td>
<td>0.02</td>
</tr>
<tr>
<td>Q51. I prefer friends who are exciting and unpredictable</td>
<td>1.57 (1.17)</td>
<td>2.46 (1.15)</td>
<td>66.1***</td>
<td>0.05</td>
</tr>
<tr>
<td>Conditionality</td>
<td>2.34 (0.91)</td>
<td>2.63 (0.75)</td>
<td>15.1***</td>
<td>0.02</td>
</tr>
<tr>
<td>Authority rejection</td>
<td>1.87 (0.82)</td>
<td>2.5 (0.77)</td>
<td>74***</td>
<td>0.06</td>
</tr>
<tr>
<td>Road libertarianism</td>
<td>2.27 (1.09)</td>
<td>3.09 (0.7)</td>
<td>134***</td>
<td>0.05</td>
</tr>
<tr>
<td>Conformity</td>
<td>4.54 (0.92)</td>
<td>3.93 (0.74)</td>
<td>71.3***</td>
<td>0.06</td>
</tr>
<tr>
<td>Tradition</td>
<td>4.12 (1)</td>
<td>3.21 (0.8)</td>
<td>130.4***</td>
<td>0.10</td>
</tr>
<tr>
<td>Sensation Seeking</td>
<td>2.06 (0.95)</td>
<td>2.4 (0.93)</td>
<td>14.5***</td>
<td>0.01</td>
</tr>
</tbody>
</table>

Note: * = p<.05, ** = p<.01, *** = p<.001, ns = non significant
3 Discussion and recommendations

From this work on five countries (Burkina Faso, Cameroon, Ghana, Kenya and Tunisia), some major stakes for traffic safety in Africa were identified. The first priority should be to increase the safety of vulnerable road users. More specifically, the powered two wheelers who are often overloaded, whose drivers are often not holding appropriate driving licenses and not wearing helmets, and pedestrians that are often lacking appropriate infrastructures (sideways and pedestrian crossings). It has emerged from the interviews and from the pilot survey that there is a lack of awareness about road safety in the populations. Moreover, the level respect of the law is quite low and partially linked in the central African countries with bribery. The distrust of the populations towards police forces may be aggravated by more general political events, as with the 2015 coup d'état attempt in Burkina Faso. More generally, traffic safety is often in African countries under the pressure of political challenges.

There are differences between countries, related to cultural factors and to the traffic safety political and social agenda, but also within a given country (for example, in Cameroon between the South and the North). These differences should be taken into account when designing road safety measures in order to maximize their efficiency they should be adapted to the local cultural values.

As in Europe, religion is an important part of safety cultures: northern European countries are protestant and Protestantism has produced much stricter regulations of alcohol use, of traffic violations controls (and hence much better traffic safety records) than in Southern European countries which are catholic. Here, in Burkina Faso, where the main cleavage is between Catholics and Muslims we have seen how religion is linked to differences in risk perception: there is a stronger attachment to tradition among Catholics, whereas road libertarianism is more important among Muslims. Furthermore, correlations may be different: risk perception for motorcyclists is predicted by road libertarianism and conformity among the Catholics whereas is it predicted by conditionality among Muslims. On the contrary, risk perception for car drivers is predicted by conditionality among the Catholics. Social acceptability of risk is so under the influence of the religious affiliation. Previous works (Ngah Essomba, 2017) already demonstrated the importance of religious beliefs and religiosity as guidance for road safety behaviors in Africa. It would thus be a wise approach to cooperate with local religious authorities in the perspective of road safety.

Based on the results from both the interviews and the questionnaire survey, we would recommend:

1. To impulse more communication and education about traffic safety in order to raise awareness and to improve knowledge, in particular for pedestrians.
2. To increase the funding of NGO’s working in the fields of education and prevention.
3. To increase the frequency of police checks. As in the rest of the world, it is not as much the traffic laws which are important, but the enforcement of these laws and the perceived probability of getting caught when violating road regulations.
4. To reinforce the combat against bribery, to set traffic safety more independent of political and of business pressures.
5. To develop and improve the road infrastructures for vulnerable road users and create more segregations of traffics.
6. To change land use planning and mobility in order to decrease risk exposure (distances and durations).
7. To improve the coordination between these actions of the five pillars, in order not to have isolated and punctual actions. For example, it is very important to back up enforcement with advocacy and education, so that people understand better the reasons behind the laws and road safety measures.

8. To take into account regional differences inside a country.

The results from the present pilot survey have to be taken with caution because of the small size of the sample used. Future studies will have to confirm the findings summarized in the present report and to extend it to more countries. Hopefully, the tools developed within this task of the Safer Africa project will be useful for these future works. Several ideas, hypotheses and guidelines emerged from this first step and can already help to make decisions about road safety policies in African countries.

Methodological limitations also need to be underlined. Populations living in a given African country can be very diverse. For example in Burkina-Faso, more than 60 distinct ethnic groups exist within the population. Differences between urban and rural populations are huge and so is the road safety problematic. This raises the question of unicity of culture within some African countries, and the feasibility and relevance of large national surveys. Finally, while conducting this work, we occasionally faced reluctance to cooperate from local authorities. This was expressed either by refusal to answer questions, request for payment to answer questions or social desirability bias (lies) in answering question. This also will need to be taken into account when considering the possibility of launching this kind of studies in the future.
4 References


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Museum, Cambridge, MA.


5 List of Abbreviations

ACEM: Association des Constructeurs Européens de Motocycles
BAC: Blood Alcohol Content
BSSS: Brief Sensation Seeking Scale
CFA: Confirmatory Factor Analysis
ERSO: European Road Safety Observatory
GDP: Gross Domestic Product
GNP: Gross National Product
NGO: Non-Governmental Organization
PTW: Powered Two-Wheelers
WHO: World Health Organization
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8 Appendices

8.1 Interviews guidelines

Road safety and culture
- To your knowledge, what are your country specificities regarding road risk compared with other countries?
- In your opinion, what are the local characteristics of your country and its population that may explain the risk taking of certain transport users?
- In your opinion, what factors distinguish your country from the best performing countries in road safety?

