Comparative Food Policy:

How Politics Impacts the Regulation of Agricultural Biotechnology Policy

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Introduction

We live in an age where technology allows society to manufacture what has historically been scientific and natural. For instance, a strawberry, generally known for acquiring genes only from other strawberries is now given a flounder gene making it a frost-resistant strawberry. The strawberry now has a bacterial gene that generates antibiotic resistance and a virus gene that aids other added genes (Sherlock & Morrey, 2002: 222-6). Thusly, the perfect strawberry is created and allowed to be sold on the market unbeknownst to many consumers. To some biotech engineers and government regulatory agencies, it is the advancement of innovative works. To some scientists, environmentalists and farmers it is the cusp of public policy gone awry.

This paper looks at the implementation of agricultural biotechnology policy in three nations and how politics influences this policy. My thesis is that despite their diverse administrative approaches it is the politics that has a significant impact on the food policy they each implement. My paper will highlight the politics involved with the regulation of genetically engineered (GE) foods in the following countries: United States, Great Britain and Thailand. This paper looks at the U.S. food policy because the U.S. is the major manufacturer and distributor of GE foods. British policy is highlighted because the staunchest opposition to agricultural biotechnology is said to reside on its shores, between the Atlantic Ocean and the North Sea. Thailand is one of the few developing nations to experience dramatic activity from the local level, which influenced its agricultural biotechnology food policy (The Campaign to Label Genetically Engineered Foods: International, http://www.thecampaign.org/international.php).

The works of authors such as Ferrel Heady will be examined to look at the contrasting and in some cases, similar characteristics of these administrative systems. Afterwards, a brief discussion of GE foods is offered to shed light on this biotechnology, which is spreading throughout the planet. Finally, there will be a discussion of food policies for the respective countries and how politics has impacted the current policies in place in each country. My paper will highlight how it is ultimately politics that impacts the regulation of this type of biotechnology, overarching the administrative structures cited in this paper. It will illustrate the autonomy this biotechnology has from bureaucracy, whether it is managed by a democratic state or military-based regime.

Comparative Bureaucratic Systems

Heady discusses some characteristics shared by administrative systems in developed nations. He suggests that the system of governmental organization is differentiated and functionally specific. The political roles in these systems are based on achievement rather than appointment. This is supposedly reflective of general characteristics of the societies in these nations. Also, procedures for political decision in these nations are said to be largely rational and secular. This weakens the power position of traditional elites and traditional values. Another shared characteristic discussed by Heady was the volume and range of political and administrative activity as far-reaching, permeating all major spheres of life in the society. He adds that the tendency was toward further extension (Heady, 2001:190).

Political characteristics shared by Great Britain, the U.S. and a few other countries that were formerly British colonies are called ‘the civic culture.’ Heady describes ‘civic culture’ as participant and pluralistic, based on communication and

persuasion. It is a culture of consensus and diversity, a culture that permitted change, but moderated it (Heady, 2001:222).

The development of an integrated political system in Britain dates back to the part of the seventeenth century. The political heritage of the U.S. is, for the most part, British. Heady pointed out that both countries were able to establish stable democratic political systems and to maintain them over considerable periods of time. He referred to this development as a “gradualist pattern”, which he argued led to decidedly contrasting formal political characteristics: Britain retained a figure-head monarchy linked with a unitary and parliamentary system while the U.S. opted for a federal system with an elected president as chief executive (Heady, 2001:222).

The impact of gradualism on public administration, according to Heady, can be identified by looking at how the administrative system was able to take shape, feature by feature, in a way that reflected the political changes and was consonant with them. Both countries were rather lower in professionalizing their bureaucracies. According to Heady, a bureaucracy of competence did not appear in either country until representative political organs felt it was needed and provided for it. The following is a look at some of the differences between the two developed administrations (222-3).

