

博士学位論文審査要旨

2011年2月2日

論文題目： Policies of Genetically Modified Crops in India:
Food Security and Biosafety Politics
インドにおける遺伝子操作作物生産をめぐる政治学
—食の安全保障と生態系保全のポリティクス—

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要 旨：

遺伝子操作による作物栽培をめぐることは、21世紀に入り、特に今後途上国を中心に予想される地球規模的な人口増加とそれに伴う「食の安全保障」という観点から、その是非が問われてきた。しかしながら、本課題については、人文・社会科学分野で各国の政策レベルに踏み込んだ研究はまだ十分に行われていない。本論文は、インドを事例に遺伝子操作による作物栽培をめぐる政策決定のメカニズムを明らかにすることで、本課題の国際的レジームの形成についての可能性を論じたものである。

本論文は、5章から構成され、インドで実施した筆者のフィールド調査の結果を反映した2つの事例研究を含む。論文はまず遺伝子操作による作物栽培の現状について概観し、国際的なコンセンサスも秩序も形成されないまま、利害関係者が恣意的に生産を行っているという国際的な動向を明らかにした。その上で、論文では、米国とEUのそれぞれが異なるアプローチと原理で栽培を促進あるいは阻止してきた潮流があることが指摘され、インドの政策は、米国、EUの折衷型とも言えるアプローチを展開してきた点を明らかにした。具体的には、インドの政策が過去20年間のあいだにどのように推移し、現在の政策がいかなるインドの政治プロセスを経て決定されているか、またその政策決定過程に関わる科学者、農業省、NGO、生産者組合、企業などが政策決定過程にもたらした影響などが論じられている。さらに、本論文では、遺伝子操作作物は食の安全保障に利するという正当性が発展途上国での当該作物の栽培を促進する一方、生物多様性には否定的に作用すること、さらに作物栽培が栽培農家の健康に害する問題点がNGOなどによって主張されてきたことが事例研究によって実証されている。結論としては、インドにおける遺伝子操作による作物栽培をめぐる利害関係者による論争が、食の安全保障という栽培を正当化する論理から、生態系保全の原理に基づいた慎重論へと推移したことが指摘され、その方向性が今後のインドを含めた世界の新興国においてのひとつの潮流になりうると論じている。

本論文は遺伝子操作による作物栽培の政策研究としては先駆的な研究であり、インドという新興国の事例を通じて、本課題の国際的秩序の形成への方向性を提示した独創的な研究である。本論文の一部はすでに2009年8月にフィリピン大学ロスバニョス校で当該分野の研究者に

対しての口頭発表で公開されている。さらに2010年9月には東京大学で開催された「人間の安全保障」セミナーにて論文の中核的な部分について報告し高く評価された。よって、本論文は、博士（グローバル社会研究）（同志社大学）の学位を授与するにふさわしいものであると認められる。

総合試験結果の要旨

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要 旨：

申請者の Monica Racovita (モニカ・ラコヴィタ)氏は、2010年10月12日に実施された博士論文提出資格試験にすでに合格している。資格試験では、論文の概要について40分の発表があり、それに基づいて3名の審査委員が30分間質疑応答し、的確に答えることができた。その際、論文が英語で執筆されることから、発表と質疑応答はすべて英語で行うことで、英語の語学試験を兼ねて実施し、十分な英語の語学力を有するものと判断した。また、専門分野であるグローバル社会研究の、より広い領域についても口頭による諮問を行ったが、十分な知識を有することが審査員によって確認され、論文提出に必要な条件を満たしていると判定し、資格審査に合格した。その後、2010年12月20日に博士論文が提出された。それを受け、審査委員が教授会で選考され、3名の審査員による博士論文公開審査が2011年1月17日午前10時より11時半までに実施された。申請者による論文の概要について40分の発表があり、その後口述試験として論文、論文テーマに関連する専門分野に関する諮問を行い、博士(グローバル社会研究)の学位に値すると認められた。よって、総合試験の結果は合格であると認める。

博士學位論文要旨

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氏名： Monica Racovita (モニカ・ラコヴィタ)

要旨：

This thesis explores the chances for India to develop its food security strategy with the expansion of the cultivation of GM crops beyond Bt cotton to other GM food crops. For this purpose, the study analyzes both domestic and international determinants of India's GM crops policies, considering how the interactions among different stakeholders have shaped the current state of Indian GM crops policies. In addition, it explores the implications of this political decision-making process for the future of GM crops in India and its food security strategy. A crucial moment in shaping GM crops policies is the commercial approval of a particular GM plant and the ensuing biosafety controversies. Thus, these are the moments of focus for this analysis. Two case studies were selected due to their relevance: the commercial approval of Bt cotton (the only GM crop approved so far), and the moratorium on Bt brinjal (Bt brinjal was very close of becoming the first GM food crop approved for cultivation).

The study is organized in five chapters. Chapter 1 is introductory and includes an Introduction to the study and statement of the problem, Objective, Significance of the study, Literature review, and Research design and methodology.

Chapter 2 provides an introduction to genetically modified crops. Due to raising food prices and climatic changes (floods, droughts, saline soils), losing arable land to the production of biofuels and steady increase in world demographics, the developing countries are increasingly considering genetically modified crops as an instrument to tackle food security. Yet GM crops and the science behind them are controversial. One high point of the controversies and politicization surrounding GM crops is represented by the EU/US regulatory conflict around different approaches to biosafety regulation: the precautionary principle and substantial equivalence, respectively. Between EU and US, India seems to have a privileged position in comparison with other developing countries.

