

The Hwang Woo-Suk Scandal Hasn't Ended

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In Korea, the recent scandal of Hwang Woo-Suk in stem cell research is compared with the Lysenko Affair of the Soviet Union in the 1930s. The Hwang scandal, however, is one of the biggest in history considering its scope and impact. "The Hwang affair is not simply a case of 'scientific fraud.' It is a unique mixture of scientific, ethical, ideological and politico-economic elements. Its impact has not been limited to the scientific community in Korea, but has extended to the whole Korean nation and even to the international arena." (Kim H.-S. 2006b)

After the fall of Hwang Woo-Suk in 2006, more than ten academic meetings were held to discuss the meaning and impact of the Hwang scandal. They were organised by the Korean Bioethics Association and the Korea Association of Science and Technology Studies as well as by the NGOs including the National Council of Professors for Democratization and the Centre for Democracy in Science and Technology. Outside of Korea some international conferences dealt with various problems of the Hwang scandal in broader context. There were plenary sessions on the Korean situation at the 3rd International Conference on Clinical Bioethics, Okayama and the 8th World Congress of Bioethics, Beijing. There was a session on "What Does the Korean Stem Cell Scandal Imply to STS?" at the EASST (European Association for the Study of Science and Technology) 2006 in Lausanne. Four sessions were organised in the 2006 Annual Meeting of 4S (Society for Social Studies of Science) in Vancouver by Kim Sang-Hyun, a Korean sociologist of science at Harvard.

There have been much reflections on the adverse aspects of science and technology in the West. Thus it might be said that scientism is being overcome to considerable extent. However, the situation in Asia is quite different from that of the West. East Asia has a deep-rooted tradition of scientism, which lasted for more than a century. In the 19th century East Asia was under the challenge of Western imperialism. East Asian countries had to make desperate attempts to survive. It was believed that the only way to survival was catching up the Western science and technology. Japan became the first country, which succeeded in modernisation. Similar aspirations for science and technology were both in China and Korea, though there was more resistance by traditionalists. It was hard for China to attain modernisation even after the revolution in 1911. Korea lost the last chance and became a victim of Japanese imperialism in 1910. In Korea there was belief that independence could be achieved through science and technology. Nationwide science movement in the 1930s is a good example. After the liberation

in 1945, “nation building through science and technology” has been the national motto of Korea. (Song 2006a)

Korea emerged as an economic giant from a poverty-stricken country in the 1960s. During the period national income per capita rose from \$200 to nearly \$20,000. The amazing success in industrialisation was possible at the expense of environment, tradition and ethics. Science and technology was the handmaiden of economy. It was only since the end of last century that the Korean government began to consider science and technology as culture also. Nevertheless, scientism continues to be paramount in Korea. Both the government and oppositions are growth-oriented and they are supported by major mass media.

The government has been extraordinarily interested in developing biotechnology. In 1983, it made the Genetic Engineering Promotion Act (changed to Biotechnology Promotion Act in 1995) for the first time in the world. “Though not a great success in terms of immediate impact, the Act provided an institutional framework for Korea’s future biotechnology R&D activities. But more importantly, the Act was crucial in framing biotechnology as a vehicle for the nation’s economic development.” (Kim S.-H. 2006) By the time Kim Young-Sam came into office in 1992 as the first civilian president since 1961, national R&D expenditure in biotechnology had already shown a nearly twelve-fold increase from 1983. In 1994, the government launched an ambitious 14-year national strategic R&D programme called “Biotech 2000” and proclaimed that year the “Year of the Take-Off of Biotechnology.” Under the programme, the government and industry would invest \$18 billion by 2007, aiming to catch up the biotechnological capabilities of the G-7 nations.

