



Majengo HIV/AIDS Research Case A Report for *GenBenefit* (2007)

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1. Background

AIDS is one of the most devastating illnesses the world has ever faced. Since the disease was first reported in 1981, more than 60 million people have been infected and around 20 million have died. At the end of 2006, 40 million people were HIV-positive (25 million of them in Sub-Saharan Africa,¹ most of whom do not have access to the anti-retroviral drugs which have contained the disease in the developed world). Yet, scientists are almost no closer to producing a vaccine against HIV infection than in the 1980s. The main ray of hope for developing a vaccine was provided by “the Nairobi prostitutes”, as they have become known amongst AIDS experts.^{2 3} These women, a group of commercial sex workers from a slum called Majengo in Nairobi’s Pumwani District, have attracted the attention of the international community since the early 1990s.

In the late 1980s, Canadian infectious disease-scientist Francis Plummer first noticed⁴ something perplexing amongst a group of 2,000 Nairobi prostitutes enrolled in a study regarding sexually transmitted diseases (STDs).⁵ Approximately 5% of these women had repeatedly tested negative for HIV infection, despite their high-risk behaviour;⁶ according to the research team, some of the women had experienced hundreds of unprotected exposures to the AIDS virus over a decade without showing any signs of HIV infection.⁷

At forty-one, Hala has five children and eight grandchildren. Her first husband left when their second child was born. Her second husband died of aids nearly twenty years ago, in the earliest days of the epidemic. Hala often tells people that she sells charcoal, doughnuts, or cooking oil on the streets, but that isn't true. She is a prostitute, who has spent nearly half her life working out of a wattle hut in Pumwani, one of Nairobi's most crowded--and violent--slums. On an average day, she might see ten men, most of them truck drivers from Tanzania. Her "office" has just enough room for a single bed, a stool, a customer, herself, and a wicker basket filled with condoms. The basket is a recent addition; only in the past year or so have her clients agreed to use condoms with any regularity.... In Pumwani, more than ninety per

¹ UNAIDS/WHO AIDS Epidemic Update: December 2006 http://data.unaids.org/pub/EpiReport/2006/02-Global_Summary_2006_EpiUpdate_eng.pdf accessed July 5 2007.

² The Associated Press, ‘Nairobi Prostitutes may hold key to AIDS Vaccine,’ *CNN*, 25 October 1997, <http://www.cnn.com/HEALTH/9710/25/kenya.aids/index.html> accessed 6 March 2007.

³ John Carlin, ‘Hope for Aids cure as prostitutes defy virus in the slums’, *The Observer*, November 23, 2003 http://observer.guardian.co.uk/science/story/0,,1091375.00.html#article_continue accessed July 11 2007.

⁴ This phenomenon was first described by Frank Plummer at the 1993 International AIDS conference in Berlin. Lawrence K Altman, ‘HIV Immunity Discussed at Berlin Conference,’ *New York Times*, June 9, 1993 available at <http://query.nytimes.com/gst/fullpage.html?res=9FOCE0DB1F3FF93AA35755C0A965958260&sec=health&spon=&pagewanted=print> accessed 10 July 2007.

⁵ The cohort of female sex workers was established by Elizabeth Ngugi and colleagues from the University of Nairobi and the University of Manitoba, see Richard Jeffreys, ‘Riddle Women: Reports of Progress Toward Understanding How Some People Appear to Fight Off HIV,’ at www.thebody.com/content/art1571.html accessed July 9 2007.

⁶ Hilary Bower, ‘Science: New hope; African prostitutes who seem to have developed immunity to HIV have pointed an Oxford research team in the direction of a vaccine – and not only for the prosperous,’ *The Independent* (London) November 29 1998.

⁷ Anne-christine d’Adesky and Richard Jeffreys, ‘The African Connection. Sex workers provide clues for a vaccine,’ *HIV+* 3, March 1999 available at <http://www.aidsinfonyc.org/hivplus/issue3/ahead/african.html> accessed 10 July 2007.

cent of prostitutes--and many of their clients--test positive for the virus. Hala has engaged in unprotected sex with hundreds of HIV-positive men. ... Remarkably, though, she has never become infected.⁸

Since 1998 researchers from the universities of Oxford, Nairobi, and Manitoba have been collaborating on a project to develop a vaccine against HIV based on the immunological protection mechanisms found in these sex workers. The partnership includes the UK Medical Research Council; the International AIDS Vaccine Initiative (IAVI)⁹ and the Uganda Virus Research Institute.

An early study which followed 424 sex workers between 1985 and 1994, established that a small proportion of highly exposed individuals have a natural protective immunity, which means they are resistant to HIV infection.¹⁰

Subsequent studies aimed to clarify the nature of the women's immune response as this "has significant implications for vaccine design".¹¹ What was it about the women's immune response that was so successful it made them resistant to HIV? A 1998 study did not find conclusive answers, but did establish that in contrast to research conducted amongst Caucasian populations, the Nairobi women's resistance could not be accounted for by various mechanisms suggested so far.¹²

An immunological evaluation in a further study established that the HIV resistant women possessed high levels of a type of white blood cell known as cytotoxic T lymphocytes, or killer T-cells, which showed an HIV-1 specific response. The women's killer T-cells were able to quickly target particular proteins produced by the HIV virus, before the virus could take hold, which protected them against HIV-1 infection.¹³ This provided the researchers with a new understanding, on which subsequent vaccine development was based.^{14 15 16}

⁸ Michael Specter, 'The vaccine - Has the race to save Africa from aids put Western science at odds with Western ethics?', *The New Yorker*, February 3, 2003 at: http://www.michaelspecter.com/ny/2003/2003_02_03_vaccine.html accessed 5 July 2007.

⁹ IAVI is a global not-for-profit, public-private partnership working to accelerate the development of a vaccine to prevent HIV infection and AIDS, founded in 1996 <http://www.iavi.org/viewpage.cfm?aid=24>

¹⁰ Fowke KR, Nagelkerke NJ, Kimani J, Simonsen JN, Anzala AO, Bwayo JJ, MacDonald KS, Ngugi EN, Plummer FA. 'Resistance to HIV-1 infection among persistently seronegative prostitutes in Nairobi, Kenya,' *Lancet* 1996 Nov 16; 348 (9038):1347-51.

¹¹ Rowland-Jones SL, Dong T, Fowke KR, Kimani J, Krausa P, Newell H, Blanchard T, Ariyoshi K, Oyugi J, Ngugi E, Bwayo J, MacDonald KS, McMichael AJ, Plummer FA. 'Cytotoxic T cell responses to multiple conserved HIV epitopes in HIV-resistant prostitutes in Nairobi,' *J Clin Invest*. 1998 Nov 1; 102(9):1758-65.

¹² Fowke KR, Dong T, Rowland-Jones SL, Oyugi J, Rutherford WJ, Kimani J, Krausa P, Bwayo J, Simonsen JN, Shearer GM, Plummer FA. 'HIV type 1 resistance in Kenyan sex workers is not associated with altered cellular susceptibility to HIV type 1 infection or enhanced beta-chemokine production,' *AIDS Res Hum Retroviruses*. 1998 Nov 20; 14(17):1521-30.

¹³ Fowke KR, Kaul R, Rosenthal KL, Oyugi J, Kimani J, Rutherford WJ, Nagelkerke NJ, Ball TB, Bwayo JJ, Simonsen JN, Shearer GM, Plummer FA. 'HIV-1-specific cellular immune responses among HIV-1-resistant sex workers,' *Immunol Cell Biol*. 2000 Dec; 78 (6):586-95.

¹⁴ Bower, H, *Ibid*.