British public service seems to have greater prestige and status than in the U.S. Heady suggested that this reflected general patterns of deference to governmental and other forms of authority in society as well as more specific historical factors – timing of conversion from a spoils to a merit service, the tradition in the U.S. of political party reliance on public service patronage and the relative standing of government versus business careers. But, Heady noted the gap was narrowing as U.S. service was gaining

more notoriety or prestige while Britain's service was losing theirs. Another difference Heady referenced was that Great Britain administrative organizations relied on old patterns of deference that bound inferiors and superiors within the limits of the necessary cohesion. In U.S., administrative organizations "must use many more impersonal rules in order to achieve the same results,'' (Heady, 2001:223-4).

Yet another difference pointed out was with the choices both countries made in coordinating staff and operations for their respective bureaucracies. Heady, citing Sayre, noted that the British produced a more "orderly and symmetrical, a more prudent, a more articulate, a more cohesive, and a more powerful bureaucracy." The U.S., meanwhile, orchestrated "a more internally competitive, a more experimental, a noisier and less coherent, a less powerful bureaucracy within its own governmental system, but a "more dynamic one, (Heady, 2001:224)."

The British public bureaucracy is known to operate in a unitary or parliamentary setting. Ministries are the basic administrative units. The standard arrangement of governance is for each ministry to be led by a minister that reports to the British Parliament (Heady, 224).

Civil service in Britain is considered an establishment of the crown, with its affairs controlled by orders-in-council or other executive action. High-ranking bureaucrats play ambiguous, but important roles in the governmental decision-making in Britain. The administrative structure in Britain imposes a mutual understanding between the civil servant and minister. Heady notes that the civil servant will offer policy advice to the minister yet will faithfully honor any decision made by the minister. The civil servant operates under a level of anonymity where the political leadership protects any

advice given from public disclosure. It is intended to keep private from the public the level of involvement in policymaking by that of the civil servant (226).

Heady argues that these points highlight that the British doctrine strengthens the executive leadership rather than the legislature by making it impossible for Parliament to summon civil servants because only the minister is supposedly accountable, by throwing a cloud of secrecy over minister-civil servant relationships as well as over negotiating with outside groups. There is an official in place in the office of the British Parliamentary Commissioner, however, which is available to deal with citizen complaints of administrators. But, the official can only act if a complaint is received through a member of the Parliament, and can only investigate and report back to Parliament as to defects of procedure in administration. This has been criticized as a mild reform that doesn't impact the behavior of higher civil servants and is merely a minor influence on their overall political role (231).

Overall, Heady argues that Britain experiences a gradual lack of bureaucratic participation in making policy and a weakening overall of legislative control over administrative action, with the beneficiaries being the ministers in the cabinet collectively, and particularly the prime minister (231-2).

Heady noted that U.S. departmental internal structure followed a less standard pattern compared with the British ministry. The department secretary at the head is a political appointee of the president (subject to Senate confirmation) and serves at his pleasure (233). The early form of American bureaucracy offered a limit of authority delegated to governmental institutions. In the U.S., executive departments are the major

entities of administration. There are a number of regulatory commissions, government corporations and other units housed within the executive branch of government (232).

Contrary to British bureaucrats, policy-makers in the U.S. must operate much more in the public eye, providing greater leeway as well as greater risks. The U.S. civil servant is likely to be linked to his policy preference and may be called upon to defend the agency's policy position in a legislative, regardless if he agrees or not. The civil servant has the obligation to either faithfully serve his agency or resign or transfer (Heady, 2001, 235).

American bureaucracy has been criticized for its failure to divorce politics from administration. Public administrators are left to their own druthers when it comes to developing and implementing policy. Relationships are formed outside the periphery of bureaucracy, thus leading to the implementation of sometimes questionable policy (Stillman, ed. 2005: 106-109).

Arguably in developing nations, centralized government has more far-reaching control over policy. Thailand is an example of a developing nation which has had a traditionally military-driven administration. Heady suggests that political elites operating within these systems owe their power to established social systems that historically emphasized either an inherited monarchic or aristocratic social status. (Heady, 2001:314).

