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**Module:** Human Geography 1071

**Essay Title:** Find a map on a news organisation’s website and discuss the messages and meanings that are imparted by the cartographer due to her or his choice of Projection, Scale, Scope of coverage, Included and excluded details and discuss what extrasignifying functions the map performs**.**

**Feedback Notes:**

* I tried to work on structure of my essay to ensure that the writing flowed and my meaning and direction of argument was clear throughout. I did this by addressing each of the points set out in the question, but trying to link them together so that it didn’t appear too segregated or sectioned which could impair flow, especially for included/excluded/extrasignifying, which are all interlinked.
* I also tried to include reading from a wider range of sources, hence I have used websites, journals and books, as well as interviewing over email the director of the organisation that created the map. This allowed me to gain an insight into various academics’, professionals’ and journalists’ views and helped me come to a conclusion about the map and the meanings it imparted.

It is difficult to qualify what exactly a map is- every element that composes it, every choice a cartographer has made, can be subject to scrutiny for its technical accuracy and verity of conveyance. Maps are items of power and knowledge, affecting how we think about spatial realities, in such a way that the physical creation and presence of a map can encourage discussion and change, skew or manipulate perceptions of an area (Grenier, 1998). This essay will therefore analyse and discuss the key aspects, such as scale and projection, of a map reported by the BBC and used as part of a GIS project, SafeCity, aiming to pinpoint locations of harassment and assault of women in India. The map collates anonymous crowdsourced data from victims in the form of public participatory GIS, in order to generate hotspots in cities and towns across India, identifying notorious locations and acting upon this information to create safer spaces for women. Using women’s lived experiences to produce a detailed map of potentially dangerous places, the project has received over 4000 stories in just two years, helping Indian authorities act upon the issue of sexual harassment, leading to more crimes being reported and new safety measures being implemented in the worst areas. It is hoped that the map will help to combat the shocking statistic that currently, a rape occurs every twenty minutes in India, while many more go unreported (Agrawal, 2013).

A projection is the geometric transformation of the ellipsoid-shaped globe onto a flat surface, such as a map. As SafeCity uses Google Maps as its interface, it uses the Web Mercator projection, which preserves angles at a local and street level. However, it is non-conformal due to ellipsoidal longitude and latitude co-ordinates being mapped onto a plane using spherical Mercator equations (Zinn, 2010). This causes the map to be flawed, as it is distorted longitudinally, becoming more pronounced with distance from the equator, exaggerating Polar Regions. India’s tropical location is therefore only slightly affected by this distortion and the web Mercator projection for national scale remains applicable. However, at a global scale, countries in higher latitudes, such as those in Europe, appear larger and draw the focus of the map to them, as opposed to countries which by area are larger, like India, despite its own more accurate representation. Furthermore, the projection is Eurocentric, which is inappropriate for a map whose central focus is on the Asian continent, highlighting the colonial and marginalising nature of maps produced by western nations (Rosenberg, 2014). A non-European enlarging projection such as the Winkel-Tripel would perhaps be more beneficial to the mapping aspect of the project, as it retains relevant shapes of continents and results in less distortion at the poles (Johnson, 2007). However, Elsa D’Silva, director of the SafeCity project, states that they didn’t have an active preference in map provider for their GIS, using Google maps for popularity and ease of use in adding personalised layers, rather than its choice of projection. In addition, as a technological device that connects to the internet must be used to contribute information to the map, a projection that can work in conjunction with computers and GIS, and be applied to a range of scales was needed, and Web Mercator, as part of Google Maps, the most widely used mapping service (Google, 2014), seems the most appropriate. The simplicity of Web Mercator is also ideal for this project, as a complicated projection would detract from the map’s primary use, which is to locate hotspots at a local level and identify unsafe streets, rather than how continents are represented on a flat surface. Although it is worth considering that Indian users may feel marginalised and misrepresented at a global scale by the map’s distorting projection, which detracts attention from Asia, the Web Mercator in this instance was the best choice for the map’s main purpose.

