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EDITORIAL

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Crime in developing countries: the contribution of crime science

Mangai Natarajan*

It could be argued that many of the most serious crime problems are now to be found in developing countries. Yet these problems have received only scant attention from criminologists and crime scientists, most of whom work in developed/Westernized nations. Crime scientists have a special role to play in studying these crimes because their work is oriented to solutions and it is this kind of practical help that the developing world most needs. Using crime opportunity theory, the articles included in this issue examines a selection of these crimes, many of which are relatively uncommon in the west: maritime piracy, illegal fishing, poaching of endangered animals, gang warfare and homicide and ransom kidnappings. They illustrate how crime science methodologies and techniques can be harnessed in seeking to understand and prevent crimes in the developing world.

Whether judged by official statistics or victim surveys, crime rates in most developed countries have been falling for many years (Farrell et al. 2011; Elonheimo 2014), but there is scant evidence that developing countries have enjoyed these same benefits. In fact, routine activity theory (Cohen and Felson 1979) tells us that with increasing affluence these countries might be experiencing the increases in crime that occurred 50 or 60 years ago in developed countries. A case in point: Nick Ross (2013) describes the rise in burglary he encountered on a visit to rural China at the start of the surge in economic growth in the 1980s. The local mayor admitted televisions were being stolen from people's homes, a form of crime that had been unheard of in the past. When Ross asked him what had changed he seemed surprised to be asked. "We didn't have televisions before," he answered.

Many developing countries are plagued not just by ordinary volume crimes, but also by culturally-sanctioned violence against women and gays and serious forms of transnational crime such as sex trafficking, drug

trafficking, murderous incursions by militias, and theft of natural resources including valuable minerals, endangered animals, fish stocks and timber. Indeed, it could be argued that many of the most serious crime problems of the world are now to be found in developing countries, but these problems have received only scant attention from criminologists and crime scientists, who mostly work in developed/Westernized nations. Crime scientists have a special role to play in studying these crimes because their work is oriented to solutions and it is this kind of practical help that the developing world most needs. This special issue of the journal on crime in developing countries examines a selection of these crimes from a crime science perspective. The papers included are as follows:

1. Situational prevention and public transport crime in El Salvador (Mangai Natarajan, Ronald V. Clarke, Carlos Carcach, Carlos Ponce, Margarita Beneke de Sanfeliú, Dolores Escobar Polanco, Mario Chávez and Mauricio Shi).
2. Rapid assessment of the sexual harassment of young women during the commute to college in India (Mangai Natarajan).
3. Factors influencing the choice of a safe haven for off-loading illegally caught fish: a comparative analysis of developed and developing economies (Nerea Marteache, Julie Viollaz and Gohar A. Petrossian).
4. Crime science and crime epidemics in developing countries: a reflection on kidnapping for ransom in Colombia, South America (Christopher H. Stubbert, Stephen F. Pires and Rob T. Guerette).
5. Situational crime prevention and worldwide piracy: a cross-continent analysis (Jon M Shane, Eric L Piza and Marissa Mandala).
6. Introducing intelligence-led conservation: bridging crime and conservation science (William D Moreto).
7. A spatio-temporal model of homicide in El Salvador (Carlos Carcach).

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8. Street drug markets beyond favelas in Belo Horizonte, Brazil (Elenice Oliveira, Braulio Figueiredo Alves da Silva and Marcos Oliveira Prates).
9. Examining the extent of repeat and near repeat victimisation of domestic burglaries in Belo Horizonte, Brazil. (Spencer Paul Chainey and Braulio Figueiredo Alves da Silva).

Many of the crimes in this list are relatively uncommon in the West and as such they usefully expand the agenda of crime science. However, their variety gives rise to a practical and much broader question that is touched upon in a couple of the contributions. It is this: given the huge number of crime problems in developing countries, which according to the precepts of crime science must be separately analyzed and addressed, how would it be possible to undertake the work needed given the paucity of research resources? In particular, how would it be possible to meet the usual standards of crime science work that often demands many months, if not longer, simply in diagnosing the problem, let alone in implementing solutions?

Researchers in the public health and medical fields have also had to confront this question when confronting disease that needs immediate attention. The same is true of drug researchers when dealing with emerging drug abuse and its consequences in developing countries. The solution frequently adopted by these scientists is to make use of rapid assessment methodologies (RAM) to obtain the data needed to assist decision-making about appropriate interventions (UNDCP 1999; Beebe 2001; Trotter et al. 2001; Stimson et al. 2003, 2006; Fitch et al. 2004; McDonald 2005; Comiskey et al. 2011, 2012; Van Hout and Bingham 2013). Using a mix of largely qualitative methods (Stimson et al. 1999), RAM assists in identifying high risk populations, places, or sectors that need targeted interventions that will bring the most benefit.