Heady describes collegial bureaucratic elite systems as regimes consisting of individuals are normally professional bureaucrats who are military officers. These collegial bodies or as Heady calls them 'juntas,' often engage in forceful coups to acquire political power. The maintenance of this power relies on collegiality or military loyalty as opposed to a hierarchy system. Heady suggests the rationale for the rise of this type of

regime is usually to protect the country from some internal or external threat, to maintain order, the level of violence and uphold the law. One interesting note pointed by Heady is that military juntas put constraints on the non-military civil bureaucrats. However, the cooperation of bureaucrats is needed to keep their regime in order (328).

The collegial regime has maintained power in Thailand for more than 70 years, surviving several coups and counter-coups that shifted factional power. According to Heady, the Thai collegial regime has a parliamentary system that is merely window dressing for a military-controlled government. Elections will only be held when the regime thinks its powers will be enhanced. Few nongovernmental interest groups exist (Heady, 2001:337).

The executive branch of government in Thailand is steered by the prime minister, who is given a vast amount of power as cabinet leader as well as leader of the military. Most of the prime ministers have been military officers. However, the current prime minister since 1997, Chuan Leekpai, is one of a few in the regime's history to receive the post as a non-military person. A new constitution was drafted in 1997 that soften the powers a previously military-dominated senate allowing for direct election of its members. Like Britain, the government consists of a number of ministries. The two ministries seen as the most vital are the Defense Ministry and the Ministry of Interior, which controls local administration and the police force (Heady, 2001:338-9).

This type of bureaucracy is said to work only with a select group of elites who share common perspectives on the country's political structure and values. Government opposition has historically been repressed with force. Basically, the bureaucracy has been self-serving with no opposition and with ministries run by either military juntas or non-

civilian bureaucrats who share the vision of the military juntas (Heady, 2001:338-41). But, we will see soon that how the small existing outside political forces impact the policy decision-making of this repressive regime. But first, the paper will look at the origin and development of genetically engineered foods.

Genetically Engineered Foods

Since the early 1900s, biotechnology has been a part of modern society. Hungarian engineer, Karl Ereky coined the term in 1919, defining biotechnology as "the production of raw materials with the aid of living organisms; any process where a biological organism is used to make a product for human use." For decades, scientists have used biotechnology for the selective breeding of animals and plants, as well as forensics work. But in the 1970s, genetic engineering skyrocketed to new heights, spurring the creation of vast genetically modified organisms (GMOs). Today, biotechnology can be found in much of animal and plant life (Russell and Vogler, 2000: 13-4).

There are different terms used globally to identify and define genetically engineered foods. For instance, genetically engineered (GE) is the standard U.S. term for the process in which foreign genes are spliced into a non-related species, creating an entirely new organism, i.e., the aforementioned "anti-bacterial strawberry". In Europe and developing nations like Thailand, the term genetically modified (GM) is used because it translates more easily among different languages. The term genetically modified organisms (GMO) is used to describe the actual organism created through genetic engineering (Cummins & Lilliston, 2000: 2).

Foods created through genetic engineering are often identified as biotech foods, gene-foods, bioengineered foods, gene-altered foods, and transgenic foods (Cummins & Lilliston, 2000: 2). Frankenfoods is another term for genetically engineered foods. It refers to the story of "Frankenstein" and science gone bad. Like Frankenstein, once created and released from the lab, it can't be controlled or killed. These organisms are expected to live and continuously mutate (23).

Proponents of this kind of biotechnology argue that the coalescing of genes is common in science. They contend that bacteria and viruses transfer genes between species in the course of evolution. This is viewed as a natural process that is simply being sped up by genetic engineering (Anderson, 1999:11-2).