As with projection, the scale of the map is determined by Google Mapping Software- as the map format enables the user to zoom in and out, from global to street-level detail, the scales are in flux depending on the view the user chooses to adopt. The scale used ranges from 1:111M, for the global view, down to 1:3386, for the most detailed, accurate street location. The software chosen, Orion-me, creates data layers as scale decreases, by incorporating information about locations with detail of the space (Orion-me, 2004-2015). In the case of SafeCity, hotspots can therefore be viewed by country in context of a multinational comparison of levels of harassment, or right down to the exact location the incident took place. The choice of expanding beyond India, or ‘scaling up’, means the map can ‘attempt to leverage global connections while retaining local contexts and meanings’ (Sieber, 2003, p58), so that the data shared through the GIS can elicit patterns at a range of scales. Dunn (2007) also discusses the potential that ‘scaling up’ has on a map- the data’s reach expands and allows for international public participation and discussion on the issue. As female harassment and sexual assault is a global problem, this choice could be invaluable as the map’s sphere of influence spreads, revealing trends and allowing shared solutions across the world, aided by the scope of coverage the cartographer has chosen.

The flexibility of the map’s interactive scale is translated into the scope - as the user zooms in, the scope of coverage therefore changes with the scale chosen. Street-level views promote empowerment and safety, by allowing women to see potentially dangerous locations as identified by other women, and prompting them to reroute and change their plans accordingly. The choice of including street-level views of the location of the incident embraces Foucault’s concept of Panopticism (1995), albeit in a way that is beneficial to society rather than government or authoritative powers. By inducing a sense that they may be watched, reported and even identified at the scene of the crime, the map and the victim’s contribution to it becomes a tool for power. Men will be more wary of their actions as they have no method of determining whether or not they are being watched, subverting the hierarchy of power from the attacker to the victim. Hence, in line with the Panopticon model, ‘He who is subjected to a field of visibility, and who knows it, assumes responsibility for the constraints of power (p202)’,where self-regulatory measures become inherent within a person’s mentality towards women’s safety, potentially reducing the number of assaults. At a national level, the scope allows incidents to be isolated into cities and towns, allowing comparisons of safer conurbations, useful for tourists and newcomers to certain areas. The inclusion of a comprehensive scope of the planet means that international users can also add their experiences to the GIS- indeed, the map has already spread, with small numbers of reports from Nepal, the USA and Kenya. Consequently, choosing to include a global view, comparisons between countries allows patterns to be drawn, ascertaining where NGOs and the police can promote and implement better gender-based safety measures.

However, at the same time as it empowers, the use of PPGIS technology for the creation of the map can also lead to marginalisation of some communities (Weiner et. al, 1995), leading them to feel ‘disenfranchised (Negroponte, 1995, p228)’. Due to the need for digital development, ownership of mobile phones or computers in order to contribute to the map, the divides between the less connected rural regions and the digitalised cities, as well as between rich and poor sectors of society are highlighted. In a country of 1.2 billion people, where only 130 million have access to the internet (Agrawal, 2013), a vast majority of the population is not represented on the GIS, despite harassment being as inherent within these communities as richer ones. The unintentional bias has been addressed by SafeCity, who have set up a phone reporting service, and a community mapping service on the ground to improve inclusion and spread awareness. Nevertheless, those who are without internet are excluded from the mapping process by the inherent nature of GIS. On the other hand, the use of PPGIS allows anonymity. The inclusion of this option creates a non-threatening interaction with the map, enabling voices less heard in GIS to be represented (Kingston, 2002), and removes the victim’s fear, shame or individuality as they become an unidentifiable number on the map. Conversely, the exclusion of names means that reports are much harder to verify and for police to take action, as it introduces the capacity to include irrelevant stories, fabricate or exaggerate incidents.