RAM is known by different names: rapid situation assessment, rapid assessment, rapid appraisal, rapid rural appraisal and rapid response assessment. Whatever the name, RAMs key elements are assessing needs, resources, current and potential interventions and the policy environment (McDonald 2005). Increasing emphasis is now being placed on rapid response intimately linked to rapid assessment, with some sound outcomes derived from this strategy being reported. In a recent study, Dupont et al. (2015) concluded that the RRA was found to provide a powerful methodology for detecting target groups and generating contextual and normative data that enable the prevention field worker to select and adapt from the spectrum of existing strategies.

RAM strikes a balance between methodologically appropriate and logistically feasible measures (MacIntyre

1999), which means that it could also prove very useful for crime scientists when addressing crime in developing countries. Indeed, two of the articles in this special issue made explicit use of RAM. Natarajan et al. (2015) study of crime on El Salvador's bus system adopted RAM due to the lack of systematic information about the problem, in particular the absence of appropriate crime statistics. The "rapid assessment" undertaken comprised a systematic observation of conditions on the bus system undertaken by university students, together with a series of focus group discussions with passengers, bus operators, police and other stakeholders. The findings of these two rapid assessment exercises were interpreted in the light of a review of the international literature on preventing public transport crime to produce a detailed list of potential preventive suggestions. Natarajan's (2016) analysis of so-called "eve-teasing" of female college students in Chennai, India, also made use of RAM. She employed three rapid assessment methods in her small exploratory study: focus group discussions with college students, interviews with officers from police stations nearby the campuses, and safety audits of the campus surroundings. These succeeded in promoting understanding of the problem and in providing many suggestions for reducing it, including (1) an extensive inventory of precautions for students, particularly female students, to take in order to protect themselves from eve-teasing, and (2) a list of preventive suggestions for other stakeholders—the police, local municipalities, transport agencies and the colleges themselves. While these two studies used only a small fraction of available rapid assessment methods, there seems no reason to doubt RAM could be of considerable help to crime science in fulfilling its mission in developing countries.

While the remaining studies included in this special issue might not have made explicit reference to RAM, many have identified and explored existing data sets to analyze crimes that plague the developing world. The exploitation of existing data sets is one of the hallmarks of RAM, but irrespective of RAM, the main contribution of the articles in this special issue is that they collectively illustrate the value of employing a wide range of theories, concepts and methodological approaches drawn from crime science and environmental criminology. These include choice structuring properties, crime scripts, techniques of situational crime prevention, hot spots, crime corridors, spatial clusters and repeat victimization. These are discussed more fully in the brief descriptions below of the studies comprising this special issue.

Marteache, Viollaz and Petrossian (2015) used the concept of choice structuring properties (Cornish and Clarke 1987) in their attempt to explain which ports illegal fishers choose to offload their catch. Cornish and Clarke

explained that: “(choice structuring) properties provide a basis for selecting among alternative courses of action and, hence, effectively structure the offender’s choice” (p. 935). Using a variety of macro level data sources on illegal fishing for 72 countries Marteache and her colleagues concluded that illegal fishing vessels are more likely to offload their catches in ports dealing with large volumes of fish imports/exports where it is easier to conceal illegal catches. They were also less likely to offload their catches in ports in countries with strong governance. This raises the further question of whether ports could be usefully studied using the crime science concept of “risky facilities” (Eck et al. 2007).

In similar vein, Stubbert, Pires and Guerette (2015) used the concept of choice structuring properties to analyze ransom kidnapping incidents (2002–2011) in Columbia. They found that information about the location, time, perpetrator and victim helped to explain patterns of ransom kidnapping. Further, their GIS analyses highlighted the importance of targeting high risk areas for implementing situational crime prevention. Given that situational measures have potential for “diffusion of benefits” (the idea that focused crime prevention efforts can sometimes bring benefits beyond the targeted settings, (Clarke and Weisburd 1994) this could be a highly effective approach for reducing ransom kidnappings.