¹⁵ Rowland-Jones S, Dong T, Krausa P, Sutton J, Newell H, Ariyoshi K, Gotch F, Sabally S, Corrah T, Kimani J, MacDonald K, Plummer F, Ndinya-Achola J, Whittle H, McMichael A. 'The role of cytotoxic T-cells in HIV infection,' *Dev Biol Stand*. 1998; 92:209-14.

¹⁶ Kaul R, Dong T, Plummer FA, Kimani J, Rostron T, Kiama P, Njagi E, Irungu E, Farah B, Oyugi J, Chakraborty R, MacDonald KS, Bwayo JJ, McMichael A, Rowland-Jones SL. 'CD8(+) lymphocytes respond to different HIV epitopes in seronegative and infected subjects,' *J Clin Invest*. 2001 May; 107(10):1303-10.

Vaccine trials started in 2001 and proceeded through clinical trials I and II.¹⁷ However, in 2004 it was announced by the Oxford/Nairobi team at an international AIDS-Vaccine conference in Switzerland that the vaccine had failed to offer sufficient protection against HIV infection. Initial analysis showed that although the vaccine was safe and well tolerated, only 20% of the volunteer participants had showed a potentially protective stimulated T-cell response after receiving the vaccine, and at a lower rate than desired.^{18 19}

A more recent study, conducted in Nairobi between 1996 - 2000, noted that eleven of the women who had been classified as HIV-1 resistant had seroconverted.²⁰ This aroused concern, as well as scientific interest as to whether they had a waning immunity.²¹ A key finding in this study was that the women's seroconversion was correlated with a reduction in sex work. A break in sex work was associated with a loss of the immune responses which were protecting them against the HIV virus. The study therefore drew some important conclusions for vaccine development:

... HIV-1 resistance may not be an all-or-none phenomenon, but rather an immunologic state that is inducible given the correct antigenic stimulus. However, it also suggests that maintenance of HIV-1 immune resistance will require ongoing antigenic priming, either through intermittent vaccine boosters or through the use of vaccine strategies employing persistent antigen.^{22 23}

Thus attention shifted to the factors that led to seroconversion, and what could be learnt from this for vaccine development:

These findings suggest that vaccine-induced protective HIV immunity is a realistic goal, but that vaccine strategies of boosting or persistent antigen may be necessary for long-lived protection.²⁴

¹⁷ Phase I trials are the earliest human tests in the life of a new drug. They involve few people and check for safety, side effects and efficacy. This information is used to establish the dose which will be used in the next stage of testing. Phase 2 trials are carried out in larger groups of volunteers, to establish more about efficacy, dosage and side effects.

¹⁸ Arthur Okwemba, 'AIDS Vaccine fails crucial test,' *Daily Nation*, February 9 2004 available at http://www.nationmedia.com/daily_nation/printpage.asp?newsid=14807 accessed 10 July 2007.

¹⁹ Michael Waldholz, 'AIDS Vaccine Disappoints in Tests: Experimental Drug Failed To Show Robust Response in Human Immune System,' *Wall Street Journal*, September 3, 2004 available at <http://www.aegis.com/news/wsj/2004/WJ040901.html> accessed 11 July 2007.

²⁰ After initial exposure to any agent, it takes time for antibodies to develop. At some point after initial HIV infection seroconversion occurs (usually this takes a few weeks to a few months): this means there is now a detectable level of antibodies to HIV in the blood, and a person will test (sero)positive for HIV.

²¹ Kaul R, Rowland-Jones SL, Kimani J, Dong T, Yang HB, Kiama P, Rostron T, Njagi E, Bwayo JJ, MacDonald KS, McMichael AJ, Plummer FA. 'Late seroconversion in HIV-resistant Nairobi prostitutes despite pre-existing HIV-specific CD8+ responses,' *J Clin Invest*. 2001 Feb; 107 (3):341-9.

²² *Ibid.*, note 5, p.348.

²³ An antigen is a substance (in this case the HIV virus) that stimulates an immune response.

²⁴ Kaul R, Rowland-Jones SL, Kimani J, Fowke K, Dong T, Kiama P, Rutherford J, Njagi E, Mwangi F, Rostron T, Onyango J, Oyugi J, MacDonald KS, Bwayo JJ, Plummer FA. 'New insights into HIV-1 specific cytotoxic T-lymphocyte responses in exposed, persistently seronegative Kenyan sex workers,' *Immunol Lett*. 2001 Nov 1;79(1-2):3-13, p.3

Studies have subsequently been conducted on the long-term survivors which have suggested new directions in HIV research:

Studying the interaction among immunogenetics, immune responses and viral sequences from all HIV-1 subtypes may increase our understanding of slow HIV-1 disease progression.²⁵

Other studies, which used the women's genetic samples, have focused on genetic variation in order to determine susceptibility to HIV-1 infection.²⁶ Genetic studies have provided new insights with regard to the factors associated with resistance to infection by HIV-1²⁷ and more studies are underway, which could contribute to the development of a vaccine against HIV.

Follow up studies of 850 women in Majengo are currently being conducted as part of the ongoing collaborative project by researchers from the universities of Nairobi, Oxford and Manitoba.

This report is concerned with the issue of benefit sharing with the participants in these studies. Having outlined the scientific background to the case, it goes on to describe the legal and institutional environment in which both the studies, and the question of benefit sharing, take place. It then examines the negotiating and decision-making procedures involved, and goes on to outline the most significant ethical issues raised, focussing on negotiation and consent, vulnerability and benefit sharing. It concludes by identifying ways forward to develop benefit sharing models in cases of human genetic research.

11. Legal and Institutional Environment

11. 1. International Laws and Regulations

Research involving human subjects is bound by the *Declaration of Helsinki*,²⁸ and the *CIOMS Guidelines*.²⁹ These do not have independent legal standing, but constitute the most authoritative statements on medical ethics, influencing the formulation of international, regional and national

²⁵ Fang G, Kuiken C, Weiser B, Rowland-Jones S, Plummer F, Chen CH, Kaul R, Anzala AO, Bwayo J, Kimani J, Philpott SM, Kitchen C, Sinsheimer JS, Gaschen B, Lang D, Shi B, Kemal KS, Rostron T, Brunner C, Beddows S, Sattenau Q, Paxinos E, Oyugi J, Burger H. 'Long-term survivors in Nairobi: complete HIV-1 RNA sequences and immunogenetic associations,' *J Infect Dis.* 2004 Aug 15; 190(4):697-701. Epub 2004 Jul 13. p.697.

²⁶ Ji H, Ball TB, Kimani J, Plummer FA. 'Novel interferon regulatory factor-1 polymorphisms in a Kenyan population revealed by complete gene sequencing,' *J Hum Genet.* 2004; 49(10):528-35. Epub 2004 Sep 17.

²⁷ For example; "This study adds IRF-1, a transcriptional immunoregulatory gene, to the list of genetic correlates of altered susceptibility to HIV-1. This is the first report suggesting that a viral transcriptional regulator might contribute to resistance to HIV-1": Ball TB, Ji H, Kimani J, McLaren P, Marlin C, Hill AV, Plummer FA. 'Polymorphisms in IRF-1 associated with resistance to HIV-1 infection in highly exposed uninfected Kenyan sex workers,' *AIDS.* 2007 May 31; 21(9):1091-1101. p. 1091.

²⁸ World Medical Association, *Helsinki Declaration*, 2000. <http://www.wma.net/e/policy/b3.htm>
"The *Declaration of Helsinki*, issued by the World Medical Association in 1964, is the fundamental document in the field of ethics in biomedical research and has influenced the formulation of international, regional and national legislation and codes of conduct," Council for International Organisations of Medical Sciences (CIOMS), *International Ethical Guidelines for Biomedical Research Involving Human Subjects*, "International Instruments and Guidelines," http://www.cioms.ch/frame_guidelines_nov_2002.htm accessed July 20 2007.