The cartographer’s use of categories and filters allows a more refined search into the map, and allows the user to easily navigate the GIS to find out about particular incidents. Filters chosen include categorising types of assault, from catcalling to rape, as well as by location and media type. This allows a more personal experience of the GIS and can exclude non relevant data to a police or NGO search for information. More recently, due its widespread success, the GIS has expanded to include more diverse categories to report attacks on the LGBT community as well as hate crimes in order to be more inclusive in the safety and social change the map helps to provide. Although this choice means that the map will reach a wider audience and receive a larger range of information, there is a risk that the map could become too convoluted, and the core purpose of creating hotspots for women will be hidden beneath excess data. It can also be argued that by representing the data in GIS form, large software developers who create the systems are authorised to ‘set agendas in how the information is displayed and analysed (Dunn, 2007), removing the power from the map’s contributors, instead placing it in the hands of companies who can then determine how we see the world.

In terms of extrasignification, the map has the power to transform ‘social energy to social work…and bring about socialised change’ (Wood, 2010, introduction). In this way, the implicit messages imparted by the map, by creating hotspots- the intrasignification- are the changes within communities and societies that occur as a result of the existence of the GIS. As Monmonier (1996, p5) states, ‘maps are smaller than the realities they represent’, and conceptually, what a map’s messages and meanings portray to people is much further reaching and powerful than the map itself. This is demonstrated by the entire SafeCity project- what started out as hotspots has expanded into workshops and talks for over 2000 women across India and the US, promoted female empowerment and education, broken them free of a cycle of victim-shaming, initiated PPGIS mapping initiatives nationwide and forged link-ups with police and NGOs (D’Silva, 2014)

All in all, in relation to SafeCity, the overriding meaning of the map, intended by its creators, is that violence against women is widespread, across India and the rest of the world, and by pinning the location to the map, its true extent is revealed. Using PPGIS, conceptualisation of space and place from normally silenced voices has opened new visualisations of Indian cities, helping to spread the message of women’s plight in the country. However, there are clear negative connotations: the Eurocentricism of the projection, lack of control over data representation, as well as the social exclusion of disconnected members of society and its reinforcements of societal divides. Hence, to conclude, it can clearly be seen that the various components that make up a map are highly subjective and can raise more questions than they answer in the context of meanings and messages that are imparted by cartographers.

Figures: (SafeCity, 2012-2015)