At the time that heavy research and development of GMOs was conducted, scientists were also developing recombinant DNA, which is a process that involves transplanting genetic material across species barriers. It allows for the manipulation of DNA to create the vast GMOs in food markets today (Cummins & Lilliston, 2000:16).

In 1980, the first patent for a genetically modified micro-organism was granted by the United States (Russell and Vogler, 2000: 16). By the late 1980s, the U.S. began marketing food supplements with genetically engineered bacteria such as a food supplement called L-tryptophan. Showa Denko K.K., a Japanese chemical company, spearheaded the development of the altered bacteria, making it in bulk (Altman New York Times 1990).

After release of the product, about 5,000 people suffered from an outbreak of a disease called the Eosinophilia Myalgia Syndrome (EMS). The disease is a painful blood disorder that can cause high fever, rash, weakness and shortness of breath, among other

symptoms. Initially, authorities reported 37 deaths and 1,500 cases of permanent disabilities, but later stopped counting the number of deaths/illnesses linked to the disease. It would be several months before the U.S. realized that the EMS outbreak was linked to L-trytophan, which was not labeled any differently than other products, and subsequently recalled the supplement finding toxic compounds that led to the production of the disease (Anderson, 1999:17), (Altman New York Times 1990).

The U.S. approved the first GE whole food for commercial sale in 1994. The FlavrSavr tomato, however, did not do well with consumers and was taken off the market in 1997 (Anderson, 1999:44). The Bovine Growth Hormone was also put on the market and was used to force cows to produce more milk. This would eventually lead to the tripling of the market for organic milk, a GE-free alternative milk. By 1999, however, more than 60 million acres of GE crops were planted in the U.S., representing almost one-quarter of the U.S.'s food and fiber crops (Cummins & Lilliston, 2000: 5).

Many basic foods and goods purchased by U.S. consumers contain the aforementioned as well as other genetically engineered elements. A number of GE foods have derivative ingredients, which are ingredients or DNA from GE crops. Items containing GE ingredients in supermarkets all over the U.S. include baby foods, baking mixes, breakfast cereals, cooking oils and corn to name a few (Cummins & Lilliston, 2000:6).[1]

[1] The following companies distribute popular food brands throughout different parts of the world that contain GE ingredients: Phillip Morris, Nestle, Mead Johnson, Abbot Labs, Quaker, General Mills, Betty Crocker, Pillsbury, Aurora Foods, Kraft, Interstate Bakeries, Campbell's, Bestfoods, Kellogg's, Cadbury, Hershey's, ConAgra, Hormel, Frito-Lay, PepsiCo, Parmalat, Keebler, Flower Industries, Nabisco, Heinz, Vlasic, Bird's Eye, Agri-Link Foods, Worthington, Procter & Gamble, Clorox, Dean Foods, Lipton, Unilever and Coca Cola (Greenpeace GMO Food Facts).

There are also a number of specific GE ingredients found in foods like aspartame, which is used for many dietary drinks and low-fat foods. It's also in about 9,000 other products, including children's vitamins and medicines, chewing gum, many low-fat products such as jelly, jam, and yogurt (Cummins & Lilliston, 2000: 107).

Another GE ingredient found in a number of foods is riboflavin (Vitamin B2), found in most baby foods, breakfast cereals and fruit drinks. Another is baker's yeast, which has been on the market for several years now. It was engineered to speed up the process of creating enzymes that are responsible for dough fermentation (Cummins & Lilliston, 2000: 107), (Anderson, 1999:18).

U.S. consumers largely accept foods with GE ingredients arguably because they are not aware that these ingredients are in the foods they purchase. A 2003 poll conducted by the Mellman Group Inc. and Public Opinion Strategies, Inc. found that only 36 percent of the 1000 people surveyed had at least some knowledge of biotechnology used in food production. The Center for Food Safety, a public interest and environmental advocacy group based in Washington, D.C., compiled more than 25 public opinion polls across the country from media outlets, universities and research centers where there was a very high preference to either requiring labeling or more stringent tester measures for GMOs (Center for Food Safety, 2002 www.centerforfoodsafety.org).