Road safety measures
- Do you know if some road safety measures have been effective in your country?
- In contrast, have you noticed the ineffectiveness of certain measures?
- Have you noticed resistance to certain road safety measures? Do you think that certain measures are more difficult to accept than others by users? Which ones?
- In your experience, what are the priority measures to be taken to improve the level of road safety in your country?
- Do you think that there is a high demand from the population to improve road safety in your country?

Mobility
- In terms of mobility, what are the most commonly used transport modes? Can you estimate the proportion of each type of road user?
- Do you have an idea about the proportion of users who have access to an individual mode of transport?
- What assessment of the public transport network in your country would you make?

Behaviors / offenses
- In your opinion, which road users' behaviors should be improved in your country as a matter of priority?
- To your knowledge, which road traffic offenses are most common in your country?
- Within your country, are there differences between certain population groups (e.g. urban / rural, children / adults, pedestrians / motorcycles, men / women) regarding road behaviors?
- Do you have any idea about the alcohol and drugs consumption practices in your country? What consequences do you think these practices may have on road hazards in your country?

**Control/penalties**

- Do you think the laws in your country are well adapted to the situation? Are they severe?
- Are the penalties for road traffic offenses really enforced by police forces?
- Would you say that in your countries certain categories of people have privileges regarding compliance with traffic laws?

**Road Safety Education**

- In your opinion, what is the quality of road safety education for children in your country? Can you estimate the proportion of young adults (18 years) who received road safety education during their schooling? How do you deal with young people that are not in school?
- How can road safety education could be improved?
- In your opinion, is it usual for parents to educate their children about road dangers?
- In your country, do the media regularly broadcast road safety messages?

**Road Risk**

- Do you consider that travelling in your country is dangerous? Why?
- In your opinion, are the official accident statistics in your country reliable? Do you know how these statistics are produced? Is it possible that some accidents are underestimated / overestimated? If so, for what reasons?
- Could you provide an estimate of the number of road fatalities in your country last year? Can you estimate the proportion specific to each category of user (pedestrians, cyclists, motorcyclists, car drivers, mini buses, etc.)? Can you estimate the proportion specific to each type of offense or driving situation (drinking and driving, drug driving, speeding, fatigue, distraction, etc.)?
8.2 Interviews verbatim samples
Ghana

Road safety and culture

- To your knowledge, what are your country specificities regarding road risk compared with other countries?
- In your opinion, what are the local characteristics of your country and its population that may explain the risk taking of certain transport users?
- In your opinion, what factors distinguish your country from the best performing countries in road safety?

Concerning road safety and culture, the answers of the two respondents from Ghana underline the specificity of road users’ profiles and road infrastructures. As other particular characteristics, MQ underlined the problem of road users’ behaviors and ES raised the issue of political priority regarding road safety:

Road users profiles: In Ghana, most of the people walk or take the (mini)busses (MQ and ES). As a consequence, in Ghana, as well as in Côte d’Ivoire, pedestrians make up the majority of road fatalities, while Benin and Togo are motorcyclists (40%) (MQ).

According to the statistics, men are more victims of the road. It is a question of gender socialization: males have always to move, they are very active and have to go to work for the family, there are always on the road. Males also take more risks as they are always in a rush and try to take advantage from the situation (ES).

Road infrastructures: The road infrastructures in Ghana is particularly problematic. One of the main issues concerns the design of the national highways of the country which do not respect the criteria for safety. For example, there is no formal entrance and exit on the highway and drivers can come in and out whenever they want (MQ).

In most urban and rural areas, there is no specific pedestrian/car zones (mixed zones), no road marking, no pedestrian crosswalk which increase the risk for pedestrians-vehicles accidents (MQ and ES).

Another characteristic is related to the nature of the road. In Ghana there are wider roads, which, in the literature, has been well associated to risk taking. When the road is smaller, people are more careful (ES).

Concerning local characteristics, one of the country's challenges is land-use planning and distances between places of residence and places of work, commerce, health care, etc. The longer is the distances to travel, the higher is the risk of accidents. Road safety issues cannot be considered without raising the question of how land use planning can be developed to reduce the likelihood of accidents (MQ).

Road-related behaviors: The problematic behaviors of road users in Ghana can be explained by (1) the lack of knowledge, (2) the lack of enforcement of road safety policies, (3) the lack of appropriate road infrastructures (as stated above). Indeed, as there is no pedestrian crosswalk, people tend to cross anywhere and anyhow which cause accidents in the city but also on motorways (MQ and ES).
Other behavioral problems are recently the use of phone while driving, not wearing seatbelts, motorcyclists who don’t wear helmets, etc. Many trucks are also left behind along the roads if they break down which increases the risk of accidents (MQ).

**Road safety policy priority:** Reducing the number of road-related fatalities is one of the political priority among all European countries which is not really the case in Ghana. Even if the government is aware of the challenges in road safety, the current resources are too limited and there are other political priorities. The political interventions are then more reactive than proactive. An illustration of that was given two weeks before the interview of ES, when a politician died on the road and there was a regain of interest regarding road safety (ES).

**Road safety measures**
- Do you know if some road safety measures have been effective in your country?
- In contrast, have you noticed the ineffectiveness of certain measures?
- Have you noticed resistance to certain road safety measures? Do you think that certain measures are more difficult to accept than others by users? Which ones?
- In your experience, what are the priority measures to be taken to improve the level of road safety in your country?
- Do you think that there is a high demand from the population to improve road safety in your country?

In terms of road safety measures, the respondents raised two kinds of measures: legal/enforcement interventions and awareness-raising interventions.