Figure 1: SafeCity map at a global scale

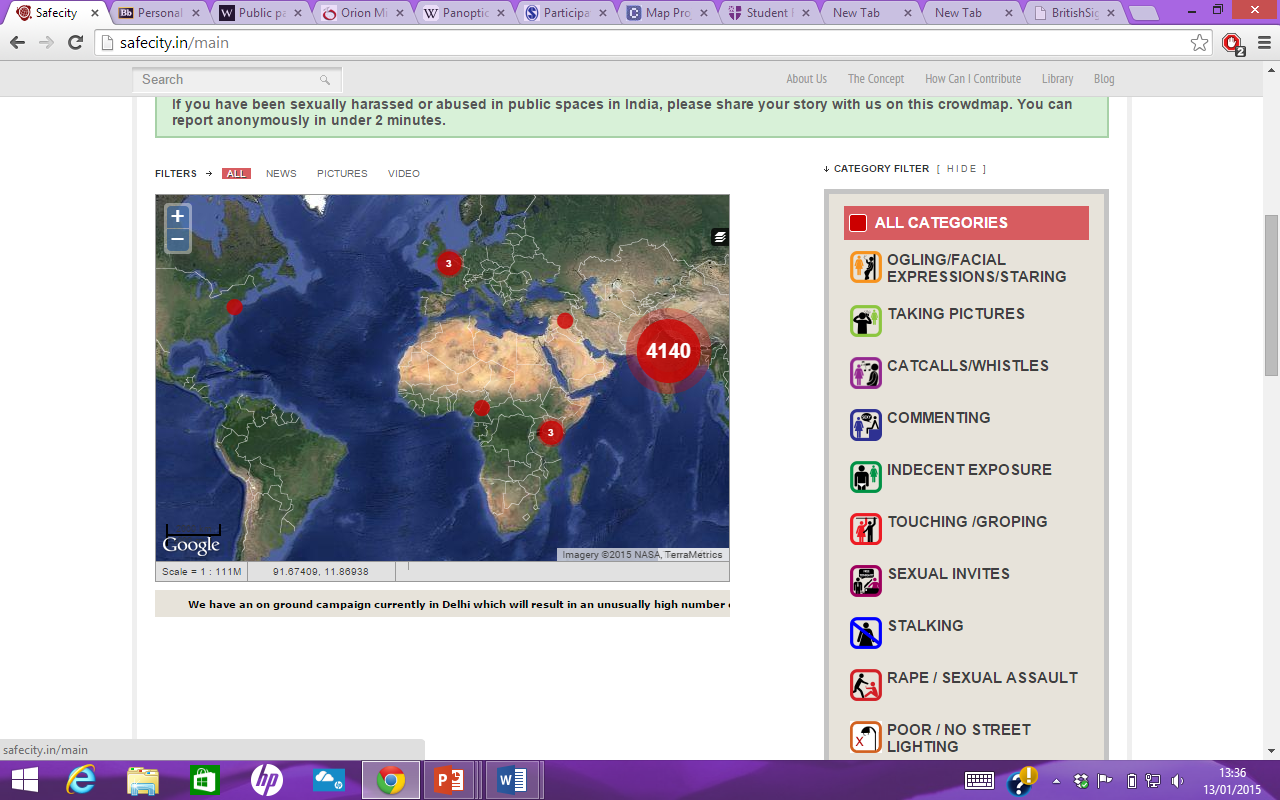
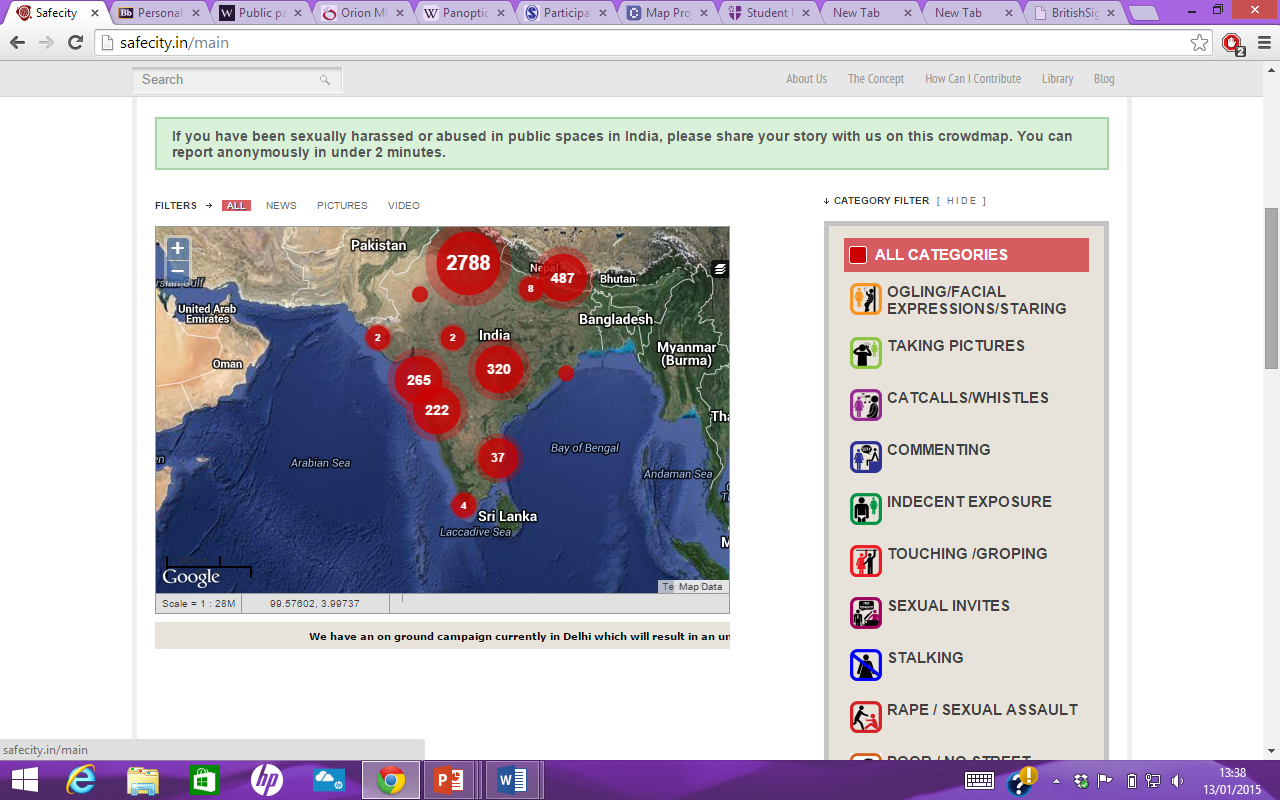