The birth of Dolly in 1997 aroused great concern among Koreans. Hwang Woo-Suk, a veterinarian appeared suddenly at the centre of reproductive technology in which Korea was at high level. (Kim G.-B. 2006) Korea was fifth country in the world where mammalian cloning was done. President Kim Dae Jung was so glad to see the achievements of Hwang Woo-Suk. It was he who named the cloned cow ‘Chini.’ Then Hwang moved from animal cloning to human embryonic cloning by making a team with Mun Shin-Yong, Professor of Obstetrics and Gynecology at Seoul National University and Noh Sung-Il, Chair of the MizMedi Hospital. The Roh Moo-Hyun government started in 2003, when Hwang Woo-Suk attracted increasing attention. Roh Moo-Hyun had Park Ky-Young as Advisor on Information and Science Policy, who was an enthusiastic supporter of Hwang. Roh was tremendously impressed when he visited Hwang’s lab. Thus Hwang was brought to the focal point of biotechnology which was chosen as the the next generation growth engine.

If animal could be cloned, it was probable that human cloning would be realized eventually. Many people talked about the necessity of a National Commission on Bioethics. As

“cowboy cloners”(Rose 2004) did sensitive researches with embryo, the pressure to regulate them was mounting. In 2000, the Ministry of Science and Technology (MOST) created the Bioethics Advisory Commission (KBAC) to make policy recommendations on human cloning and stem cell research. While China and Japan were making guidelines in stem cell research, Korea went for legislation. (Lee & Yamazaki 2003; Wang 2003) The primary task for KBAC was to draft the Bioethics Law. KBAC consisted of 20 members: 10 scientists (biotechnology and medicine) and 10 non-scientists (philosophy, social sciences, NGOs and religion). It existed for only one year.

KBAC could complete the framework of the “Basic Law on Bioethics” after meeting 13 times for 7 months. The recommendations of KBAC to MOST were 1) to prohibit both reproductive and therapeutic cloning, and 2) to allow temporarily stem cell research on the surplus frozen embryos created through *in vitro fertilisation* (IVF). It was an unexpected result of the dramatic compromise between scientists and non-scientists. Neither conservatives nor liberals were satisfied with the compromise. The recommendations should have been respected as promised at the beginning, but MOST obviously did not like them. As a result MOST failed to submit its own version of the bioethics law to the National Assembly. After one year the Ministry of Health and Welfare (MHW) took over the bioethics issues, which MOST had been responsible for. Unlike MOST, MHW took a position similar to the recommendations by KBAC.

The preparation of the bill on the government side dragged on more than three years. According to Jung Kwang-Jin, it was a conflict among three competing frames: biotechnology frame (MOST) , biomedicine frame (MHW) and bioethics frame (religious groups and feminists). (Jung K.-J. 2006) At the end of 2003, the adjusted bill passed the National Assembly. The final bill was very much like a biotechnology frame. It meant the victory of growth-oriented MOST. There must have been considerable pressure from scientists and industry. The degraded bill caused a furious reaction from civil movement groups. The important points in the “Bioethics and Biosafety Act” were twofold. First, human embryonic cloning was permitted in case it is approved by the Stem Cell Research Committee. Second and more serious was that the bill could be interpreted to allow research where genetic mix between humans and animals takes place. (Cf. Han et al. 2003; Pak U. J. 2005, Ch. 8) The “Bioethics and Biosafety Act” was to be enacted from 2005 after one year deferment. It is believed that the Act was made meticulously to protect Hwang Woo-Suk. If the Korean government had taken the recommendations of the Bioethics Advisory Commission, the Hwang scandal could not have happened.

In 2004, Hwang surprised the world by establishing a stem cell line from a cloned

blastocyst. Another breakthrough of the next year in making the patient-specific embryonic stem cells made him rise to international stardom. It was also the fruit of the deliberate operation of the Korean government to make him a national hero. But for the massive support of major media in Korea, it would have been impossible for him to be a god-like figure among the people. After the 2004 paper of Hwang et al. was published in *Science*, a wide boulevard was waiting for him. He was made a 'Supreme Scientist' with special guards provided by the government. No Nobel Prize winner has ever had such honours as Hwang enjoyed. The Korean Air gave him two first class tickets for ten years. In October 2005, Hwang was at the peak of his career when he opened the World Stem Cell Hub with President Roh Moo-Hyun and Ian Wilmut. Then, he fell abruptly.