Some scientists and farmers feverishly lobby for the labeling or prohibition of GE foods for a myriad of reasons such as: the escalation and exacerbation of negative trends already manifest in the globalization and industrialization of agriculture; the threats to national food security, both at home and abroad, the potential dislocation of hundreds of millions of small farmers and rural villagers, and the magnification of monopoly trends

already evident in industrial agriculture; the "slippery slope" of patenting and owning living life forms. The genetic theft or bio-piracy of the biological resources and genetic biodiversity found in nature and particularly in the developing world (Cummins & Lilliston, 2000: 62-3).

But, proponents of GE foods champion the cause of agricultural biotechnology, contending that: GE and Gene-splicing is precise, predictable and safe; GE foods have increased nutritional value; GE crops will reduce the use of toxic herbicides and pesticides by farmers; Farmers benefit economically from growing GE crops because of increased yields and reduced input costs; GE crops will feed the world's hungry and save the developing world from famine and that there's no evidence that GE foods and crops are harmful to human health of the environment (Cummins & Lilliston, 2000: 24-7).

Despite the growing debate over GMOs, the number of acres with GE crops increased 40-fold globally from 1996 to 2003. In 1996, 4.2 million acres of GE crops were planted in six countries compared to 167.2 million acres in 18 countries in 2003. Six countries produced 99 percent of the world's GE crops in 2003: the U.S., Argentina, Canada, Brazil, China, and South Africa[2] (Pew Initiative on Food and Biotechnology, 2003).

Comparative Food Policies and the Political Forces That Drive Them

It has been suggested that the U.S., for years, has been acting in concert with U.S.-based multinational enterprises in making weak regulatory standards for biotechnology, making it possible for the level of immeasurability GE foods enjoy in domestic food markets today. The Ronald Reagan/George H. W. Bush presidential era

[2] Australia, Mexico, Romania, Bulgaria, Spain, Germany, Uruguay, Indonesia, the Philippines, India, Columbia, and Honduras contributed the other 1% of GE crops produced in 2003 (Pew Initiative on Food and Biotechnology).

was highlighted for its administration's belief that minimal regulatory oversight was necessary to foster U.S. competitiveness during this wave of technology (Prakash & Kollman, 2003: 624).

The United States Department of Agriculture (USDA), which the government picked to be the lead regulatory agency, has historically been a key proponent of agricultural biotechnology. U.S. farmers have increasingly relied on biotechnology for key crops such as corn, soybeans and cotton. The USDA's Agricultural Research Services undertakes active research in biotechnology and owns several patents that have been commercialized. The USDA is a minor beneficiary of royalties from biotechnology patents (Prakash & Kollman, 2003:624).

The Animal and Plant Health Inspection Service (APHIS) is the lead agency within the USDA for biotechnology regulation. Before any GE crop can be marketed, the APHIS needs to approve a petition for a determination of "non-regulated status" that is to certify that crop is not a pest. The petition is made available for the public allowing both an opportunity for groups to lobby for their crop as well the public to offer its scrutiny (Prakash & Kollman, 2003:624).

Under the Federal Food, Drug and Cosmetic Act, the Food and Drug Administration's (FDA) Department of Health and Human Services regulates all foods and food additives with the exception of meat and poultry. The act requires labeling in cases of "material" changes such as changes in the nutritional composition or inclusion of allergens that are made to food products. But in May 1992, the FDA issued a policy that said GE foods and non-GE foods would be treated the same. They claim that genetic

engineering doesn't require a material change, thus it doesn't warrant special labeling (Prakash & Kollman, 2003:624-5).