Figure 2: SafeCity map at a national scale



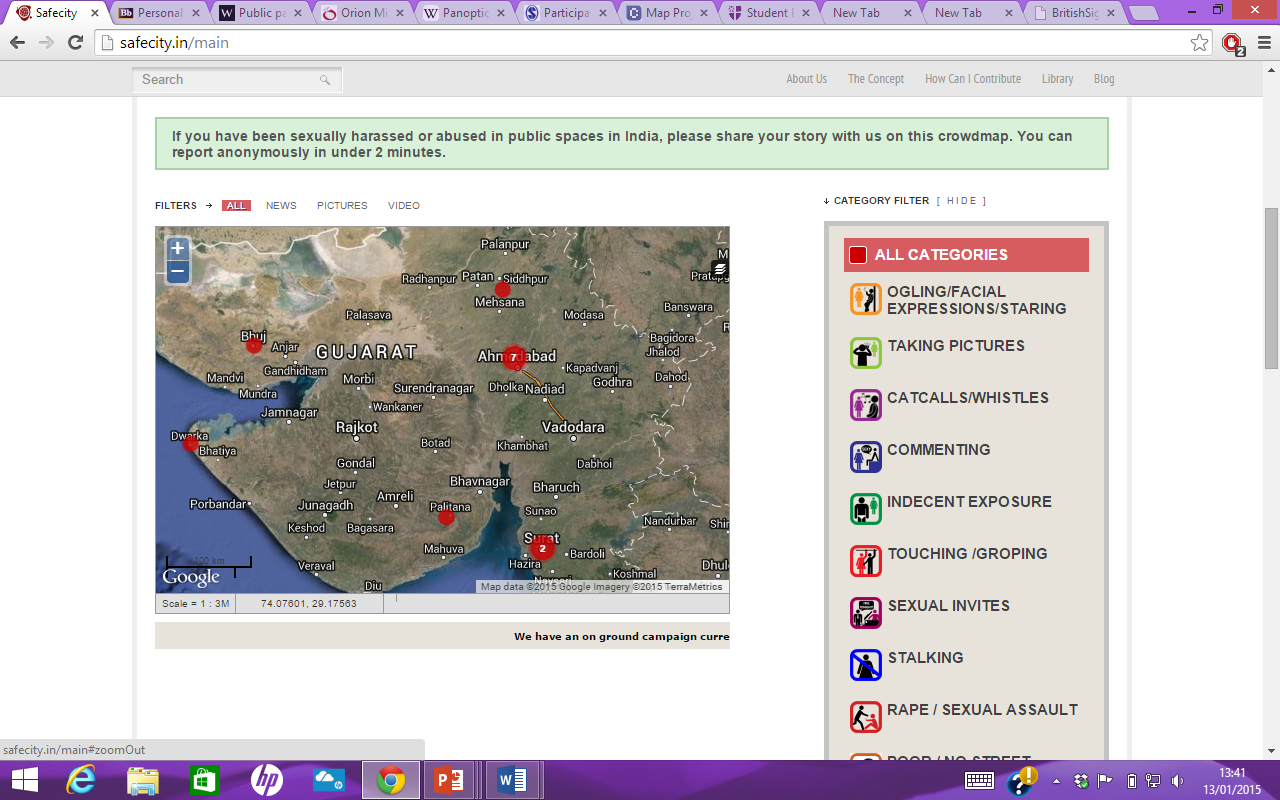
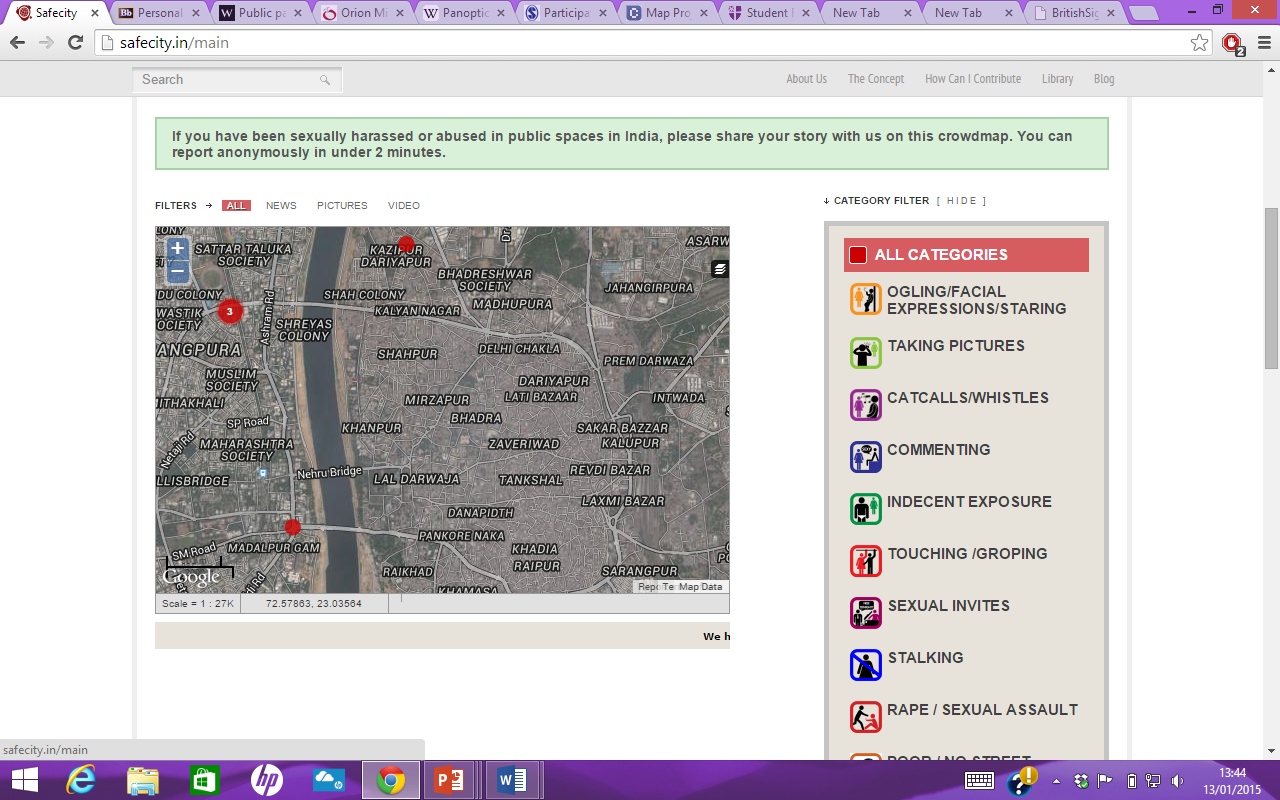
Figure 3: SafeCity map at a regional scale

Figure 4: SafeCity map at a local scale



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