²⁹ CIOMS, *International Ethical Guidelines for Biomedical Research Involving Human Subjects*.

legislation. Both however, only refer to benefits for trial participants in terms of post-trial obligations, regarding for example, availability of treatments.³⁰

Most international legal instruments on benefit sharing govern access to and use of non-human genetic resources rather than human genetic resources. The lack of a binding international legal framework regarding human genetic resources has not previously generated much concern.³¹

The most important international legal instrument of relevance here is the 1976 *International Convention on Economic, Social and Cultural Rights* (ICESCR). As one of the principal human rights treaties, this provides “that States parties to the covenant recognise the right of everyone to enjoy the benefits of scientific progress and its applications”.³² Although this “rather indefinite”³³ provision can be generally applied to the question of access to benefits derived from scientific activity involving human genetic resources, it does not contain any clear guidance as to what this might actually mean in practice.

The current situation is therefore that each state is responsible for putting its own legal framework in place to govern the use of human genetic resources, but, subject to international standards in medical ethics, this is largely in the context of international guidelines rather than laws.

11. ii International Guidelines

UNESCO has issued a variety of *Declarations* relating to genomics, bioethics and human rights, all of which demonstrate a particular concern with regard to developing countries. None of these are legally binding, but again they provide important guidelines for states in the formulation of their legislation and policies.

In 1997 UNESCO’s *Universal Declaration on the Human Genome and Human Rights* stated that “Benefits from advances in biology, genetics and medicine, concerning the human genome, shall be made available to all, with due regard for the dignity and human rights of each individual,”³⁴ and that “developing countries [are] to benefit from the achievements of scientific and technological research so that their use in favour of economic and social progress can be to the benefit of all”.³⁵

³⁰ *Helsinki Declaration*, Principle 30. *CIOMS Guidelines*, Guideline 10: “any intervention or product developed, or knowledge generated, will be made reasonably available for the benefit of that population or community”.

³¹ See Lorraine Sheremeta, ‘Population Genetic Studies: Is there an Emerging Legal Obligation to Share Benefits?’ *Health Law Review* 12/1 (2003) 36-38. See Kadri Simm, *Benefit Sharing Frameworks – Justifications for and against benefit sharing in human genetic research*. A Report for Genbenefit, available at www.uclan.ac.uk/genbenefit See also discussion on HUGO *Statement on Benefit Sharing* below.

³² United Nations, *International Convention on Economic, Social and Cultural Rights*, 1976, Article 15(1) (b) http://www.unhchr.ch/html/menu3/b/a_cescr.htm accessed 21 February 2007.

³³ See Kadri Simm, *Benefit Sharing Frameworks – Justifications for and against benefit sharing in human genetic research*, p.4.

³⁴ UNESCO, *Declaration on the Human Genome and Human Rights*, 1997, (article 12(a)) http://portal.unesco.org/en/ev.php-URL_ID=13177&URL_DO=DO_TOPIC&URL_SECTION=201.html accessed 13 July 2007.

³⁵ *Ibid.*, article 19(a), iii.

In 2003 UNESCO's *International Declaration on Human Genetic Data* expanded on this general notion of the sharing of benefits. Article 19 states that benefits "resulting from the use of human genetic data.....should be shared with the society as a whole and the international community".³⁶

UNESCO's *Universal Declaration on Bioethics and Human Rights* (2005) emphasizes the need "to promote equitable access to medical, scientific and technological developments as well as the greatest possible flow and the rapid sharing of knowledge concerning those developments and the sharing of benefits, with particular attention to the needs of developing countries."³⁷ In line with the scope of this *Declaration*, Article 15 stipulates:

1. Benefits resulting from any scientific research and its applications should be shared with society as a whole and within the international community, in particular with developing countries. In giving effect to this principle, benefits may take any of the following forms:

The clearest identification of benefit sharing regarding human genetics so far has been made in the Human Genome Organisation (HUGO) Ethics Committee *Statement on Benefit-Sharing*.³⁸ Noting that "benefit-sharing has also been established as a principle of international law in the area of biodiversity and genetic resources in food and agriculture" the *Statement* focuses mainly on the distribution of "goods that contribute to well-being" that might arise from human genetic research, based on the participation of different communities. In addition to recommending "that all humanity share in the benefits of genetic research" the *Statement* recommends "that benefits not be limited to those who have participated in such research", "and that there be prior discussion with groups or communities on the issue of benefit-sharing." The *Statement* both defines and contextualises the concepts it draws upon, such as community and justice, and therefore makes its recommendations in a clear context of how these goals might (start to be) achieved. For these reasons it has been well-received in the world of human genetics, where it is proving to be a powerful rhetorical tool.³⁹

The Joint United Nations Programme on HIV/AIDS (UNAIDS) *Ethical Considerations in HIV Preventive Vaccine Research*,⁴⁰ is another authoritative ethical statement relevant to this case. Guidance Point 10 stipulates clearly what may be considered to be minimum benefits for participants in HIV preventive vaccine trials in terms of health care. These are: regular and supportive contact with health care workers and counsellors throughout the course of the trial; comprehensive information regarding HIV transmission and how it can be prevented; access to HIV prevention methods; access to a pre-agreed care and treatment package for HIV/AIDS if they become HIV infected while enrolled in the trial; compensation for time, travel and inconvenience for participation in the trials; if the vaccine is effective, they will also develop protective immunity to HIV. Notably however, these are not, strictly speaking, benefits that are derived *from* the research, which could

³⁶ UNESCO, *International Declaration on Human Genetic Data*, 2003, Article 1, http://portal.unesco.org/en/ev.php-URL_ID=17720&URL_DO=DO_TOPIC&URL_SECTION=201.html accessed 21 February 2007.

³⁷ UNESCO, *Universal Declaration on Bioethics and Human Rights*, 2005, Article 2 (f).

http://portal.unesco.org/en/ev.php-URL_ID=31058&URL_DO=DO_TOPIC&URL_SECTION=201.html

³⁸ HUGO Ethics Committee, *Statement on Benefit-Sharing*, (April 9 2000), section G. Benefit Sharing, available from http://www.hugo-international.org/Statement_on_Benefit_Sharing.htm accessed 13 July 2007.

³⁹ See Kadri Simm, *Benefit Sharing Frameworks*, esp. pp 4-5.

⁴⁰ UNAIDS, *The Joint United Nations Programme on HIV/AIDS (UNAIDS) - Ethical Considerations in HIV Preventive Vaccine Research*, Geneva, May 2000, Switzerland. http://www.unaids.org/html/pub/publications/irc-pub01/jc072-ethicalcons_en_pdf.pdf accessed 17 July 2007.

then be shared with the participants, but simply benefits, which may be derived from participating in vaccine research, in line with current agreed international standards of conduct in medical research. Most of these ‘benefits’ have been, and continue to be, available to the women in the Majengo studies.⁴¹

However, like the UNESCO *Declarations* and the HUGO *Statement*, the UNAIDS guidance has no legal status. The relevance of these, and other guidelines for the ethical issues arising from the Majengo case are discussed later in this report.

11. iii. National Laws, Regulations and Institutions

Although Kenya has put regulations in place to govern access to non-human genetic resources and subsequent benefit sharing, currently no such policy or regulations exist for the use of human genetic resources.⁴² The existing regulations were made pursuant to section 147 of the *Environmental Management and Co-ordination Act*, 1999.⁴³ Interestingly, genetic material is defined in Clause 2 of these regulations as “any genetic material of plant, animal, microbial or other origin containing functional units of heredity”. This definition could arguably have been extended to apply to human genetic resources, but Clause 3(c) expressly excludes the application of the regulations to human genetic resources.⁴⁴

Kenya has also developed *National Guidelines for Research and Development of HIV/AIDS Vaccines* to provide a framework for developing and evaluating HIV/AIDS vaccines in the country. These *Guidelines* are highly relevant for this report given that the Majengo studies have contributed to HIV/AIDS vaccine research and development, although the women themselves have not been involved in the vaccine trials. The *Guidelines* “provide a blueprint for government agencies and non-governmental organizations to collaborate with HIV/AIDS vaccine research and development partners to accelerate the research and development.”⁴⁵

The *Guidelines* also provide an enabling framework for addressing issues of financial compensation. Paragraph 8.3 provides as follows:

Material transfer agreements should state:

- The materials or specimens are for scientific, educational and non-commercial purposes only.