The FDA has been accused of creating obstacles for voluntary labeling. For instance, it requires that dairies wanting to label their milk as free of bovine growth hormone have to include a disclaimer on the label that no significant difference is shown between hormone treated and hormone free milk. In January 2001, the FDA issued draft rules that laid out what the agency found as acceptable for labeling. It appeared amenable to allow labels that indicate presence of GE ingredients, but not amenable to allow claims about the absence of GE ingredients (Prakash & Kollman, 2003:625).

The Environmental Protection Agency (EPA) is involved in biotechnology regulation through its regulating of pesticides under the Federal Insecticide, Fungicide, and Rodenticide Act. It also sets tolerance levels for pesticide residues in foods under the Federal Food, Drug and Cosmetic Act. Despite growing public debate over this policy stance, the FDA decision remains in place today (Prakash & Kollman 2003:625).

One of the major benefactors of this arguably soft regulation agricultural biotechnology is Monsanto Co., a multinational biotechnology firm based in St. Louis. Monsanto is considered leading developer of GE products. In 2002, 91 percent of GE hectares planted worldwide were planted with Monsanto seeds. Monsanto also produces the world's top selling herbicide, Roundup (Innovest Strategic Value Advisors, 2003:6).

Numerous states have tried to present and pass legislation that would outlaw or at the least, regulate this technology to no avail. However, there are some local efforts that have begun to affect Monsanto's seemingly omnipresent-like stance in agriculture. Local farmers in Northern California and Northern Plain states like Minnesota and North

Dakota have enacted ordinances or incited pressure that impacted Monsanto's plans to further implement its biotechnology in their areas. But, these actions have not translated into state or federal biotech policy reform.

While maintaining a stable, yet to some advocates, loose federal and state policy on GE food regulation, the U.S.-bred biotechnology has found some opposition from other nation-states. The European Union (EU) has fought to keep GE foods from being imported to member countries until US policymakers thoroughly tested the foods. But, a U.S.-led complaint was as filed with the WTO, arguing that scientific advice is not necessary for biotech foods to be approved in the EU because the matter is a legal issue rather than scientific or environmental issue. The WTO will issue a decision in March 2005. If the EU loses the case, it will have to pay compensation as well as face trade sanctions. A decision against the EU could also discourage other countries from imposing similar bans against GE Foods (AgBiotech Buzz, Pew Initiative on Food and Biotechnology, 2004), (The WTO and the GE Giants, Greenpeace International[3]).

The European Union placed a moratorium on planting or importing GM crops back in 1998. Great Britain has been and continues to be the staunchest of opponents to biotech foods. But, recently the British parliament – which continues to enjoy good political ties with the U.S. government - decided to ignore public opinion polls showing strong, steadfast opposition to GM foods by leading advocacy for the EU to drop its six-year moratorium. Several reports have cited that the British parliament pushed for a

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[3] Available at:

http://www.greenpeace.org/international_en/extra/?item_id=8007&forward_source_anchor=Additional%20information&forward_destination_anchor=&campaign_id=3992

softening of the moratorium try and prevent a trade war with the US. In May 2004, GM corn for was approved for human consumption, putting a dent in the moratorium on GM crops. The decision is valid in all 25 EU countries for the next 10 years (BBC News, 05/14/04), (Castle, the Independent, 05/20/04).

But, the food policy is valid in Britain only for a type of corn known as maize. This is because the maize was the one crop to pass field trials required of all GM crops in Britain. Field tests for such crops last two years. But, the process to gain approval in Britain is long and arduous. First, proposed crops have to pass the EU, which is still holding on to its moratorium on GM crops. Once that hurdle is passed, biotech producers must place their products under two years of British field trials. Then the British parliament must approve the crop, which has proven to be difficult due to widespread public protest.

Of the 53 applications filed with the British parliament in 1998, only two were approved – in 2004. The biotech firm Bayer CropScience had two of its applications for GM maize approved by the government. But, they decided to forgo planting of the crop because they felt the British policies were too restrictive. Also, the public sentiment was such that it negatively impacted market demand. The tough European policies created less incentive to plant GM crops in Britain (Lean, The Independent, 11/21/04).