Further, Chapter 3 examines how India's biosafety policy has been formulated and been developed since 1980s. The overview found that the decision-making process is complicated, slow, and open to external influences. The regulatory system for biosafety is characterized by a mixture of precautionary and substantial equivalence provisions. The lack of standards, transparency, specialists, and enforcement sustain the necessity of an autonomous regulatory capacity replacing the current one.

In addition to the overview, the chapter includes a survey of 11 representatives of the main stakeholders groups involved in the construction of the biosafety policies: NGOs, government, industry, scientists, farmers. Their answers indicate that the dynamics of the interactions between various stakeholders evolved with an increase in the number of stakeholders and the raise to preeminence in the GM crops discourse of several individuals from the Bt cotton case to Bt brinjal. Convergences of opinions also appear between pro and con GM crops proponents. They focus on the importance of the Minister of Environment in the Bt brinjal moratorium and on the necessity of taking more time before acting on the GM situation toward a direction or another (to educate the public, or to produce better GM crops).

Chapter 4 presents an overview of concepts and approaches to food security and the envisioned role of GM crops in solving current food insecurity problems worldwide and in India. Since the household level food security remains problematic for over a fifth of the population in India and the experiment of the first GM crop adopted in India (Bt cotton) was successful, India's policy-makers are considering the adoption of further food GM crops, currently in various stages of research. Yet GM crops are strongly opposed by the civil society.

Chapter 5 analyzes the dimensions and characteristics of the stakeholders interactions, both domestic and international, which construct the GM policies. For this, the analysis undertakes two case studies, selected due to their relevance: the commercial approval of Bt cotton, and the moratorium on Bt brinjal.

In the case of NGOs, with the Bt cotton at first was no national coordination between all the major groups. However, the actions of the large biotech multinational company, Monsanto, were watched very closely by NGOs and responses emitted in timely manner through court petitions. Together with local NGOs actions, they managed to delay the approval of Bt cotton and to make it more precautionary. There was also a pronounced nationalistic character, with frequent referencing to the Gandhian movement for independence in their requests for Monsanto to quit India. Some undertones of it remain in the Bt brinjal case. By the time of the Bt brinjal approval process, an all India coalition against GM crops was formed, with a more aggressive campaign, yet with a similar discourse.

For farmers, in the Gujarat case they become a pressure group and even innovators by continuously improving the variety. However, this active stance was not repeated in other Indian states.

For the industry side, the target of accusations is still Monsanto. Yet the lengthy approval of the Bt cotton, the rejection from approval of three other hybrids, and the recent moratorium on Bt brinjal, together with the impossibility to patent its seeds or its technology as anywhere else outside India, are facts which might point to a weaker position of power than expected. One surprising fact is that the pesticides companies do not appear in the Indian debate.

For the Government, the illegal Bt cotton case revealed the major flaws in its regulatory system: the impossibility to prevent the illegal cultivation of GM crops and the incapability to enforce its biosafety regulations. Perhaps in the realization of these shortcomings, the Government set up the National Biotechnology Regulatory Authority (NBRA). A draft was made in 2008 and subjected to public comments, and currently is waiting approval.

The last group of stakeholders are the scientists. Among them there are also scientists turned anti-GM activists, like Dr. Sahai, or known proponents of the GM technology opposing the approval of Bt brinjal under, among others, conservationist concerns, like Dr. M.S. Swaminathan.

Overall, these findings point toward the fact that the approval of further GM crops is for the moment halted in India. Bt brinjal has suffered a major drawback and it is highly unlikely that it will be approved again through a *fait accompli*, as in the Bt cotton case. All stakeholders in a strange consensus, are waiting for the new autonomous regulatory authority. The draft establishing it has provisions to increase transparency, accountability, and enforcement. If this will be the approved version, it remains to be seen, but if approved in the current form, it will increase the precautionary stance of the biosafety policies in India. International tensions with the SPS Agreement of the WTO for example, stemming from such a stance, are difficult to envision now.

On another hand, even if approved in the current form, the new regulatory autonomous authority might not represent a real chance for an increased precautionary stance for India. Considering the political and institutional environment in India, a truly autonomous, accountable, uncontroversial, transparent, and efficient regulatory authority seems impossible. The regulatory system has rather a pragmatic approach. This pragmatism suits US and its substantial equivalence-based approach in that it proves the strains of a

precautionary stance. It might also be the beginning of a third type of regulatory approach, the “Wild East”: one where the rules and regulations comprise provisions of both EU and US approaches, but they are followed only when it is beneficial to do so.

An interesting finding is the presence of a nationalistic stance in the discourse of the NGOs and even in that of members of the Government (Minister of Environment). The opposition to GM crops is built on this stance. Whatever its reason, this nationalism is bound to create problems to international biotech companies, like Monsanto operating in India. Yet as long as India’s large market will continue to bring considerable profits, in spite of the impediments brought by such manifestations of nationalism, biotech multinationals will remain in India.

The approval process has suffered a halt with the Bt brinjal moratorium, but it will not be a standstill. Due to the high number of GM crops under research currently in India and the accompanying large investments in public research institutes, the Government will continue to pursue GM crops.

The pursuit of GM crops for food security is highly unlikely to happen in India. There is no advanced research on crops employed in food security policies, like cereals or pulses. In addition, there are no real scientific developments to prove necessary and beneficial in the eyes of the NGOs the pursuit of the GM crops to increase food security.