⁴¹ This was confirmed by an interview with a Nairobi University Researcher, as well as interviews with some of the Majengo participants. It is important to note that this has been a major factor in the women’s (continuing) involvement; “I expected treatment, free of charge. Every time I fall sick I come here for treatment and it’s free.”; “It is their treatment, they give us free medicine because of the nature of our work”. GenBenefit, April 2007.

⁴² Interview with Ministry of Health (MoH), Kenya, GenBenefit April 2007.

⁴³ *The Environmental Management and Co-ordination (Conservation of Biological Diversity and Resources, Access to Genetic Resources and Benefit Sharing) Regulations*, 2006, issued under Legal Notice No 160.

⁴⁴ The Kenyan Ministry of Health is currently (April 2007) convening a taskforce to formulate a legal framework for the conduct of such research and related matters, with the emphasis on public protection. Interview with MoH, GenBenefit, April 2007.

⁴⁵ Ministry of Health. *Kenya National Guidelines for Research and Development of HIV/AIDS Vaccines*, March 2005, p.vi.

- Any other use of materials and specimens or research results, including but not limited to commercial development, may proceed only after concluding a cooperative research and development agreement (RADA). Negotiations must be completed and the RADA executed before commercial sale of the products. This agreement must be binding on all parties with respect to intellectual property rights.
- Any unauthorised commercial use of the materials and specimens or results without the said agreement will be subject to financial penalty by court of law.
- No material transfer will be done without the consent of the trial participant.
- No material transfer will be done without approval of the protocol and in accordance to the Ministry of Health guidelines on transfer of biological material.

Benefit sharing agreements could effectively be incorporated into the cooperative RADA. The agreements would then be binding and enforceable in law.

Interestingly, the preface to the *Guidelines* notes that they were developed in response to the Majengo case, which represented the beginning of the search for an HIV/AIDS vaccine in Kenya. They thereby filled a gap, given that prior to this, “there were no clear and specific guidelines to aid in developing and evaluating HIV/AIDS vaccines”.⁴⁶ A consensus workshop was held in 2004 during which stakeholders’ views were incorporated into the *Guidelines*. The consultation process has not yet been completed and the Ministry of Health is still open to receiving comments and suggestions.

111. Negotiation and decision making

In the Majengo case, the original, routine issues of negotiation and decision-making related to the conduct of the research studies only involved researchers and administrators from the relevant universities and institutions. Concerns have been expressed in Kenya about the difficulties of equitable collaborations between Kenyan researchers and those from Europe and elsewhere – this problem links to the alleged patent dispute between Oxford and Nairobi mentioned below, but also to wider issues. It is a particular concern in Kenya, given that “A lot of requests for genetic research are coming from outside countries from collaborators. There is very little local genetic research. Most of it is collaborative.”⁴⁷

There was no formal inclusion of representatives from the sex workers in any of these negotiations. The volunteer (sex worker) participants themselves have at all stages given consent to their participation in the studies,⁴⁸ but as is standard practice in scientific research, they have retained no right of ownership over any donated samples or knowledge accrued from those, and therefore no negotiating rights regarding any subsequent developments.

⁴⁶ Ibid., p.vii.

⁴⁷ Interview with KEMRI, GenBenefit, April 2007.

⁴⁸ Issues have been raised concerning the difficulties of communicating adequate information for obtaining meaningful consent from potential participants given the difficulties of translating complex concepts into languages that may not (yet) have the linguistic resources to communicate those, “the moment you begin to talk about even translating into a language that the subject, the participant understands, you find that most words do not exist here.....so there is a problem of the concepts,” Interview with KEMRI.

For the women, the prospect of free health care is perceived as a major benefit of participating in the research; “I agreed because when I am sick they help me a lot and when my immunity is down they will also help me.”⁴⁹ However, wider issues of benefit sharing with the Majengo participants have only been raised more recently,⁵⁰ in the context of advances regarding benefit sharing in cases of non-human genetics, and following publicity regarding an alleged dispute between researchers from the Universities of Oxford and Nairobi over a patent application related to the HIV vaccine.⁵¹ This dispute was resolved after “intense” negotiations,⁵² which resulted in a new Memorandum of Understanding between the parties. Although this provides that the collaborators will be joint applicants for, and owners of rights, titles and interests of inventions and/or patents arising from the research, and that research benefits will be shared equally between them,⁵³ it does not mention how the researchers would compensate the Majengo women who have provided so many of the resources leading to the vaccine development.⁵⁴

Traditionally, donors of samples used for scientific research do not have a stake in future benefits, except generic benefits such as medical progress. This is why most informed consent forms include a brief section which explains to the potential participant that no financial or other gains can be expected from taking part in this research. However, this traditional handling of resource samples has been increasingly criticised in the context of potential exploitation of research participants in developing countries.⁵⁵ If medical progress is achieved mostly to the benefit of populations in research funder countries rather than the countries from where research participants are drawn, an equity problem occurs. To remedy this, the issue of benefit sharing has to be considered.

Their lack of involvement in decision-making does not necessarily mean that the women were not interested in sharing benefits derived from the research involving information obtained from them. According to some media reports, the women have indeed raised issues related to benefit sharing.⁵⁶

The question of how those who provide human genetic resources for scientific research might be included in negotiations and decision-making about benefit sharing is discussed in more detail in subsequent sections.

⁴⁹ Interviews with Majengo participants.

⁵⁰ See Pamela Andanda, ‘A golden chance for medical ethics in Kenya,’ June 2004 Sci.Dev.Net <http://www.scidev.net/content/opinions/eng/a-golden-chance-for-medical-ethics-in-kenya.cfm>

⁵¹ Details came to public attention through the media, where an alleged patent dispute between the Universities of Nairobi and Oxford was first discussed in 2000, see Mark Turner, ‘Universities’ rift over Aids vaccine defused,’ *Financial Times*, October 23 2000 . It was reported that disagreements arose when University of Nairobi scientists protested that their partners at Oxford had patented the HIV vaccine development process without acknowledging them. ‘Kenyan AIDS Scientists Win Recognition Battle’, *Daily Nation*, 30 August 2001, <http://www.nationaudio.com/News/DailyNation/Supplements/horizon/06092001/story2.htm> accessed 16 July 2007.

⁵² See Mark Turner, ‘Universities’ rift over Aids vaccine defused.’

⁵³ ‘The Kenya AIDS Vaccine Initiative: challenges and achievements,’ *Newsletter of the African AIDS Vaccine Programme*, Issue 2, 2002, note 21. The 30-page memorandum, was in force from 1st October 2001 to 30th September 2004.

⁵⁴ “[E]arlier, the scientists had indicated that the new arrangements would require individual institutions to pay the women from the proceeds they get. But this is not reflected in the document [memorandum]” Ibid.

⁵⁵ Doris Schroeder and Carolina Lasén Díaz, ‘Sharing the Benefits of Genetic Resources: From Biodiversity to Human Genetics,’ *Developing World Bioethics*, Vol. 6, No. 3, December 2006.

⁵⁶ Arthur Okwemba, ‘A History of Exploitation,’ *Daily Nation*, 15 July 2000.