**Legal/enforcement interventions:** MQ and ES both agree that there is an urgent need to enforce driving rules, strengthening police controls to reduce the feeling of impunity of road users. Regarding enforcement interventions, ES underlined that things have already improved, particularly as regards to the acquisition of a driving license. Ghanaians have now to attend road safety courses and to go through several theoretical and practical tests to get their driving license. It can be expected that this will have an impact on road safety and the number of accidents (ES). Another successful intervention concerns drink driving, in particular for the public transport drivers of busses. The officials go to the terminals and test the drivers. If there are above the limit, they will not be allowed to drive. This kind of interventions is mainly carried on at Christmas or Easter, when a lot of people drink. And it is a good way to protect the travelers (ES).

**Awareness-raising interventions:** There are campaigns and road safety measures (e.g., for drink-driving, seatbelt use), but they seem not sufficient. These campaigns generally target people who drive their own cars and are mostly placed in public transport. Few people are really concerned by these campaigns because few have a personal car (MQ).

Ghanaians may also appear resistant with regards to some road safety measures. According to MQ, road users are generally unaware of safety rules, and even when they know them, they seem reluctant to follow them! For example, as they approach police checks, many taxmen hang their seatbelts and unhook them once they have passed the check! The reason for this resistance to safety standards remains unknown. It seems that people do not want to follow these rules. Another resistance raised by ES concerns the public transport drivers who do not always agree to follow a formal driving education.

As a consequence, the road safety priorities should be:
- The speed management, especially for busses and mini-busses (ES);
• Seatbelt and helmet use because it should also have an impact on road fatalities number (ES);
• Improve road structures and separate the pedestrians from the cars as a lot of pedestrians are killed every year (MQ and ES);
• Vehicles regulation: vehicles more than 10 years cannot enter into the country, but this law is not really applied. There is a need to regulate which vehicles should be and which one should not be on the road (ES);
• Strengthening police controls in order to enforce driving rules and reduce the feeling of impunity of road users (MQ).

Concerning the population demand regarding road safety, MQ reports that most Ghanaians are not aware of road safety importance. However, ES claims that there is actually a high demand. It could be that, when the number of road fatalities is high, people become agitated and ask for new public transports, like trains or trams. May be the introduction of new public transports could decrease the number of accidents related to busses and mini-busses.

**Mobility**

- In terms of mobility, what are the most commonly used transport modes? Can you estimate the proportion of each type of road user?
- Do you have an idea about the proportion of users who have access to an individual mode of transport?
- What assessment of the public transport network in your country would you make?

In cities, public transport such as busses, mini-busses and shared taxis are used by 80% of the population. 13% of the population has a private car and less than 10% a motorcycle. Thus, about 20% of the population has a private means of transport.

MQ assessed the public transports as 4/10 and ES as 5/10. According to ES, there is a need to improve the standards and the regulation of public transports. Most of them do not reach the basic standards (ES). Busses also operate according to the "Full and go" principle: they only start from the terminal if they are full. Therefore, there is no bus schedule. And since the bus starts full, if a person has to go up in the middle of the journey and no one has left, he/she will not be able to sit down (MQ).

**Behaviors / offenses**

- In your opinion, which road users’ behaviors should be improved in your country as a matter of priority?
- To your knowledge, which road traffic offenses are most common in your country?
- Within your country, are there differences between certain population groups (eg. urban / rural, children / adults, pedestrians / motorcycles, men / women) regarding road behaviors?
- Do you have any idea about the alcohol and drugs consumption practices in your country? What consequences do you think these practices may have on road hazards in your country?

According to MQ and ES, the behaviors that should be improved in priority are:
• Education of public transport drivers should be a priority. Some of them do not know the rules of the road and the meaning of road signs, which is very dangerous! (MQ)
• The respect of the speed limit (ES);
• Education of pedestrians who do not pay attention and cross the road anywhere in any way. However, this change in behavior goes hand in hand with better road design. Pedestrians may be required to cross at crosswalks, but if there are no crossings, they will do as they please (MQ and ES).

The most common offences are:
• exceeding speed limits (MQ and ES);
• pedestrians crossing the road (ES);
• passing the red light (MQ);
• driving on the sidewalks (MQ);
• drink driving (MQ).

Motorcyclists in particular do not pay any attention to the rules of the road and tend to ride anywhere. Women are generally more careful than men. Males are more at risk because of the way they use the road. In the statistics, we can also see that there are more severe accidents on the rural roads compared to the urban ones. The nature and the road environment could influence the way people use the road (ES). Children appear to be particularly vulnerable to traffic (MQ).

Control/penalties
• Do you think the laws in your country are well adapted to the situation? Are they severe?
• Are the penalties for road traffic offenses really enforced by police forces?
• Would you say that in your countries certain categories of people have privileges regarding compliance with traffic laws?

MQ and ES both reported that the driving laws are not severe and not well enforced by the police. There are many briberies. The law cannot be too severe, because the drivers and the policemen find a way to go out of the situation. The penalties were reduced at a minimal level by the politicians to gain popularities among the drivers population. There are a lot of political challenges behind the laws implementation.

Policemen and politicians are privileged people on the road. Whatever the situation of the road is, when a politician comes, everyone has to adapt for the passage of the convoy. There is also a law impunity because they are powerful. People driving large cars also enjoy privileges over the police.

Road Safety Education
• In your opinion, what is the quality of road safety education for children in your country? Can you estimate the proportion of young adults (18 years) who received road safety education during their schooling? How do you deal with young people that are not in school?
• How can road safety education be improved?
• In your opinion, is it usual for parents to educate their children about road dangers?
• In your country, do the media regularly broadcast road safety messages?

Road safety education in schools mainly depends on the teacher knowledge and awareness. Both ES and MQ reported that there is no national education program for road safety at school and road safety education is not a part of the school educational program, so it is difficult to estimate which
percentage of children have received road safety education in schools. There may be occasional special educational interventions, but this is not systematic. ES suggested that teachers should be trained to educate the children regarding road safety.

Some parents explain the dangers of the road to their children and are also careful when driving them to school. All the parents want their children to be safe, but they are not all aware of the danger of traffic! Moreover, it appears that parents' behavior is rarely exemplary! For example, when they are late for school or work, many parents don't pay attention and start driving on the sidewalk and passing red lights to get there on time (MQ). The question is then: what do the parents know? Are they aware and, if yes, how do they talk to their children about that? It is a question about safety culture (ES).