Shane, Piza and Mandala’s (2015) study examined 4902 successful and unsuccessful piracy attempts in evaluating the effectiveness of situational crime prevention measures. Using worldwide data from the international Maritime Bureau, they undertook an analysis of nine predictor variables pertaining to the use of SCP techniques (Cornish and Clarke 2003) by the ship’s crew during the attack. They found that five predictor variables related to *increasing the perceived risk* category of SCP, which were the use of *anti-piracy watch*, *private security personnel*, *watchmen*, *enhanced lighting* and *raising the alarm*. In addition, they found that four predictor variables related to *increasing the perceived effort* category of SCP. These were *electric perimeter fencing*, *evasive maneuvers*, *increased speed*, and *mustering the crew* in a fortified safe room aboard the ship. Their mixed-effects logistic regression models indicated that the prospect of a successful attack is principally reduced when layers of measures to *increase effort* are implemented. Therefore, their paper further underlines not only the importance of adopting a crime specific approach, but also the importance of adopting crime specific measures tailored to the problem.

While quantitative data are widely used in crime science for uncovering patterns of crime, qualitative data can serve a particular role in pinpointing appropriate prevention measures. This was shown in two studies

included in the special issue—Natarajan et al’s study of the bus system in El Salvador and Natarajan’s study of eve-teasing in Chennai. Another example of the value of qualitative data used for this purpose is provided by Moreto’s (2015) study, specifically in preventing wild life crimes. While these crimes drain the natural resources of many developing countries, they have only recently begun to attract the attention of criminologists and crime scientists. His interviews with park rangers in Uganda provided the basis for undertaking a crime script analysis (Cornish 1994) of the Uganda Wildlife Authority’s intelligence strategy. This analysis played an important role in developing the Ranger Analytic Intelligence Network specifically tailored for conservation efforts in Uganda.

Spatial analysis using a variety of statistical techniques is part and parcel of crime science. In his paper, Carcach (2015) undertake a spatial analysis of the extremely high rates of homicide in San Salvador. He identifies significant clusters of high homicide municipalities in the Western part of the country, which have remained stable over time, and more recent mushrooming of high homicide clusters in the Eastern region. These results enabled him to explore the extent to which activity associated with gangs, drug dealing and organized crime seems to have played in the formation of clusters of violence. In addition, consistent with the concept of “crime corridors” (Spicer et al. 2016), he found that highways and main roads connecting municipalities seem to have played an important role in the formation of what he calls “corridors of violence”.

Using police arrest data and census data, Oliveira, da Silva and Prates (2015) examined the spatial clusters and patterns of drug dealing across neighborhoods (including favelas) in Belo Horizonte, Brazil. Their negative binomial regression model showed that hot spots of street drug markets in the city center are positively associated with housing quality and negatively associated with residential tenure. Their analysis also found low levels of drug dealing in impoverished areas of favelas. While the study focusses on social disorganization factors, it also indicates that drug markets in the city center are affected by other immediate environmental features and opportunities which help to explain why some apparently high risk areas have relatively little drug market activity.

Also in Belo Horizonte, Chainey and da Silva (2016) made use of the crime science concepts of repeat or near repeat victimization (Farrell and Pease 1993; Pease and Laycock 1996; Pease 1998; Laycock 2001) in examining whether the occurrence of a burglary usefully predicts the occurrence in the near future of another burglary in the same or nearby properties. They found that the extent of repeats and near repeats in Belo Horizonte was lower than that in comparable Western urban contexts. They

attributed this finding to the standard adoption in vulnerable housing types of situational prevention measures, such as perimeter fences and security guards, to improve domestic safety. Their study shows that the concept of repeat victimization may be as useful as that of hot spots in helping to focus crime prevention effort where it is most needed.

Summing up

Since Clinard and Abbott's (1973) pioneering work, few academic studies have focused on crimes in developing countries. This special issue of *Crime Science* makes a small start in filling the void. As discussed above, its contributions show how a variety of methodologies and techniques drawn from crime opportunity theories can be harnessed in understanding and preventing crimes in the developing world. But this is only a beginning. Seriously addressing this enormous task would soon exhaust crime science's research resources, even if greater use were made of rapid assessment methodologies. The problem is exacerbated by the limited investment made to date in criminological research in developing countries. The universities in many of these countries are only just beginning to establish departments of criminology, while the governments have not yet made available the substantial sums needed for applied studies—at least compared with governments in the US, the UK and many other Westernized countries. This is not because the crime problems in developing countries are any less serious—rather the reverse. It is because only recently has it been recognized anywhere in the world that criminology, particularly crime science/environmental criminology, has an important part to play in reducing crime. In time, this situation will be corrected and criminological resources in developing countries will expand. Meanwhile, crime scientists should lend assistance to their colleagues in developing countries whenever they can. This will bring many benefits for criminology. It will enable core theories to be tested in new and different contexts. It will require criminologists to understand and address a wider variety of sometimes very serious crimes. Finally, it will allow criminologists to make a contribution to the peace and well-being of the globalized world.

Competing interests

The author declares that she has no competing interests.

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