IV. Ethical issues/concerns

Conducting research involving human genetic resources obtained from participants drawn from a community such as Majengo, which relies on collaboration between researchers from a variety of countries including developing countries such as Kenya, raises a number of ethical issues and concerns. Although the HIV vaccine trial was halted in 2004, more studies are currently being conducted, so these issues remain live, and pressing. The most significant ethical issues in the Majengo case are related to negotiation and consent, the vulnerability of the research subjects, and benefit sharing.

Determining what qualifies as a benefit, in the context of benefit sharing, in which participants in such studies can meaningfully share, particularly where there has been no tangible outcome is a daunting task.⁵⁷ In this case the trial vaccine developed out of the studies has not proved successful, but the researchers, their institutions, and arguably the whole field of related science and medicine have gained considerably from the ongoing studies in terms of for example, techniques of developing DNA based vaccine, lessons in immunology, technology transfer, and patents for vaccine development processes⁵⁸ There are other related concerns: Who should benefit from the outcome of these studies; the community members or the collaborating country as a whole? Who determines the nature of any benefits to be shared with the participants or wider beneficiaries in such cases? What criteria are used in determining the nature of those benefits? What prompts participants to give their consent to participate in studies involving human genetic research, and how might these be affected by benefit sharing negotiations and arrangements? The last question is closely related to ongoing debates about exploitation versus undue inducement of participants. Each of these concerns is discussed below.

IV. i. What prompts participants to give their consent to participate in studies involving human genetic research, and how might these be affected by benefit sharing negotiations and arrangements?

Genetic research usually proceeds on the basis that the donors give their informed consent altruistically.⁵⁹ This is typified by one of the Majengo participants who said, “They can get a cure from my blood and it can help the whole world. So that is why I gave myself.”⁶⁰ However, the ability of participants to make free and informed decisions to participate in human genetic research presents unique challenges insofar as “the purposes for which the data and biological samples are collected and the uses for which they may be employed will often only be known in a very general manner...”.⁶¹ Interestingly, Kenya’s *Guidelines* on HIV vaccines research do address this issue, but somewhat superficially. Paragraph 7.3 on the informed consent process simply provides that “no

⁵⁷ See Kadri Simm, *Benefit Sharing Frameworks*, esp. pp 16-18.

⁵⁸ Kenyan researchers have stated that they have benefited personally and professionally from their involvement in such research, which has simultaneously contributed to the research capacity of their university, and the country itself. Interview with Nairobi University Researcher, GenBenefit, April 2007. However, others have suggested that the benefits flowing towards Kenya in terms of technology transfer etc have been disappointingly limited. Interview with KEMRI.

⁵⁹ Gary E Marchant, ‘Property Rights and Benefit-Sharing for DNA Donors,’ *Jurimetrics* 45 (2005) 153-178, note 56, p.168.

⁶⁰ Interview with Majengo participants, GenBenefit, April 2007.

⁶¹ OECD, *Creation and Governance of Human Genetic Research Databases* (OECD Publishing, 2006), p.89.

biological material transfer shall be done without informed consent of the trial participants.”⁶² However, giving one’s informed consent to the transfer of material for, potentially, commercial development, is not equivalent to actually being involved in the negotiations where issues such as the sharing of potential benefits may be determined. As outlined in the various guidelines discussed so far, it is clear that research participants should be given an opportunity to be involved in any such negotiation processes, but this provision does not seem to address this concern. In common with many developing countries Kenya does not have the capacity for scientific analysis of all of the samples the studies will collect, which means that “in most cases...the samples or the materials are taken out of the country,”...“In most cases in our countries when these materials are gone we never get to know what happens to these things.” “The individual will never get to know what happened to the samples or what became of the whole study. So issues of benefit are limited to the bus fare.....And here we also have this problem of drawing the line between benefit and inducement, benefit and coercion.”⁶³

A common concern related to motivation to participate in genetic research is the issue of whether offering monetary compensation to research participants is an inducement which threatens the very possibility of voluntary informed consent.⁶⁴ An alternative of compensation for all DNA donors has been proposed.⁶⁵ However, this raises the same ethical and practical problem of inducements that could persuade those who otherwise would not be inclined to donate, particularly those in financial distress. For those who need to undertake commercial sex work in order to ensure their economic survival, this would have to be a very real consideration.

[P]overty is a great factor and sometimes militates against voluntary consent.⁶⁶

UNESCO’s *Declaration on Bioethics and Human Rights* notes that “Benefits should not constitute improper inducements to participate in research.”⁶⁷ The Kenyan *Guidelines* on HIV vaccines research explicitly recognise this problem (paragraph 7.3) and clearly state that “monetary benefit could be an inducement for participation in a trial and thus would negate free consent.”

Grady has suggested that research participants volunteer and sacrifice their time and effort in order to support the generation of knowledge that is helpful to the whole society, with little or uncertain benefit for themselves, and therefore “rather than being an inducement, money to reimburse research participants for their expenses and compensate them in some way for their time and effort may be a demonstration of respect and appreciation for these generous individuals.”⁶⁸ “You see, this ‘road job’, we don’t do it because we like it, there is a reason, and if I could get other things apart from...”⁶⁹ Chambers’ response to Grady is that “monetary compensation nullifies our appreciation...” since,

⁶² ‘Material transfer’ here refers to the transfer of materials or specimens to another party.

⁶³ Interview with KEMRI.

⁶⁴ Christine Grady, ‘Money for Research Participation: Does it Jeopardize Informed Consent?’ *American Journal of Bioethics* 1/2 (2001) 40-44. See also discussion in Kadri Simm, *Benefit Sharing Frameworks*, p. 11-12.

⁶⁵ Charles M Jordan and Casey J Price, ‘First Moore, then Hecht: Isn’t it Time we Recognise a Property Interest in Tissues, Cells and Gametes?’ *Real Prop. Prob. & TR. J* 37/151 (2002) 167-171, p.166. Cited in Marchant op cit note 56.

⁶⁶ Interview with KEMRI.

⁶⁷ *Universal Declaration on Bioethics and Human Rights*, Article 15 (2).

⁶⁸ Grady, note 68, p.44.

⁶⁹ Interviews with Majengo participants.

“...such compensation transforms the research subject into a commodity.”⁷⁰ Grady’s position is that a participant’s decision may be subject to many influences and money may be just one of them.⁷¹

It has also been suggested that payments should be evaluated in the light of the broader research context because “payments are ethical only in the context of a comprehensive and effective system of research protections”.⁷²

Three practical problems have been identified in creating a rule at the outset that financial compensation should be paid to participants:⁷³ First, university scientists would be prohibited from participating in drug discovery based on genomic research due to the financial situation of most universities that do not have funds to pay at the outset; second, “the idea of benefit sharing presupposes that there are some benefits and becomes void if no benefit accrues...” and third, “...fewer projects would move to actual clinical testing if projects taken over from academic groups had significant financial commitments attached.”

The practical problems arising from financial compensation may therefore need to be actively addressed by the negotiating parties.

A helpful precedent has already been set for such cases by the developments in the Canadian province of Newfoundland and Labrador where there is a requirement for benefit sharing protocols to be included in studies involving human genetics. The Province introduced legislation to establish a Provincial Health Research Ethics Board (PHREB) to review all genetic studies conducted in the province. Apart from this, the recommended benefit-sharing protocol requires the establishment of a Standing Committee on Human Genetic Research (SCHGR), “that would operate at arms-length from, but parallel to, the PHREB”. The model further requires “all research projects utilizing the Newfoundland genome...to submit a benefit-sharing proposal with supporting rationale to the SCHRG”. The proposal in this regard should indicate how the economic benefits derived from the study will be shared. This may take the form of “an agreement in principle to bring forward a detailed plan if and when commercial opportunities arise.”⁷⁴

The rationale of the Canadian proposal is to ensure that communities do not “relinquish a claim to future economic benefits at the outset either because the project is initiated in the public sector, or because the possibility of commercialization seems remote.”⁷⁵ This precedent could be used in other jurisdictions that are considering introducing similar measures.