Every year, road safety campaigns reminding people of the main principles (use of seat belts, adherence to speed limits, etc.) are carried out on the occasion of Christmas and Easter (MQ and ES). According to MQ, much more still needs to be done. Media also communicate about road safety, in particular when there is a dramatic accident with severe consequences, like when a prime minister was involved in an accident (ES).

**Road Risk**

- Do you consider that travelling in your country is dangerous? Why?
- In your opinion, are the official accident statistics in your country reliable? Do you know how these statistics are produced? Is it possible that some accidents are underestimated/overestimated? If so, for what reasons?
- Could you provide an estimate of the number of road fatalities in your country last year? Can you estimate the proportion specific to each category of user (pedestrians, cyclists, motorcyclists, car drivers, mini buses, etc.)? Can you estimate the proportion specific to each type of offense or driving situation (drinking and driving, drug driving, speeding, fatigue, distraction, etc.)?

MQ estimated that travelling around Ghana is very dangerous because people don't respect the road regulations: pedestrians cross everywhere, all the time. Cars sometimes drive back and forth on the highway. Many of the cars on the road are cars that have had an accident and have been downgraded in European countries. Some people in Ghana decide to buy and drive these cars because they are cheap, but the resulting fines don't leave them much money.

The opinion of ES is more moderate. From the facts and considering the fatalities, he said that traveling in Ghana is somewhat dangerous. The frequency and the consequences of the accidents are generally more severe compared to other countries.

When an accident occurs, the motor traffic policemen are notified and go to the scene to gather a series of information about the accident (measurement and interview of the witnesses). Each year, the traffic safety center visits each police center to collect this data and summarize it. However, it is believed that many accidents are not reported by Ghanaians who wish to avoid sanctions. It is more than likely that this number of accidents is underestimated (MQ), but there is a need to trust this data to move policies forward and hope for improvements (ES).

It is estimated that more than 2,000 of people died in 2017 in a road accident (ES). In 2016, the number of deaths following a road accident is estimated at more than 2,800 people, including: 40% pedestrians, 20.9% motorcycle drivers, 17% bus users, 10.3% car users and 6.8% car drivers. The estimated causes are alcohol consumption in 10% of cases and speeding in 50% of cases (MQ and ES). Many accidents are also caused by the behavior of pedestrians crossing the road without paying attention.
Burkina Faso

Il s'agit d'une interview faite avec un expert en sécurité routière situé au Burkina Faso.

Sécurité routière et culture

Pourriez-vous me parler de la sécurité routière au Burkina Faso ?

Depuis plusieurs années, le risque routier a été quand même accentué ; ceci est lié à la position géographique du pays on est au cœur de l'Afrique de l'Ouest, de nombreux véhicules transi

Il s'agit plutôt de transport de marchandises alors ?

Transport de marchandises et également de personnes.

D'accord et ce transport de personnes est effectué par quel moyen ?

Le transport de personnes est effectué dans des véhicules affectés au transport de marchandises. Les camions prennent des passagers en plus de leur fret. C'est pour ça qu'en cas d'accident il y a beaucoup de victimes. Cette pratique aggrave beaucoup les accidents sur les trajets interurbains.

En ce qui concerne les comportements des usagers de la route y a-t-il des spécificités des usagers burkinabés ?

Oui. Au niveau des transports en commun les conducteurs de la plupart des compagnies de transport ne respectent pas les limitations de vitesse imposées. Les routes nationales sont des routes à double sens non séparées par un terre-plein central. La limitation est fixée à 90 km heure. Mais nous avons réalisé des enquêtes et également des résultats de certaines opérations de contrôle routier auxquelles on a pu accéder montrent que la moyenne et autour de 120 km heure avec certaines compagnies qui atteignent même les 130 à 140 km/h. Les véhicules de transport en commun peuvent transporter jusqu'à 60 personnes alors qu'ils n'ont que 10 places. En cas d'accident les conséquences sont donc très importantes.

Y a t-il des éléments culturels qui permettraient d'expliquer ces excès de vitesse ?

J'ai encadré un élève commissaire qui a travaillé ici sur les raisons des excès de vitesse, et il ressort qu'il y a des primes au voyage qui sont instaurées par certaines compagnies de transport. Et donc ça fait que, autant de voyages que tu fais tu as autant de prime, et ça incite certains chauffeurs qui veulent avoir beaucoup de primes à s'adonner à de telles vitesses. Par ailleurs, généralement les sociétés calculent pour telle distance c'est telle quantité d'essence qui doit être mise. Mais quand le réservoir se retrouve à moitié plein le chauffeur avec le convoyeur cherché à faire le plein en cours de route donc ils font des arrêts à des endroits non autorisés et ils sont obligés de rattraper ce retard.
Qu’est-ce qui distingue le Burkina Faso d’autres pays qui réussissent mieux en matière de sécurité routière ?

J’ai constaté un manque de civisme qui s’est accentué au cours des dernières années. Ceci constitue un problème, en effet la plupart des comportements à risques sont réglementés mais les textes ne sont pas appliqués. Les contrôles ne sont pas effectifs. La grande différence ici qui fait qu’on ne peut pas être au même niveau d’amélioration de la sécurité routière que les pays cités en exemple, c’est le fait que les textes ne sont pas appliquées, les contrôles ne sont pas effectifs, pendant que de l’autre côté les comportements des usagers sont devenus très inciviques en circulation.

Dans ce que vous dites je comprends que c’est quelque chose qui a évolué c’est-à-dire que le manque de civisme a augmenté par rapport à une situation précédente où les gens avaient des comportements plus civiques est-ce que c’est correct ?