For the crop that does survive such a vetting process, there are stricter labeling regulations in Britain compared to the US. Any food and animal feed products in the EU containing more than 0.9 percent of GM ingredients must be labeled. The source of GM materials still must be identified even if it is at a level under 0.9 percent. Many experts

expect Europeans, particularly Britons to continue fighting this policy (BBC News, 05/14/04), (Samabuddhi, Bangkok Post, 11/30/04[4]).

Oddly enough, Europe's tough labeling policy has a significant impact on Thailand. The EU is the fourth largest importer of Thai food and agricultural products. In 2001, the Thai government seemed to take a tough stance against GM foods by banning any trials of the biotech foods to the appeasement of local farmers. Tough patent and labeling laws were promised (Wangvipula, Bangkok Post, 05/06/01).

But, a labeling regulation issued by the Thai Food and Drug Administration in May 2003 was criticized by local farmers and NGOs for indirectly promoting GMOs. Under the regulation, any food product that contained GM corn or soybean as one of its three major ingredients making up at least 5 percent of the product had to be labeled. Local groups have often criticized the supposedly repressive Thai government for its soft policy (The Nation, 09/02/04).

In August 2004, the prime minister's National Biotechnology Policy Committee announced it would open Thailand's borders to allow field testing of GM crops. But, this plan would shortly thereafter be quashed as local farmers and scant NGOs protested the decision. But, matters worsened in September 2004, when the agriculture minister admitted that the ministry had illegally contaminated many of its papaya crops with GM ingredients. The ministry declared it would destroy those papaya crops, but it is difficult to determine if this has been done (The Nation, 09/15/04).

Conclusion

The Thailand case illustrates the struggle for bureaucratic balance on the part of the collegial regime. It revisits Heady's assessment that this historically repressive regime

[4] Also available at: http://www.biothai.org/cgi-bin/content/news/show.pl?0421

relies on the support of groups outside of its bureaucratic periphery. In this instance, this paper suggests that it is the local community rather than the bureaucracy that influences the countries agricultural biotechnology policy. The government understands that it needs the civilians (farmers) to function as a stable entity, yet it continues to operate with its own interest taking priority, hence, the contamination of the papaya crops. However, the government's actions are more indirect and secretive as opposed to the forceful action normally used to implement its bureaucracy. It appears that the ministry of agriculture is caught in the middle of a struggle between the local farmers and the prime minister's cabinet. It is a clear example of how politics can paralyze bureaucracy even in a more centrist-like regime.

In addition to the Thai farmers and NGOs, the collegial regimes biotech policy may also be impacted by the European Union (EU). If Britons can continue to influence their parliament and the EU maintains stringent policies on biotech foods, Thailand may find it difficult to not conform to the demand for tougher food policies. Particularly, since the EU is one of its largest importers. Contrary to Heady's perspective on Britain bureaucracy, one would have to think that this is a policy issue that Britons will hold all parties involved responsible for since its opposition to GM foods is so strong.

However, long term impacts on British food policy may most likely come from outside its borders. The US will ultimately decide what food policies will be dominant in Britain, Europe and subsequently Thailand. Despite the openness of American bureaucracy, this is one policy issue – with obvious relevance to any human being- that for numerous reasons is ignored by the American public. US bureaucrats face little pressure from constituents to change. According to the Pew Initiative on Food and

Biotechnology, a total of 27 bills related to agricultural biotechnology were passed in state legislatures in 2003. Nineteen of those bills were in support of biotechnology.[5]

As long as this trend continues, regulators will use either the political capital or political pressure to implement food policy that is favorable to agricultural biotechnology. The development of anti-bacterial fruits and vegetables will continue to be driven by political forces immune to all forms of administration.

[5] Available at: http://pewagbiotech.org/resources/factsheets/legislation/factsheet.php

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