Apart from the issue of paying monetary compensation to research participants, there is a wide literature which has considered other motives that encourage participants and other interested parties to become involved in genetic studies. The motives that are often more relevant for research

⁷⁰ Tod Chambers, ‘Participation as Commodity, Participation as Gift,’ *American Journal of Bioethics* 1/2 (2001) p.48.

⁷¹ Grady, note 68, p.43.

⁷² Rebecca Dresser, ‘Payments to Research Participants: The Importance of Context,’ *American Journal of Bioethics* 1/2 (2001) p.47.

⁷³ These are extracted from Kåre Berg, ‘The ethics of benefit-sharing,’ *Clinical Genetics* 59 (2001) 240–43, note 46, pp.241-242.

⁷⁴ Daryl Pullman, Andrew Latus, ‘Benefit Sharing in Smaller Markets: The Case of Newfoundland and Labrador,’ *Community Genet* 6 (2003) 178-181.

⁷⁵ *Ibid.*

participants include self-interest in treatment,⁷⁶ altruism or an obligation to act for the good of others.⁷⁷ “[I agreed] because I did not have money to go to hospital so if they gave me medicine...I thought it was better and my body can help other people by the research.”⁷⁸ These diverse interests show that “the patient community may not want a financial return, instead preferring to have an influence on access, pricing, and the terms guiding ownership and control of downstream developments”.⁷⁹ These sentiments have indeed been reported in the media amongst the Majengo women:

It is poverty which has pushed us into this dangerous business, and if the vaccine is sold we might not benefit. You see we cannot even afford to treat minor infections, so how will we afford the vaccine. The vaccine can only benefit us and other people if it is given free or at affordable prices.⁸⁰

This clearly resonates with the concerns demonstrated in the UNESCO and HUGO guidelines discussed in section 11, that all of humanity should benefit from any such advances. This is an important factor that policy development in the benefit sharing context should take into account, as any such shared concerns could only support and strengthen such policy developments.

As has been indicated above, the Majengo women were not involved, either individually or collectively in the negotiation process, and the prospects of getting any more than standard care benefits from the ongoing research were not discussed with them before they gave their consent to participate; “I did not expect money or such things, just treatment.”⁸¹ This situation is not surprising because discussions about benefit sharing to date have tended to be limited to large scale national projects.⁸² This does not however imply that concerted efforts should not be made to encourage discussions on benefit sharing in such circumstances.

“Is there any way you can help us to fend for ourselves and get on in life like others; that would be good.”⁸³

IV. ii. What qualifies as a benefit? And who decides?

In addition to the national and international legal instruments and other *Declarations* discussed in section 11, much current literature and a variety of further ethical guidelines recognise the possibility of sharing both the financial and non-financial benefits of genetic research with the communities that participate. There is also an emphasis upon properly negotiating the terms of any such agreements.

Principle 30 of the *Declaration of Helsinki* appears to identify as a benefit an assurance of access to the best proven prophylactic, diagnostic and therapeutic methods identified by the study.⁸⁴ It has

⁷⁶ “I was very happy because I benefited a lot; I get free treatment...many things.” Interviews with Majengo participants.

⁷⁷ Jon F. Merz, David Magnus, Mildred K. Cho, and Arthur L. Caplan, ‘Protecting Subjects’ Interests in Genetics Research,’ *Am. J. Hum. Genet.* 70 (2002) 965–971.

⁷⁸ Interviews with Majengo participants.

⁷⁹ *Ibid.*, p.969. See also discussion in Kadri Simm, pp.13-15.

⁸⁰ Arthur Okwemba, ‘A History of Exploitation,’ *Daily Nation*, 15 July 2000.

⁸¹ Interviews with Majengo participants.

⁸² Daryl Pullman, Andrew Latus, ‘Benefit Sharing in Smaller Markets: The Case of Newfoundland and Labrador’.

⁸³ Interviews with Majengo participants.

however been suggested that this Principle should be revised to ensure that “the extent of sponsors’ financial obligations must be reconciled in light of their potential profits from the research...” and “...these obligations should be negotiated and clarified between sponsors and hosts before the research is begun, specified in the consent process, and reviewed by a local research ethics board.”⁸⁵ The obligation to negotiate the nature of any benefits as well as the manner of sharing such benefits can be included in the sponsors’ and researchers’ obligations for consideration in this regard.

According to the Human Genome Organisation (HUGO) Ethics Committee, possible benefits to be shared may include “technology transfer, local training, joint ventures, provision of health care or of information infrastructure, reimbursement of costs, or the possible use of a percentage of any royalties for humanitarian purposes.”⁸⁶ Its *Statement on Benefit-Sharing* confirms that “a benefit is not identical with profit in the monetary or economic sense [and]... determining a benefit depends on needs, values, priorities and cultural expectations.”⁸⁷

UNESCO’s *Universal Declaration on Bioethics and Human Rights* itemises the following similar forms that benefits might take within ‘society as a whole’:

- (a) special and sustainable assistance to, and acknowledgement of, the persons and groups that have taken part in the research;
- (b) access to quality health care;
- (c) provision of new diagnostic and therapeutic modalities or products stemming from research;
- (d) support for health services;
- (e) access to scientific and technological knowledge;
- (f) capacity-building facilities for research purposes;⁸⁸

Article 21(4) provides that the terms for collaboration and agreement on the benefits of research should be established with equal participation by parties to the negotiation. This essentially means that all parties should be involved in determining the nature of the benefits to be shared.

The above guidelines are helpful in determining the nature of potential benefits but are also clear that it is incumbent on the negotiating parties to contextualize these guidelines and determine the most suitable types of benefit to be shared with the participants. Berg argues that “improved understanding of disease processes and a potential for new therapeutic modalities are themselves benefits.”⁸⁹ In the Majengo case, the researchers have certainly benefited and continue to benefit by improving their understanding of HIV/AIDS⁹⁰ Berg’s argument in support of benefit sharing is that “important progress resulting from research on samples from a small number of people ‘personalizes’ the

⁸⁴ World Medical Association, *Declaration of Helsinki*.

⁸⁵ Cheryl Cox Macpherson, ‘Research Sponsors Duties to Developing World Host Nations: The Ongoing WMA Discussion of Possible Revisions To the 2000 Declaration of Helsinki (Paragraph 30),’ *Developing World Bioethics* 4/2(2004) 173-175, p.175.

⁸⁶ HUGO Ethical, Legal, and Social Issues Committee Report to HUGO Council. *Statement on the Principled Conduct of Genetics Research*, 1996. http://www.hugo-international.org/Statement_on_Benefit_Sharing.htm accessed 21 February 2007.

⁸⁷ HUGO Ethics Committee, *Statement on Benefit-Sharing*.

⁸⁸ *Universal Declaration on Bioethics and Human Rights*, Article 15.

⁸⁹ Berg, ‘The ethics of benefit-sharing,’ p.241.