Oui c’est correct. En mars 2006, le gouvernement au regard des plaintes et des racketts de la part des agents chargés des contrôles routiers policiers et gendarmes le gouvernement avait procédé à la suspension des contrôles routiers. Donc ça a permis de fluidifier le trafic et de faciliter le transport mais l’autre revers de la médaille ça a donné malheureusement naissance à toutes sortes de comportements dans la circulation. Donc quand les contrôles ont repris le phénomène s’est tellement dégradé que vraiment ça devient difficile et par moments les gens ne respectent même pas l’autorité. Voilà donc cette situation qui est présente et quand les 3 dernières années il y a eu une insurrection ça a donné lieu a du laisser-aller les gens se sont cru tout permis.

En quelle année ont repris les contrôles ?

Les contrôles routiers ont repris à la faveur de la grande criminalité qui a recommencé ça c’est à peu près 2010-2011. La reprise était conditionnée par l’élaboration d’un plan de contrôles routiers avec la mise en place d’une structure de coordination des contrôles routiers. Mais comme il y avait la délinquance routière qui était devenu très accentué on a permis que les policiers et les gendarmes reprennent les contrôles routiers en marge des contrôles de sécurité publique.

Donc si je résume cela veut dire que pendant 2 à 3 ans il n’y avait plus de contrôle routier ?

Entre 2006 et 2010. À part les contrôles aux frontières.

Les mesures de sécurité routière

Maintenant nous allons parler des mesures de sécurité routière. Avez-vous connaissance de mesures qui ont été efficace au Burkina Faso ?

Oui. Un moment donné il y a eu des améliorations concernant le port du casque. Des sorties de classe en été organisées par la direction de la sécurité routière au niveau des établissements secondaires de la ville de Ouagadougou pour des élèves âgés de 13 à 18 ans. À la faveur de ces participations toutes sortes de conférences étaient organisées dans les établissements. Au fur et à mesure que les sorties se suivaient, il rendait compte de l’augmentation du taux de port du casque dans ces établissements-là qui est monté à 40 %. Mais malheureusement quand il s’est agi pour l’autorité publique de procéder à l’application de la mesure du port obligatoire du casque en l’accompagnant par des contrôles routiers, la population s’est opposée à cette mesure, et les élèves depuis lors ont abandonné le port du casque.
Une seconde mesure qui a eu un peu de succès aussi c'est les contrôles de la charge des véhicules de transport routiers.

Il y avait un constat de charge très accentuée des véhicules de transport de marchandises sur le territoire burkinabé. Des infrastructures qui étaient conçues pour durer 15 ans étaient fortement dégradées en à peine 3 ou 4 ans. Le gouvernement a fait adopter un plan d'action prioritaire pour contrôler cette surcharge à partir de 2010. En mars 2010 nous étions à peu près à 60 % de taux de surcharge, ce taux est descendu à 36 % en décembre de la même année. Cela a donc été un très grand succès, néanmoins après quelques années un système de négociation entre les gendarmes et les chauffeurs s'est installé.

**Quelle est la conséquence de la circulation de véhicules surchargés sur la sécurité routière ?**

Quand les véhicules sont surchargés les distances de freinage ne sont plus les mêmes et certains chauffeurs ne maîtrisent pas ce mécanisme là et sous-estiment la distance d'arrêt. De plus cela dégrade l'état du véhicule. En 2014, l'âge moyen des véhicules de transport de marchandises se situait autour de 17 ans. Quand un véhicule est très âgé, certains chauffeurs ne font pas la visite technique, ce qui accentue le risque de panne. Enfin les routes dégradées provoquent des accidents, car les conducteurs font des écarts pour rouler sur les portions non dégradées.

**À l'inverse avez-vous connaissance d'actions qui n'ont pas été efficaces ?**

Oui, il y a l'exemple de l'interdiction des transports mixtes (marchandises et personnes) qui n'est pas suivie par les usagers. Certains camions de marchandise peuvent transporter jusqu'à 30 personnes en plus de leur chargement, ce qui a des conséquences dramatiques en cas d'accident. Donc cette mesure-ci n'a pas marché. Il y a eu un autre "échec" concernant la régulation de la vitesse. Le gouvernement a adopté un décret en 2010 qui autorise la construction de ralentisseurs de type dos-d'âne. Ces ralentisseurs ont effectivement en effet localisé et oblige les conducteurs à ralentir, néanmoins il a été constaté que les transporteurs avaient tendance à pratiquer de grands excès de vitesse pour rattraper le retard occasionné par ces dos d'âne. Il est donc envisagé d'installer des limiteurs de vitesse dans les camions, mais cette mesure est à la traîne.

Il y a une autre difficulté concernant le contrôle de l'usage du téléphone mobile au volant. Les conducteurs contestent leur infraction, et cela demande une procédure auprès de la société de téléphonie mobile afin de vérifier si la personne est effectivement en train de téléphoner à la minute concernée. Il faudrait que les forces de l'ordre puissent disposer de radars suffisamment performants pour pouvoir enregistrer l'image du conducteur en infraction.

**Y a-t-il des résistances au sein de la population concernant certaines mesures de sécurité routière ?**

Oui il y a eu une résistance forte concernant le port du casque en 2006.

**Mais qu'est-ce qui explique cette résistance au port du casque ?**

Le ministère des Transports était chargé de la sensibilisation mais le ministère de la Sécurité Intérieure a publié un communiqué avec un ultimatum de 3 mois pour se mettre en conformité avec la loi sur le casque. Il n'y a pas eu de concertation entre les départements ministériels concernant la période choisie. C'était la période de la rentrée des classes et les parents devaient déjà s'acquitter d'une nouvelle taxe concernant les frais de scolarité. De plus, suite à cette annonce, le prix des casques est passé du simple au triple voire quadruple. Enfin de fausses informations ont circulé : Des voix ont
propagé un message comme quoi une autorité politique avait commandé des containers de casques et avait instauré la loi afin de pouvoir les écouter sur le marché burkinabé. Quand cette nouvelle s'est répandue, automatiquement les gens qui étaient déjà énervés par rapport à la mesure parce qu'il y avait trop de dépenses ont profité de cette intoxication médiatique pour déposer un recours.