In Korea the main concern in bioethics was with human cloning; then the concern moved to embryonic cloning. Numerous papers on cloning appeared in philosophy journals: most of them against human cloning, but there were some favourable to it. The Korean National Commission for UNESCO organised a consensus conference on cloning, which reached a conclusion not only against reproductive cloning but also against embryonic cloning. The Korean media, however, failed to turn the discussions to public debate; they were simply all out for Hwang Woo-Suk. There have been no debates on cloning in the true sense of the word. In the case of Korea, the socio-political context was much more important than philosophy or religion in the problem of stem cell research. One - third of South Koreans are Christians. However, the idea that life belongs to the realm of God does not matter very much to them. In other words, religious affiliation has little to do with bioethics in Korea. (Cf. Song 1999)

Contrary to the common belief outside of Korea, it is not true that there was no ethical backlash to Hwang's research. Catholic Church, NGOs and bioethicists were outspoken critics of Hwang from the outset. Right after the 2004 paper came out, the Korean Bioethics Association (KBA) formed the "Ad Hoc Committee on the Research Ethics of Therapeutic Embryonic Cloning." KBA sent a letter to the editor of *Science* concerning the problem of the Ethics Committee. (Song 2004) The letter was published with Hwang's response more than half a year later. At the General Meeting in May 2004, KBA adopted a statement challenging Hwang to have an open discussion on the ethical problems of his research: IRB, authorship and acquisition of eggs. (Koo 2005) The problem of authorship was raised by Lee Pil Ryul, Professor at Korea National Open University and the Centre for Democracy in Science and Technology, an NGO and the egg problem by Lee Pil Ryul and David Cyranoski, *Nature's* correspondent in Tokyo, respectively. (Lee P. R. 2006; Cyranoski 2006b) The request was ignored by Hwang, though he admitted that he had some ethical problems on other occasions. The indifference in ethics on the part of the government and media also helped Hwang's

arrogance. The resistance of bioethicists was not only reported inadequately in the Korean media, but also was underrated abroad. "South Korea's handful of bioethicists had no leverage." (Editorial, *Nature* 2005) Only two articles by a Korean historian of medicine in Japan and two social scientists in Europe gave due credit to them. (Shin 2005; A. Bogner & W. Menz 2006)

Gerald Schatten's sudden break with Hwang Woo-Suk was a turning point for the decline of Hwang. It brought out the charges of oocyte donation irregularities by *Nature* anew. It was not until the "PD Notebook" of MBC (Munhwa Broadcasting Corporation) television raised questions about the research that Hwang confessed his wrong-doing in obtaining the eggs. All the ethical suspicions regarding his paper turned out to be true. The verification efforts of young scientists through BRIC (Biological Research Information Centre) and the prompt investigation by Seoul National University further concluded that Hwang's two papers were nothing but fakes. It was shocking news even to the critics of Hwang. Both papers of Hwang published in *Science* were retracted. Hwang was fired from Seoul National University after a long deliberation. The Korean Society for Molecular and Cell Biology expelled him and the Ministry of Health and Welfare removed his license to conduct embryonic stem cell research. The Ministry of Science and Technology stripped him of the title "Supreme Scientist." Intensive investigations by prosecutors followed and the trial is going on. Investigations by the National Assembly agreed by major parties have not yet been carried out. Hwang resigned the membership of the Korean Academy of Science and Technology (KAST) in 2006, but still holds some important honorary posts. There is no doubt that the Korean society is too magnanimous to him. The case is yet to be concluded in the midst of continuing resistance of the fanatic supporters of Hwang.

The Korean government should bear the main responsibility for the Hwang scandal. Its growth - first policy of developing biotechnology blocked any kind of regulations or criticisms. All Asian countries are keenly interested in developing biotechnology. Only Korea, however, dashed ahead recklessly and the result was a debacle. President Roh Moo-Hyun with his entourage was out in front to give huge support to Hwang, and all the leaders of political circle except Democratic Labour Party praised Hwang as a hope for the nation.. Distortion and exaggeration in the reports of the irresponsible media aggravated the situation. Even the National Human Rights Commission of Korea, which had opposed the dispatch of Korean troops to Iraq, remained silent concerning the misconduct of Hwang. The situation in Korea until November 2005 was something like the United States right after the September 11.