⁹⁰ See note 58, above

progress in a way that by itself makes it reasonable to consider benefit sharing”.⁹¹ This is a powerful argument in the Majengo context, echoed by the claim that “most people think that our commercial sex workers have been exploited. They have been used and in the end there was not benefit from that. Society may benefit from the alleged resistance....we can say the whole world will benefit, but is that enough to these ladies who have been attending the clinic since 1985?”⁹²

IV. iii. Who should benefit from the outcomes of these studies?

The HUGO *Statement on Benefit-Sharing* recommends that profit-making endeavours can consider donating “a percentage of the net profits (after taxes) to the health care infrastructure or for vaccines, tests, drugs, and treatments, or, to local, national and international humanitarian efforts.”⁹³ It has also been argued that “if profit results from genomic research on a whole population, the recipient of shared benefits should be the whole population.”⁹⁴

There is however, as we have seen, no well founded legal argument in support of either paying individual donors of genetic material for their donation, or making their donation the basis of sharing benefits derived from research using such material. This is currently a matter for each legal system to regulate, but the common position in most jurisdictions is that “a thing which the legal system does not recognize as susceptible to ownership (a thing which is *res extra commercium*) will not be deemed as an asset in that legal system.”⁹⁵ The underlying consideration in this regard is that the donors of samples which are used for genomic research “cannot have a right similar to that based on intellectual property or patent acts. Their body has simply synthesized a compound based on hereditary instructions passed on from the parents.”⁹⁶ The position on how benefits should be shared is succinctly put forth by Berg:

If a person’s DNA becomes ‘valuable’, it would be because of something that researchers have done with it or because of some pre-existing knowledge attained by the work of other scientists at an earlier stage. The people who make a person’s DNA sample valuable must have some stake in it, a right that is more like that of a holder of intellectual property than any right that the donor of the sample could claim. If industry has a duty to pay, the rights of the scientists that have made a sample valuable may exceed those of a person who has merely donated DNA.⁹⁷

The above position represents the traditional assumption that “the donors of genetic material used in research act altruistically and are entitled to no property rights or direct benefit-sharing in the fruits of the research.”⁹⁸ This assumption is however “under assault from several directions simultaneously.”⁹⁹ This is evident from the series of ethics guidelines that have been referred to in this report. The result

⁹¹ Berg.

⁹² Interview with KEMRI.

⁹³ Berg, op cit. note 44.

⁹⁴ Berg, op cit. note 46.

⁹⁵ J Weisman, ‘Organs as assets,’ *Israel Law Review* 27/4 (1993) 610-623.

⁹⁶ Berg, op cit note 46, p. 242.

⁹⁷ Ibid.

⁹⁸ Gary E Marchant, ‘Property Rights and Benefit-Sharing for DNA Donors,’ p.153.

⁹⁹ Ibid., 159.

is that “the legal and ethical foundation for not assigning property rights to DNA donors, or at least recognizing an obligation for benefit-sharing based on quasi-property rights, is now suspect.”¹⁰⁰

IV. iv. Vulnerability

Individuals and communities who are recognised as being particularly vulnerable to harm are subject to extra protection when being considered for inclusion in research in order to protect them from exploitation:

Exploitation can be defined as the act of taking unfair advantage of another party to serve one’s own interests.¹⁰¹

It has been argued that the context in which vulnerability is currently used has rendered almost all research participants vulnerable to such an extent that “the concept has become too nebulous to be meaningful”.¹⁰² There is indeed ambiguity regarding “what constitutes a community in need of protection, disagreements about multiculturalism and uncertainty as to what protections should be”.¹⁰³ However, the international ethical guidelines we have considered are almost unanimous in their concern for vulnerable research participants.

Article 8 of the UNESCO *Declaration on Bioethics and Human Rights* states that “Individuals and groups of special vulnerability should be protected”. The *Declaration of Helsinki* addresses the subject in more detail:

Medical research is subject to ethical standards that promote respect for all human beings and protect their health and rights. Some research populations are vulnerable and need special protection. The particular needs of the economically and medically disadvantaged must be recognized. Special attention is also required for those who cannot give or refuse consent for themselves, for those who may be subject to giving consent under duress, for those who will not benefit personally from the research and for those for whom the research is combined with care.¹⁰⁴

Additionally it notes:

The physician may combine medical research with medical care, only to the extent that the research is justified by its potential prophylactic, diagnostic or therapeutic value. When medical research is combined with medical care, additional standards apply to protect the patients who are research subjects.¹⁰⁵

¹⁰⁰ Ibid., 166.

¹⁰¹ Wertheimer A. *Exploitation* (Princeton: Princeton University Press, 1999), p.10. Also see Macklin R. *Double Standards in Medical Research in Developing Countries* (Cambridge: Cambridge University Press, 2004), p.101.

¹⁰² Carol Levine, Ruth Faden, Christine Grady, Dale Hammerschmidt, Lisa Eckenwiler, Jeremy Sugarman, ‘The Limitations of “Vulnerability” as a Protection for Human Research Participants’ *The American Journal of Bioethics* 4/3 (2004) 44–49, p.46.

¹⁰³ Charles Weijer, Gary Goldsand, Ezekiel Emanuel, ‘Protecting communities in research: current guidelines and limits of extrapolation,’ *Nature Genetics* 23 (1999) 275-280, p.275.

¹⁰⁴ *Helsinki Declaration*, No. 8, “Introduction.”

¹⁰⁵ *Helsinki Declaration*, C, “Additional Principles for Medical Research Combined with Medical Care.” Note 28.

It is already clear from the foregoing discussions that these principles would apply to the Majengo participants. The CIOMS *Guidelines* are more specific about who is vulnerable, and state that:

...groups or classes [that] may also be considered vulnerable...includepoor people and the unemployed...some ethnic and racial minority groups, homeless persons...refugees or displaced persons...patients with incurable disease, individuals who are politically powerless, and members of communities unfamiliar with modern medical concepts. To the extent that these and other classes of people have attributes resembling those of classes identified as vulnerable, the need for special protection of their rights and welfare should be reviewed and applied, where relevant.¹⁰⁶

Again it is clear that the Majengo women fall under this description. KEMRI has “rules about the use of vulnerable populations”, and works to ensure that research is not carried out in a more vulnerable population, if a less vulnerable one could be chosen.¹⁰⁷ It seems generally accepted that in the Majengo case “the research could not be carried out equally well with less vulnerable subjects”.¹⁰⁸ But it has been noted that this is a “group which would normally be excluded [from participation in research] under normal ethical rules”.¹⁰⁹ The question of the Majengo participants’ vulnerability therefore remains central to an examination of ethical issues related to this case, particularly the ethical justification for benefit sharing.

Guiding Point 7 of the UNAIDS guidance document states that vulnerability should not only be assessed on an economic basis but that “it is more useful to identify the particular aspects of a social context that create conditions for exploitation or increased vulnerability for the pool of participants that has been selected.”¹¹⁰ In the Majengo case, the women are vulnerable for multiple reasons due to their occupation, poor economic conditions and dependence on the clinic for their health care needs.

The individual women in this case identify themselves as belonging to a group of commercial sex workers. They in fact also belong to this group by virtue of their very participation in the study; “...once they come to Majengo clinic one of the things we insist on is that they must accept and acknowledge that they are sex workers. That was our condition.”¹¹¹ The Majengo participants themselves share this understanding, “I have brought some [friends] already, those I know who do this prostitution job. But there are others who like coming and they don’t do that job because they know of the benefits they can get; but those ones are not allowed at all, those like us...are the ones who come to the Clinic”.¹¹² Classifying a group as a community is not easy, particularly where genetic research is concerned, as the research focuses on shared genetic characteristics rather than

¹⁰⁶ CIOMS *Guidelines*, Guideline 13.

¹⁰⁷ Interview with KEMRI.

¹⁰⁸ CIOMS *Guidelines*, Guideline 13, ‘Research involving vulnerable persons’.

¹⁰⁹ Interview with KEMRI

¹¹⁰ UNAIDS. *The Joint United Nations Programme on HIV/AIDS (UNAIDS) - Ethical Considerations in HIV Preventive Vaccine Research*.

¹¹¹ Interview with Nairobi University researcher.