**Quelle est la proportion de conducteurs de deux-roues motorisés au Burkina Faso ?**

Si on ne compte que les véhicules dont la cylindrée est supérieure à 50cc qui sont soumis à immatriculation, cela représente 85 % des véhicules immatriculés.

**Avez-vous une idée de la proportion des ménages qui disposent d'un moyen de transport ?**

C'est difficile à dire, mais la plupart des familles disposent d'un véhicule.

**Pour revenir sur le port du casque, avez-vous des différences entre les usagers ?**

Le port du casque est peu répandu. Quand il y en a un c'est généralement le conducteur qui le porte mais pas les passagers.

**Avez-vous observé une surcharge des motos ?**

Oui c'est très fréquent, surtout pour les parents qui viennent déposer leurs enfants à l'école. J'ai déjà vu des motos avec 3 enfants en plus du conducteur.

**D'après votre expérience, quelles seraient les mesures prioritaires à prendre pour améliorer le niveau de sécurité routière de votre pays ?**

La priorité serait le renforcement des contrôles routiers. Pour tous les comportements à risque il y a des textes qui ont été adoptés, il s'agit donc de les faire respecter. On pourrait par exemple commencer par le faire pendant 1 mois sans verbaliser, afin que les bonnes habitudes se développent et ensuite commencer à verbaliser. Une autre mesure importante serait de séparer les usagers. Il y a très peu de trottoirs et quasiment pas de piste cyclable, ce qui fait que tout le monde se retrouve sur la chaussée. Il faudrait donc procéder à des aménagements pour les séparer afin de diminuer le risque.

**Pourquoi les contrôles ne sont-ils pas appliqués aujourd'hui ?**

Depuis les trois dernières années nous sommes dans une situation où les populations ont tendance à manifester pour obtenir des choses. Le gouvernement est parfois contraint de suspendre certaines mesures courageuses.

**Qu'en est-il de la communication autour de ces mesures ?**

Effectivement il faudrait une stratégie de communication concernant l'importance des contrôles routiers. Un plan de communication a été établi en 2016 mais n'a pas obtenu les moyens nécessaires pour sa mise en place. Quand on veut communiquer il faut inviter la presse et cela coûte cher.

**Y-a-t-il une forte demande de la population pour une amélioration de la sécurité routière ?**

Oui je pense qu'il y a une attente forte. À la suite de la conférence de sécurité routière que nous avons organisée nous avons eu des retours de la population qui demandait une meilleure application des règles de sécurité routière. En plus de cela il y a beaucoup d'émissions de radio qui sont interactives, quand vous écoutez ces émissions tout le monde parle de l'incivisme dans la circulation routière.
Y a-t-il système de transport en commun efficace au Burkina Faso ?

Il y a une société de transport en commun dans la ville de Ouagadougou mais son impact est faible car le parc de véhicule dont elle dispose est très réduit avec seulement une vingtaine de bus à sa disposition. De plus ils ne disposent pas d'une voie dédiée et doivent partager la chaussée avec les autres véhicules, les retards pris en raison des embouteillages sont considérables c'est pourquoi chacun préfère disposer d'un moyen de transport individuel. Concernant les déplacements interurbains, plusieurs systèmes cohabitent. Nous avons suffisamment de sociétés de transport, certaines sont bien structurées et régulières mais il existe aussi un système de minibus artisanal et un peu anarchique.

Et concernant le rail ?

Il y a un train de voyageurs mais il ne propose plus que deux départs par semaine depuis que l'État a abandonné l'exploitation de la ligne et l'a rétrocédée à un fond privé.

Comportements des usagers

Selon vous, quels comportements des usagers des transports de votre pays faudrait-il améliorer en priorité ?

En priorité il faudrait améliorer le respect des règles de la circulation. Par exemple quand ils arrivent au niveau d'un carrefour ils ne respectent pas la signalisation routière : panneau stop, feu rouge.

Quand on anime des débats, les gens disent qu'on n'a pas besoin d'aller à l'auto-école pour apprendre qu'il faut s'arrêter au feu rouge. Donc beaucoup connaissent les règles de circulation mais ne les respectent pas. C'est seulement quand le policier est là où quand le carrefour est encombré qu'ils sont obligés de respecter.

Et au niveau des piétons ?

Oui il y a des comportements risqués. C'est vrai que les passages piétons ne sont pas assez nombreux, mais même quand le passage piéton existe il est fréquent d'observer des piétons qui traversent la route à seulement 10 mètres du passage. Il y a aussi des problèmes concernant la façon de traverser, parfois la traversée est faite de manière très nonchalante ou à l'inverse en courant. Il y a beaucoup de négligences et d'imprudences. Les piétons peuvent théoriquement être sanctionnés d'une amende de 1000 francs CFA.

Est-ce que ces amendes sont souvent appliquées ?

Non ce n'est jamais appliqué.

Est-il fréquent que des piétons marchent le long des grandes artères routières ?

Oui c'est fréquent. Le piéton est le grand oublié dans l'aménagement des voies routières au Burkina Faso. Il n'y a pas de trottoir, il y a quelques accotements mais les véhicules stationnent souvent dessus, les piétons ont vraiment du mal à se déplacer. Il faudrait développer davantage les trottoirs.
A l’intérieur de votre pays, y-a-t-il des différences entre certaines catégories de population (ex : urbaine/rurale ; enfants/adultes ; piétons/motos ; hommes/femmes) concernant les comportements routiers ?

Oui, les habitants des zones rurales sont souvent effrayés par la circulation beaucoup plus dense et plus rapide dans les zones urbaines, ce qui n’est pas habituel pour eux. Dans les zones rurales, l’état des routes ne permet pas rouler vite.

Il y a aussi des différences liées à l’âge. Les plus jeunes ont souvent des comportements à risque, notamment en moto : ils slaloment entre les voitures et font des acrobaties. Au niveau des élèves, il y a une résistance à l’autorité. Quand on arrête un des leurs, tous les autres se ruent sur les agents qui font le contrôle.

