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**RESEARCH INTEGRITY ISSUES IN
CHINA-MAINLAND
(draft)**

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When research integrity became a problem?

- It seems that research integrity becoming a problem is a side effect of the reform and transformation of social structure as well as research systems.
- In 1990s the cases of misconduct became to be exposed, but rare and scattered. The most notorious cases include:
- In 1996 a biology Professor P was expelled from Peking University forever because of plagiarism. This is the severest treatment of misconduct so far.
- A Ph.D. student in Peking University published a paper in an English botanic journal and proved to be plagiarised from a Western writer. The last author of the paper is his supervisor, the Botanic Professor C, then Vice-President of Peking University. C said he did not read the paper before publication. There is no treatment of C. This raised the question of what is the responsibility of authorship and supervisor's responsibility in particular.

Comments on Hwang's case

- When Chinese (scientists, non-scientist intellectuals, journalists and the public) commented Hwang's case, they have already pointed out that
- Misconduct is serious both in nature and number in China mainland.
- Fraud is grown in the soil of nationalism and *jigong jinli* (eager for quick success and instant benefit) which overrode rationality.
- The fundamental reason why academic corruption prevails is making fraud without punishment, no effective measure to contain it.
- The universities have never apologized to the public for misconduct their scientists committed - they evaded the responsibility they assume to the public.

Misconduct: a plague in academia

- A recent survey of 180 PhD degree holders, of whom 60 per cent paid to be published in academic journals; and about the same percentage copied others' work. (*China Daily*, 2006-03-15)
- In the number 1, 2007 of *Bulletin of Oversight Committee, National Natural Science Foundation* 13 fraud cases were reported. One institute submitted 6 fraudulent applications.
- A Ph.D. student in PUMC said I can give my supervisor whatever data she wants.

Representative cases of misconduct

- **Liu Hui, assistant dean of Tsinghua University's medical school, his qualifications were found to be fraudulent (exposed on 23 Nov. 2005 and sacked in March 2006)**
- **Qiu Xiaoqing, a biomedicine professor at Sichuan University, accused of publishing fraudulent research in the November 2003 issue of Nature Biotechnology (exposed on 18 Dec. 2005)**
- **Yang Jie, Dean of School of Life Science and Technology, Tongji University, his qualifications were found to be fraudulent (removed from his post in March 2006)**

Han Xin Case

- When Chinese are trying to identify who is China's Hwang, Chen Jin appeared in the most notorious Han Xin (Chinese digit computer chips) case.
- On 17 Jan. 2006 a whistleblower accused Chen Jin, Dean of the School of Microelectronics, Shanghai Jiaotong University of fraud for no. 1 Hanxin he invented on Tsinghua University website, 80% website users supported the whistleblower.
- In August 2002, Chen who had been an engineer working at the US company bought 10 MOTO-freescale 56800 chips from USA. He had the logo and letters MOTO on the chips removed and stamped No.1 Han Xin and its logo on them.

Via various connections he obtained faked documents of “domestic designed” (from Jiaotong Univ.), “domestic produced” (from Shanghai Zhong Xin International), “domestic packaged” (from Shanghai Yuwei S & T) and “domestic tested” (from Shanghai Center for Integrated Circuits Design). And he used every efforts to convince the officials of MOST, MOII (Ministry of Information Industry), and SCDR (State Commission on Development and Reform) to believe it is true. Then he invited well-known experts at integrated circuits to attend an evaluation meeting the conclusion of which is “No. 1 Han Xin is a high memory large-scale integrated circuit at internationally advanced level”. Then the first high memory DSP chip which China possesses intellectual property right was officially born. In the same way he updated No.1 Han Xin to No. 2, No.3, No.4, and up to No. 5.