¹¹² Interviews with Majengo participants.

social and economic ones.¹¹³ However, Grady's proposed definition of 'community' is helpful in the context of the Majengo case:

a group or aggregate of people who interact with each other, are interdependent, and have something in common (whether it be ancestry, place of inhabitancy, culture, behaviors, or special interests), and who understand or define themselves to some extent as belonging to this group.¹¹⁴

Significantly, the UNAIDS guidance also specifically states that the "social and legal marginalization of groups from which participants might be drawn, eg....sex workers"... "can increase the nature and level of risk of harm to participants".¹¹⁵ It is important to note here that prostitution is a criminal offence in Kenya. The UNAIDS guidance is clear that "Persons who engage in illegal or socially stigmatized activities are vulnerable to undue influence and threats presented by possible breaches of confidentiality...such persons include sex workers". And it considers that a vulnerable person's legal or social status may impact on their ability to provide informed consent.¹¹⁶ The UNAIDS guidance also considers "governmental, institutional or social stigmatization or discrimination on the basis of HIV status" to be related to vulnerability,¹¹⁷ and the community are well aware of the associated risk of stigmatization from being involved in the study; "you may tell them but they are scared to come, and you see if they come here they are known to have 'that sickness'".¹¹⁸

It has been noted that the question of vulnerability is even more pertinent here as the participants may be sick with HIV/AIDS; "where do you draw the distinction between participating as a research subject and somebody coming for treatment?" "We found out that some of them have been there for so long...so many years that issues of whether they are now patients undergoing treatment or the research has become completely confused".¹¹⁹ This demonstrates that for vulnerable people, the provision of health care in return for participation can compound their vulnerabilities at the same time as it helps them.

Some regulatory authorities are already considering setting out standards for research involving collectivities such as aboriginal groups and people infected with HIV.¹²⁰ A very strong argument can certainly be made for considering the Majengo women as a multiply vulnerable community who are resistant to HIV, or at risk/infected with HIV (as some of them have seroconverted). A community

¹¹³ Dena S Davis, 'Groups, Communities, and Contested Identities in Genetic Research,' *Hastings Center Report* 30/6 (2000) 38-45, p.38.

¹¹⁴ Christine Grady, *The Search for an AIDS Vaccine: Ethical Issues in the Development and Testing of a Preventive HIV Vaccine* (Bloomington: Indiana University Press, 1995), p. 78.

¹¹⁵ UNAIDS, notes to Guidance Point 7.

¹¹⁶ UNAIDS, notes to Guidance Point 13.

¹¹⁷ UNAIDS notes to Guidance Point 7.

¹¹⁸ Interviews with Majengo participants.

¹¹⁹ Interview with KEMRI. For example, one of the participants interviewed by GenBenefit had been involved in the research since 1982.

¹²⁰ UNAIDS, op cit., note 30. Some of the regulatory bodies that have made a move towards this direction are the US Food and Drug Administration, The National Bioethics Advisory Commission and the Canadian Tri-Council Working Group on Ethics for research involving human subjects.

representative, as envisaged in Guiding Point 5 of the UNAIDS guidance document, might therefore be involved in negotiating additional benefits on behalf of the women.¹²¹

V. Conclusions and The Way Forward

“I did not expect money, just for my life to be better.”¹²²

Research on human genetic resources is an area that is growing rapidly and there is a lot of interest in this field while at the same time policies and regulations continue to develop. Such dynamic fields, as one of us has argued elsewhere, require a lot of vigilance and flexibility in addressing the issues that they raise.¹²³ Flexibility can be achieved through regulatory negotiation with a view to creating an enabling environment where the rights of research participants are respected while at the same time substantial benefits are gained from research.¹²⁴

Kenya has very good legal and ethical frameworks that govern benefit sharing of non-human genetic resources. Perhaps it is high time the country also developed similar frameworks for human genetic resources. The existing ethical frameworks for human genetic resources tend to focus more on the protection of research participants against risks and the potential benefits that they should share receives inadequate emphasis and attention.

Sheremeta and Knoppers have proposed the idea of sharing benefits with the donors of genetic materials as a way of fostering cooperation between developed and developing countries. Their argument is as follows:

[I]f appropriately developed and applied to human population genetic research, a rational model of benefit-sharing can provide a mechanism that will enable cooperation between the developed world and the developing world. A relevant benefit sharing model can be readily developed through the innovative adaptation of the benefit sharing provisions contained in the Convention on Biological Diversity (CBD) and informed by declaratory statements, ethical guidelines, and professional codes of conduct. Such a model can recognize the relative importance of intellectual property protection and the principles of distributing [sic] justice and equity.¹²⁵

The above argument makes sense even from a legal perspective, and irrespective of the jurisprudence that courts, particularly in the United States, have developed with regard to tissue donor’s interests in their donated samples, holding that “the research participant’s property right in blood and tissue

¹²¹ UNAIDS, op cit., note 31. The clinic uses ‘contact persons’, or ‘peer leaders’ to recruit and contact the women. Interview with Nairobi University Researcher. Several of the women themselves spoke about “representatives in the local villages” or “a representative” who introduced them and others to the clinic. Interviews with Majengo participants.

¹²² Interviews with Majengo participants.

¹²³ Pamela Andanda, *The Law & Regulation of Clinical Research: Interplay with Public Policy and Bioethics* (Nairobi: Focus Publishers Ltd, 2006), p.354.

¹²⁴ Ibid., p.339.

¹²⁵ Lorraine Sheremeta and Bartha Maria Knoppers, ‘Beyond the rhetoric: population genetics and benefit-sharing,’ *Health Law Journal* 11 (2003) 89-117, p.94.

samples...evaporates once the sample is voluntarily given to a third party” on the basis that “at the core, these were donations to research without any contemporaneous expectations of return”.¹²⁶ Marchant argues that the effect of this decision would make more genetic donors insist on having a say in the patenting of discoveries resulting from research using their DNA and how those patents will be administered. He concludes that “it does not matter whether the law automatically provides property rights in one’s DNA if donors will insist on such rights as contractual matter.”¹²⁷ This confirms that Sheremeta and Knopper’s argument is plausible. It also confirms that there are quite a number of lessons that can be drawn from frameworks for benefit sharing in the context of non-human genetic resources where such contractual agreements are currently used to foster benefit sharing. A supportable rationale for benefit sharing in human genetic resources can be drawn from international human rights law, declaratory statements on the human genome, the *Convention on Biological Diversity* and the *Bonn Guidelines*.¹²⁸

There is a lot of international interest in and commitment to taking effective measures to promote the equitable sharing of benefits from the use of human genetic resources. It is clear that these would be welcome in Kenya, particularly to support improvements in the ethical review process.¹²⁹ The ethical and policy issues that arise from this case can significantly inform the process of developing an appropriate framework for human genetic studies, both in Kenya and on the wider international stage.

The rationale for benefit sharing in human genetic resources that has been discussed in this report needs to be explored further to develop a model for benefit sharing with communities such as the Majengo women. Clear guidelines are also needed specifically for benefit sharing with the Majengo women who have never been included in the negotiation process.¹³⁰ These models can be developed by drawing lessons from the non-human genetic resource frameworks such as the CBD. This requires the research community to “make a concerted effort in cooperation with national governments to devise a legally binding framework for sharing the benefits of human genetics research that is based on equity, justice, and the spirit of the convention.”¹³¹

¹²⁶ 264 F. Supp. 2d 1064 (S.D. Fla. 2003) at 1075 &1076.

¹²⁷ Marchant, op cit. note 56, p.163.

¹²⁸ Sheremeta and Knoppers, note 59, p.117.

¹²⁹ Interview with MoH.

¹³⁰ Pamela Andanda, ‘A golden chance for medical ethics in Kenya’, *Science and Development Network* (June 2004). Available at <http://www.scidev.net/content/opinions/eng/a-golden-chance-for-medical-ethics-in-kenya.cfm>

¹³¹ Doris Schroeder, Miltos Ladikas, Udo Schuklenk, Carolina Lasén Díaz, Anita Kleinsmidt, Fatima Alvarez-Castillo and Dafna Feinholz, ‘Sharing the benefits of genetic research,’ *BMJ* 331 (2005) 1351-1352, p.1352.

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