Les hommes prennent plus de risques que les femmes.

Il y a beaucoup de femmes qui conduisent ?

Oui, la proportion de femmes est relativement élevée, pratiquement autant que les hommes.

Contrôle/sanction

Selon-vous les lois de votre pays sont-elles adaptées ? Sont-elles sévères ?

Il y a eu beaucoup d’efforts pour réglementer les comportements à risque. La plupart sont réglementés, conformément aux exigences de l’OMS. Le contenu des lois est acceptable mais le problème se situe au niveau de l’application de ces lois. On a essayé de remplacer les amendes par une confiscation plus ou moins longue du véhicule. Chacun est très lié à son véhicule et cela peut avoir un effet plus important qu’une forte amende.

Peut-être que les amendes sont trop élevées ?

Non, si on compare avec les pays voisins, le montant des amendes n’est pas si élevé. On avait envisagé de monter le prix des amendes à 25 000 Francs CFA mais cela n’a pas été accepté et l’amende est restée à 3000 Francs CFA. Sachant que le salaire d’un cadre de la fonction publique se situe approximativement aux alentours de 120 000 Francs CFA. Pour les agents d’exécution, le salaire avoisine les 60 000 Francs CFA.

Diriez-vous que, dans votre pays, certaines catégories de personnes disposent de privilèges concernant le respect du code de la route ?

Les textes n’autorisent pas les privilèges sauf cas particuliers (femmes enceintes, corps diplomatique). Sinon, il peut arriver que des gendarmes en civil ou des magistrats ne respectent pas les règles, s’ils sont arrêtés ils présentent leurs papiers aux gendarmes qui les laissent généralement passer sans appliquer la sanction prévue.

Education routière

L’éducation à la sécurité routière est-elle habituelle dans les établissements scolaires ?

Cela dépend des établissements. Dans certaines écoles par exemple, on enseigne dès l’école maternelle la règle des feux tricolores, et nous avons déjà reçu des témoignages de parents qui ont
été rappelés à l’ordre par leurs enfants concernant le respect des feux tricolores. Mais de manière générale, cet enseignement est très peu répandu, même si l’éducation routière fait théoriquement partie des programmes depuis 2010. Les enseignants n’ont pas été formés à la sécurité routière.

**Et concernant les enfants qui ne sont pas scolarisés ? Sont-ils nombreux ?**

Oui, il y a beaucoup d’enfants qui ne sont pas scolarisés. Au niveau du ministère des transports ils avaient pris la mesure de la chose. Ils ont mis en place des « camions-podiums » qui peuvent se déplacer dans les villages, au niveau des places publiques pour faire des animations. Ceci permet d’atteindre notamment des enfants qui ne sont pas scolarisés.

**Selon vous, est-il de coutume pour les parents d’éduquer leurs enfants à la sécurité routière ?**

Non ce n’est pas vraiment répandu. Il y a une faiblesse au niveau de l’éducation parentale non seulement sur ce sujet mais de manière générale, les parents consacrent peu de temps à l’éducation de leurs enfants.

**Dans votre pays, les médias diffusent-ils régulièrement des messages de sécurité routière ?**

Cela arrive de façon sporadique, il y a quelques émissions diffusées sur les chaînes nationales de radio et de télévision.

**Comment pourrait-on améliorer la prévention routière ?**

Il faudrait enseigner de manière effective la sécurité routière à l’école. Pour cela, il faudrait introduire ce thème dans la formation des élèves-maîtres.

On pourrait développer davantage les émissions de télé sur le sujet. Il faudrait notamment traduire les émissions nationales dans les langues régionales.

**Combien y a-t-il de langues différentes au Burkina Faso ?**

Il existe 60 langues différentes mais 5 grandes langues sont plus largement répandues et permettraient à la plupart des habitants de comprendre les messages diffusés.

**Risque routier**

**D’après vous les déplacements dans votre pays sont-ils dangereux ? Pourquoi ?**

Oui les déplacements sont dangereux, c’est une réalité.

**D’après vous, les statistiques officielles d’accidents de votre pays sont-elles fiables ? Savez-vous de quelle manière sont produites ces statistiques ? Est-il possible que certains accidents soient sous-estimés/sur-estimés ? Si oui pour quelles raisons ?**

Les données ne sont pas très fiables. On s’est rendu compte en 2012, quand les commissariats d’arrondissement ont été créés, avec une section « accidents », que le nombre d’accidents constatés a considérablement augmenté. Le comptage sur la ville de Ouagadougou a donc été amélioré mais ce n’est pas le cas dans le reste du pays.

Seuls les tués sur place sont comptés dans les tués sur la route. On réfléchit actuellement à adopter la définition internationale des tués (à 30 jours).
Pouvez-vous fournir une estimation du nombre de tués sur les routes de votre pays l’année dernière ? Pouvez-vous estimer la proportion spécifique à chaque catégorie d’usager (piétons, cyclistes, motos, voitures, mini bus, etc.) ? Pouvez-vous estimer la proportion spécifique à chaque type d’infraction ou de situation de conduite (alcool au volant, drogues, vitesse, fatigue, distraction, etc.) ?

Le nombre de tués pour l’année 2017 est de 857, en 2016 on était à 950, en 2013 on était à 1125. Il y a donc une amélioration. On peut estimer la sous-estimation à environ 30%.

On a commencé récemment à catégoriser les accidents par type d’usager mais je ne connais pas les chiffres détaillés.

Les causes les plus fréquentes sont la vitesse, l’imprudence, l’état de la route, l’état du véhicule (freins), en ville : non-respect du code de la route.

Y a-t-il des problèmes d’alcool au volant ?

Oui, il y a des problèmes d’alcool au volant. Il y a 3500 points de vente d’alcool à Ouagadougou, les gens consomment en moyenne 2 verres et demi et la boisson la plus consommée est la bière. Le taux légal d’alcoolémie vient d’être défini en 2017 à 0,5 g./l. et 0,2 g./l. pour les conducteurs professionnels. Des contrôles d’alcoolémie sont réalisés régulièrement. Les compagnies de transports doivent contrôler leurs chauffeurs. Les problèmes d’alcool concernent davantage les hommes. Nous avons une grande proportion de musulmans au Burkina Faso qui ne consomment généralement pas d’alcool.