During 3 years he used fabricated technical data to apply for funds to Shanghai Commission on S & T, MOST, MOII, Shanghai Commission on D & R, SCDR etc. forty times and obtained funds near 100 millions Chinese *yuan* (114,080,000.25 *yuan*). Chen did everything personally in editing technical data and relevant materials, submitting application form, organizing question and answer meeting and public relation activities with officials and experts. Part of the funds entered into his pocket or his accounts in US banks. His company was awarded the prizes of “High-Tech Enterprise”, “Soft Enterprise”, “Innovation” and he himself was awarded the prizes such as “President’s Prize of Shanghai Jiatong University”, “Leader of Shanghai S & T Innovation”, “Shanghai Top Ten IT New Upstarts”, “Shanghai Top Ten Distinguished Youth” and others. The title of “Yangtze River Scholar” was awarded by ME. He also used the faked chips to apply for 12 patents and approved.

Treatment of Han Xin' Case

- **12 May 2006 Shanghai Jiatong Univ. released a bulletin on investigation conclusion and treatment on the fraud of Han Xi series of chips. The university decided to remove Chen Jin from the post of Dean of the School of Microelectronics and from professorship.**
- **MOST decided to end his research projects, require him to return the funds back, cancel his qualification to take future national research project.**
- **ME decided to withdraw his title “Yangtze River Scholar”, cancel his qualification to enjoy special allowance, require him to return the funds back.**
- **SCDR decided to end the projects of high-tech industrialization and require him to return the funds back.**
- **The departments of Chinese government and institutes responded to this case with tighten regulation and measures.**

Regulation on the Treatment of Misconduct (7 Nov. 2006, MOST)

- **Definition of scientific misconduct: The conduct violates the code of conduct in scientific research recognised by scientific community. It refers to:**
- **Making fraud in CV;**
- **Plagiarism of other's scientific findings;**
- **Fabrication and falsification of scientific data;**
- **Violate informed consent and privacy in research involving human subjects;**
- **Violate guidelines of protecting experimental animals;**
- **Other misconduct in scientific research.**

Regulation on the Treatment of Misconduct (7 Nov. 2006, MOST)

- **Establish the research integrity office to investigate and treat the case of misconduct.**
- **Academics will be punished if they commits misconduct listed above, the punishment will range from warning, notification, recording the misconduct in his file, prohibiting his participation in the project, to dismiss or expulsion from his affiliated institute.**

Rule of the Treatment of Scientific Misconduct (draft, July 2007, CAS)

- **Definition of scientific misconduct: Fabrication, falsification, plagiarism, stealing other's project or idea, deliberately disturbing other's research activities, cheating in applying for grants.**
- **Establishing research integrity committee at both institution and academy levels to investigate and treat the misconduct case.**
- **Misconduct reporter and defendant both have responsibility to provide evidences.**
- **Punishment includes criticism, warning, recording misconduct in file, demotion, dismiss, and expulsion.**

National Research Integrity Committee

- **Ministry of Science and Technology will unite with Ministry of Education, National Natural Science Foundation, Chinese Academy of Science, Chinese Academy of Engineering and China Association to establish National Research Integrity Committee to coordinate the work of improving research integrity.**
- **A mechanism of regular inter-sectorial meetings for research integrity between 6 sectors above has been established.**

Other Activities

- **Ministry of Science and Technology has set up an Expert Advisory Committee for Research Integrity which is composed by 15 high ranking scientists and academics, including some overseas scientists.**
- **Drafting Code of Conduct for Scientists by China Association of Science & Technology.**

Loud Thunder, but Few Rain (Much cry and little wool): Discontents from Academics and the Public

- **None misconduct case is seriously treated, all these regulations and rules are no more than lip-service.**
- **The lenient treatment of Chen Jin set a marking pole for scientific fraud makers which will promote fraud more unscrupulous. The cost for fraud is too lower.**
- **Han Xin scandal is not an one actor play. Academic corruption will not be eradicated without complete investigation of relevant responsible persons: fraud co-makers, coconspirators, experts given high evaluation, governmental officials related.**