Crude nationalism is also to be blamed. Korea had good reasons to be nationalistic in

the past. It is now the 11th economic power in the world.. Yet the majority of Koreans are still nationalists or patriots. Hwang exploited the nationalist feeling of people shrewdly. He kept paraphrasing Pasteur's famous words: "There is no national border in science, but a scientist has a fatherland." When he came back home after reading his paper, he said proudly: "I have put our national flag in the heart of the United States." Some politicians and journalists joined him in instigating patriotism.

It is held that the Hwang scandal was a confrontation between the 'Alliance of Science and Technology' (Chang 2005, Kim J. Y. 2006)) and the 'Solidarity of Ethics.' The former consisted of scientists, government, business and media which were united with vested interests and ideologies. The latter was composed of NGOs, religious groups and bioethicists. A formal alliance never existed, but the de facto alliance was extremely powerful. An alliance with such a scale is unprecedented in Korean history. There were formal solidarities for several campaigns in different forms, but they were heterogeneous, loose and hence weak. Only the Catholic Church and some conservative Protestants among religious groups were critical of Hwang. Feminist and environmental NGOs did not cooperate actively with the Centre for Democracy in Science and Technology, which alone fought against the 'Alliance' consistently. The defeat of the 'Solidarity' by the 'Alliance' was too natural, since these two were incomparable.

After Hwang was dishonoured, the main issue now becomes research ethics. The government hurriedly made a guideline for research ethics. Of course research integrity is important, but due to the over-emphasis on it, other ethical problems of stem cell research are blurred. There are also campaigns for making a 'Code of Conduct for Scientists and Engineers' (Song 2006c) and for strengthening bioethics education. However, it is to be regretted that neither the government nor media is interested in them.

One of the early issues of the Hwang's research was eggs. Many Westerners find it difficult to understand the indifference of the Koreans to the problem of eggs. How could Hwang get over two thousand eggs so easily? They tend to consider that it is due to cultural difference, but it is not that simple. Korea was tremendously influenced by Confucianism, which is profoundly ethical. Confucianism was the guiding principle of the last dynasty in Korea for 500 years. The negligence of ethics is quite a new phenomenon resulting from the civil war and industrialisation. According to the Confucian ethics, all parts of the body are important, since they are from the parents. In the 1950s the Korean government launched a successful campaign for birth control. Thus abortion became a common practice in Korea, though it was against criminal law. It seems that the negligence of life has something to do with the 'paradise for abortion.'

It was disgusting to see thousands of Korean women including three members of the National Assembly volunteer to donate eggs to Hwang. Hwang's misconduct in acquiring eggs is no less serious than his fraud in research. It is vital for the Koreans to restore the respect for life. Extensive discussions on this problem are badly needed.

Korea is suffering from its failure in liquidating the past properly. The Japanese colonial rule, the Korean War, two military dictatorships, the Kwangju massacre have never been concluded. They still cause not a few problems. This is why the Hwang scandal should be finished neatly. If the Koreans fail to do so, there is no guarantee that there will not be a second Hwang. According to two Austrian political scientists, the imprudent fraud of Hwang is a result of political irresponsibility. "Korea should provide the system of science with clear structure of political-administrative responsibility, transparent decision processes and the room and chance for scientific criticism." (Gottweis & Triendl 2006) President Roh has never made sincere apology for the national tragedy. Minister of Science and Technology left the office with the praise of the president. The former Presidential Advisor was reinstated as a member of the Presidential Committee on Policy and Planning. No progress is visible in amending the Bioethics and Biosafety Act. There is no sign of reshuffling the Bioethics Review Committee. The Korean government lost a chance to turn the scandal into an opportunity.

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