J’ai terminé mes questions, avez-vous quelque chose à ajouter ?

Oui, il y a un problème spécifique sur les conducteurs de deux-roues motorisés qui conduisent souvent sans permis. Ceci n’est pas souvent contrôlé.
8.3 Questionnaire
The objective of this survey is to collect data about travel habits. It is anonymous. In order to answer the questions you will need to use the proposed scales often ranging from 1 « strongly disagree » to 5 « strongly agree ». Please tick the box corresponding to your answer.

### Mobility

- **Which vehicle(s) do you use?**
  1. Car
  2. Motorcycle
  3. Moped
  4. Bicycle
  5. Bus
  6. Walking more than 1km

- **Do you hold a driver’s license for the following vehicles?**
  7. Car
  8. Motorcycle
  9. Moped
  10. Truck

- **When I make a trip, the probability that I have a road accident is …**
  11. Lower than for others
  12. “… walking is …”
  13. “… traveling on motorbikes is”
  14. “… traveling by car is”

- **In my country, the risk of accident when …**
  12. “… walking is …”
  13. “… traveling on motorbikes is”
  14. “… traveling by car is”

### Habits

- **16. I drink more than 5 glasses of alcohol in a day**
- **17. I use cannabis**
- **18. During the last 12 months, I have been driving while under the influence of alcohol**
- **19. During the last 12 months, I have walked while under the influence of alcohol**
- **20. When I drive I comply with speed limits**
- **21. When I use a powered two-wheeler I wear a helmet**
- **22. When I'm in a car, I put on my seatbelt**
- **23. I like driving fast**
- **24. I have already broken the rules on the road at the request of another person**
- **25. I sometimes park on a sidewalk or pedestrian crossing**
- **26. I sometimes park a few minutes on a reserved place**
- **27. I allow myself to exceed speed limits when I'm in a hurry**
- **28. In some situations, it is legitimate to violate the rules of road safety**
- **29. Police should be flexible in enforcing road safety rules**
- **30. It is better to drive at the same speed as the flow of vehicles than to scrupulously comply with speed limits**
- **31. We should have the right to cross a white line if we are behind a slow vehicle and nobody comes in front**
When I pass near a roadside check by the police, I feel ...
32. Not at all worried □ 1 □ 2 □ 3 □ 4 □ 5 very worried
33. Not at all annoyed □ 1 □ 2 □ 3 □ 4 □ 5 very annoyed

Speed controls are ...
34. Not frequent enough □ 1 □ 2 □ 3 □ 4 □ 5 too frequent

When you are stopped by the police on the side of the road, do you ever negotiate the consequences?
35. Never □ 1 □ 2 □ 3 □ 4 □ 5 always

The penalties for crossing a red light are
36. The penalties for crossing a red light are □ 1 □ 2 □ 3 □ 4 □ 5 severe
37. The penalties for speeding less than 20km/h are □ 1 □ 2 □ 3 □ 4 □ 5 severe
38. The penalties for speeding more than 50km/h are □ 1 □ 2 □ 3 □ 4 □ 5 severe

How much do you agree or disagree with the following sentences
39. Speed cameras are just an extra tax □ 1 □ 2 □ 3 □ 4 □ 5
40. It is important for me to be polite to other people all the time.
   I try to never disturb or irritate others □ 1 □ 2 □ 3 □ 4 □ 5
41. I believe that people should do what they’re told. I think people
   should follow rules at all times, even when no-one is watching □ 1 □ 2 □ 3 □ 4 □ 5
42. It is important for me to be obedient. I believe one should always
   show respect to his parents and to older people □ 1 □ 2 □ 3 □ 4 □ 5
43. It is important for me always to behave properly. I want to
   avoid doing anything people would say is wrong □ 1 □ 2 □ 3 □ 4 □ 5
44. I believe it is best to do things in traditional ways.
   It is important for me to follow the customs I have learned □ 1 □ 2 □ 3 □ 4 □ 5
45. I think it’s important not to ask for more than what you have.
   I believe that people should be satisfied with what they have □ 1 □ 2 □ 3 □ 4 □ 5
46. It is important for me to be humble and modest.
   I try not to draw attention to myself □ 1 □ 2 □ 3 □ 4 □ 5
47. Religious belief is important for me.
   I try hard to do what my religion requires □ 1 □ 2 □ 3 □ 4 □ 5
48. I would like to explore strange places □ 1 □ 2 □ 3 □ 4 □ 5
49. I like to do frightening things □ 1 □ 2 □ 3 □ 4 □ 5
50. I like new and exciting experiences, even if I have to break the rules □ 1 □ 2 □ 3 □ 4 □ 5
51. I prefer friends who are exciting and unpredictable □ 1 □ 2 □ 3 □ 4 □ 5
52. It is fate that decides on road accidents □ 1 □ 2 □ 3 □ 4 □ 5
53. It is God who decides on road accidents □ 1 □ 2 □ 3 □ 4 □ 5
54. Which religion or spiritual branch do you feel the closest to?
   □ Agnostic □ Buddhist □ Jewish □ Protestant
   □ Animist □ Catholic □ Muslim □ Other, specify: Hindu Orthodox

What are the legal speed limits for road vehicles in your country:
55. in cities? ... km/h
56. on roads? ... km/h
57. on highways? ... km/h
58. What is the legal Blood Alcohol Content limit? ...
59. On a dry road, how long is needed for a car in good condition traveling at 50 km/h to stop? ....
60. On a dry road, how long is needed for a motorcycle in good condition, traveling at 50 km/h to stop? ....
61. In the last 12 months, how many accidents with at least one light injury have you been involved in?

Country: ...
Age: ...
Gender: M □ F □
Dwelling place: Urban □ Rural □
Occupation: ............

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