Transparency

- **The treatment is completely not transparent:**
 - **Never disclosed the information about how the grants Chen Jin has got were allocated and where they went.**
 - **Never did financial audit to him.**
 - **How much he returned the remaining grants back now?**
 - **How could he get his forty applications for funds and 13 patents approved?**
 - **Why all these reviewers and approvers are silent now?**
- **Han Xin Company now is changed to the name “New Ao” Company. Chen Jin is one of the members of the Board, and goes to the office by driving BMW everyday.**

Rotten Apples vs. Rotten Basket

- Both rotten individual apples and rotten basket contribute to the discredit of research integrity and rampant misconduct.
- Some apples are certainly rotten: against the background of the market and its prevailing influence some scientists pursue for their own profits and fame with every means. Corruptive scientists are still in small number. However, “the soup of the whole pot is spoiled by one particle of rat’s faeces”.
- But rotten basket should be blamed primarily. Any loophole in the preventing and early detecting system will lead to misconduct. Let alone in China mainland there is an inadequate system and so many loopholes in it.

Factors affecting research integrity

- **Gap between demand and capacity**
- **Allocation of research funds**
- **Review and approval of grant application**
- **Evaluation**
- **Publication**
- **Reward**
- **Oversight**
- **Involvement of parliament and the public**
- **Corruptive environment**
- **Political determination**

Gap between demand and capacity

- Huge money poured into high tech research, glory for the state, competition between institutes and scientists, and inducement to achievement constitute a constant pressure to scientists.
- Many young scientists may be very familiar with updated knowledge, but weak at fundamentals both in theory and practice.
- Research is a collective endeavour. Even the capacity of individual scientists may be enhanced, but the research “ecology” is getting worse. For the Institute of Basic Medicine, CAMS, only biochemistry is flourishing, other disciplines, such as physiology, histology, pharmacology, pathology are shrunken.
- The gap between demand and capacity may cause the flippancy or fickleness which in turn leads some scientists to despising principles and integrity.

Just allocation of research funds

- **China's investment in science and technology will reach 71.6 billion *yuan* (8.95 billion U.S. dollars) in 2006, up 19.2 percent over that in 2005.**
- **But the scientific community is seriously concerned about how to allocate such large public funds. They called for making research spending more transparent by inviting bids for projects online and building a database of funding candidates and expert panels to assess them.**
- **The role of officials in allocation of research funds should be reduced, their intervention may lead to unjust allocation.**

Review and approval of grant application

- Those applicants who have connection with officials who are responsible for review and approval and are able to give “gifts” to members of review committee easily get research grant.
- One PI from a university of Yunnan Province got scores of million *yuan* grant for a river research project from MOH. But he is not an expert at river. So he had to find river experts and allocated them a portion of grant to do research on some parts of the project. Actually his behaviour likes a contractor-businessman, not a PI.
- So far there is no strict discipline measure to those members of review committee for receiving bribe and those PI for giving bribe.

Evaluation: Don't count chickens

- **The existing evaluation system emphasizes the quantity of papers rather than quality. Senior scientists asked for “don't count chickens” and called for reform of the quantitative assessments of scientific research results, which have brought about flippancy in scientific research and will hinder research and development in the country. Statistics indicate that China is in fifth place in terms of its number of research papers for the science citation index, but ranks 120th for its dissertation citation rates.**
- **Evaluation meeting became a rubber stamp: Leader of the institution can invite well-connected experts to attend; or give high allowance to them; or continuously hold the evaluation meeting up to giving a positive evaluation to the research results.**

Evaluation: Peer review

- **Peer review is not emphasised. Evaluation is made often by a committee which is composed by members who are chair or director of departments and they may belong to same discipline but with different specialty or subspecialty. In this case the evaluation is always made on the basis of quantity of papers but not quality.**

Sheng's case

- **Professor Sheng is the first in the world created a human-animal c-hybrid embryo and derived stem cell from it. Western scientists doubted her achievement. And her institute did not organised a peer review committee to review her findings.**
- **So an inadequate evaluation system may overestimate as well as underestimate scientific work. But more often than not it may be exploited by those who commit misconduct.**

Publication

- In natural science the publication of a scientific paper is required to be reviewed by peer scientists.
- However, the requirement may be bypassed by an editor who is a schoolmate or friend of the author, or who need the author to pay editing or/and publishing fee.
- The editor's misconduct is never punished.
- And after publication no critical comment or discussion.

Reward

- **Current reward system constitutes an undue pressure or inducement to fraud and plagiarism. Emphasis is put on outer reward than inner reward.**
- **In some universities 50,000 *yuan* will be awarded to those who published a paper on *Nature* or *Science***
- **Ph.D. students required to publish several articles on international or national journals before question and answer meeting of their thesis. It is an undue requirement.**
- **Productive scientists may be awarded 5 millions *yuan*, various honorary titles, important position at department, institute, university, academy or minister, figure on TV or mass media, member of People's Congress or Political Consultation Conference etc.**

Oversight

- **Before Chen Jin case only the National Natural Science Foundation has established oversight system. In the period between 1999-2003 they received 445 reports, and investigate 40 cases. But no oversight system at all in universities, academies and MOH. Oversight from outside is needed, for scientists' self discipline is not reliable.**
- **Now MOH, ME, CAS plan to establish oversight committee and oversight system. How effective they are remains to wait and see.**

Involvement of parliament and the public

- **So far the people's representatives and the public are not involved in the curtailment of misconduct in scientific research.**
- **The parliament should have the power and right to oversee the governmental funds how to be allocated and used in scientific research. There should be a committee to listen the report from MOH.**
- **The public should participate in some committee to oversee the use of scientific funds and investigate the misconduct case.**
- **And mass media have their own role in enhancing research integrity and curtailing misconduct.**

Corruptive environment

- **Misconduct in research takes place in a corruptive environment. With China mainland getting rich, corruption became a cancer which penetrated into all fields including scientific research. Some scientists are appointed as head or leader of an institute, school or university, so they have more opportunity to commit misconduct with power in their hand without check and balance.**
- **A joke says: If we kill all chiefs of the sections (who have the power to allocate funds) in the government, some will be treated unjustly, but if we kill one of every two, then a lot of them will escape unpunished.**
- **The temptation is so strong, and the opportunity is so precious, some scientists will forget all laws, regulations, and rules to commit misconduct.**

Misconduct is collective in nature

- **Misconduct is always committed by a group, an interest group, not an individual scientist. Jointed the group is the stakeholders in the misconduct. The group may include:**
 - **Scientist (PI) and those around him;**
 - **Directors of the institute or university the PI belongs to;**
 - **Companies in which the PI has interest;**
 - **Officials of governmental departments who has interest connection with PI.**
- **So committing misconduct is easy, and investigation is difficult. Political determination is necessary.**

Political determination

- In China mainland political determination is needed for curtail misconduct in research. However, political determination is difficult to be made. Now the situation is: determination in rhetoric, but hesitation in action.
- What consideration politicians may have:
 - Further demonisation of China
 - Scientific work underestimated or even discriminated
 - Scientists' morale injured
 - Prevent overseas scientists coming back
 - Social and economic costs too high etc.

When Nobel Prize awarded to mainland Chinese?

- One Nobel laureate's claim that Chinese scientists will win a Nobel Prize within 20 years. But similar assertions have been made by either Chinese or foreign scientists three times so far this year: one says the prize will come in 40 years, another shortens the time to 30 years.**
- I do believe Chinese scientists have ability to win the prize. But we had better wait for the time when all these issues mentioned above be solved properly.**
- When Chinese forget to win the Nobel Prize, it is the time to win it.**

Thank You for Your
Attention and Patience