Globalization of Communicable Diseases and International Trade

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Summary
The paper analyzes communicable disease globalization due to the import of non-pathogen-free animals and animal products. Official data on the introduction of animal infectious and parasitic diseases through international trade during 1980-2000 document catastrophic deterioration of global animal health situation. Number of available reports on disease import cases reached 607, very often followed by further spreading. Number of reported cases of disease reappearance reached 329 and of reports on “recognized in country for the first time” reached 420 cases. Protective, post-import control and eradication measures are usually insufficient. The situation is becoming worse as never in spite of continuously improving scientific knowledge.

Introduction
There is a very serious discrepancy between rapidly increasing scientific knowledge and rapid deterioration of global animal health situation. The spread of almost all communicable diseases through international trade in animals and animal products (legal trade in 2000 - 80 billion US$) represents the main cause of animal diseases globalization. Public health, economic, social, ecological and animal welfare negative impacts of diseases spreading are enormous. The import of non-pathogen-free animals and animal products is often followed by post-import spreading with multiplying negative, often long-term or permanent up to catastrophic impacts. The objective of this paper is to analyze data on animal disease import and to indicate its main causes.

Materials and Methods
Presented analysis is based on official data as reported by the governments to international organizations and published by OIE World Animal Health and FAO-WHO-OIE Animal Health Yearbook. The information system includes selected diseases (not considering serotypes, resistant strains, etc.). This system covers only about one tenth of communicable animal diseases, including one fifth of known zoonoses. Underreported data are confusing importing countries instead to provide full truth on sanitary reality which is much worse than reported. There are a lot of cases of animal disease (pathogens) import, some are discovered and reported, some are discovered but not reported as imported ones, many are discovered and not reported (almost 90 % of communicable diseases are not notifiable), and even much more cases are not discovered at all (subclinical carriers, infected products). About 25 % countries did not send the reports. The reports were related mainly to live animals import. Microscopic pathogens import through animal products is very difficult to identify due to their rapid distribution, processing and consumption and quite insufficient testing, if any. When reporting the import of the same disease in the following year, only one report was included in this analysis. In 1996 “to facilitate trade” (?) regular reporting on disease import cases, on disease recognition for the first time and on disease occurrence grading was abolished. All these indicators were replaced by a non interpretable “+”. The
reliability of reported data represented other problem. (There were serious discrepancies in reporting on disease occurrence, populations, etc. even from many developed countries, incl. one with record export per government veterinarian and high level of computerization and modelling).

**Results**

*Number of officially reported disease import cases, as published by international organizations during 1980-2000, reached 607:* From 117 reported OIE List A disease cases the major shares had foot-and-mouth disease - FMD (from 33 cases 22 during 1995-2000), rinderpest, Newcastle disease, CBPP, African and classical swine fevers and bluetongue. The structure of 365 reported OIE List B disease import cases was as follows: from 74 multiple species disease cases the major shares had paratuberculosis, echinococciosis, screwworm, rabies and anthrax; from 142 cattle disease cases the major shares had bovine leucosis, tuberculosis, brucellosis, IBR, babesiosis, anaplasmosis, theileriosis and BSE; from 42 sheep and goat disease cases the major shares had caprine arthritis/encephalitis, maedi-visna, epididymitis, brucellosis (*B. melitensis*) and scrapie; from 29 equine disease cases the major shares had piroplasmosis, viral arteritis and infectious anaemia; from 12 swine disease cases the major share had atrophic rhinitis; from 49 avian disease cases the major shares had Marek’s disease, avian chlamydiosis, infectious bursal disease and mycoplasmosis; from 17 other disease cases the major share had leishmaniosis. From 108 reported OIE List C disease import cases the major share had distomatosis. From 17 reported other disease import cases the major share had Ebola-Marburg virosis. Number of reports on animal disease "recognized in country for the first time", i.e. imported or discovered with delay, reached 420 and on disease reappearances, i.e. reintroduced or reemerged, 329 (included only cases newly reported after 3 and more years intervals; the longest was FMD reappearance after 92 years in Japan) (4). Within the total of reported cases following proportions were represented by diseases transmissible to man - zoonoses: 34.93% of reports on disease import, 15% of reports on disease discovery for the first time and 30.51% of reports on disease reappearance. (The majority of zoonoses, such as plague, Ebola-Marburg virosis, *Salmonella typhimurium* and *Salmonella enteritidis* in mammals, trichophytosis, etc., were not included into OIE disease lists). About 70% of disease import cases were reported from developing world (representing only about 25% of global animal import) where the consequences are very serious due to very weak public services and lack of means to control diseases.


**Discussion**

In 1995 WTO “Agreement on the application of sanitary and phytosanitary measures” - SPS started de facto internationally organized animal diseases globalization, in spite of attractive but false preamble “desiring to improve health”. Normal fair trade policy of zero risk approach, requiring trade in healthy animals and animal products, was replaced by admitting and supporting the spread of the majority of pathogen species through trade, favouring to major exporting countries at the detriment of importing (mainly developing) ones. There were introduced regulations facilitating trade at the
expense of health (the main purpose of the SPS), dictating absurd sanitary quality limits. Instead of trade liberalization giving the decision freedom to trade partners, it was introduced “liberalization” of spreading of the majority of diseases through trade. The highest priority became exporters’ profit instead of sanitary quality. If any country asks for pathogen-free import or for better protection than OIE Code limits, then it must “scientifically justify” this normal quality requirement. Countries are required to accept also non-pathogen-free commodities, i.e. to import new difficult-to-solve problem and pay not only for it but also post-import losses and measures (exporters usually contribute nothing thanks also to the alibi by very problematic “risk assessment” devaluating reclamation chance). This policy is contrary to consumer protection, biosafety, sustainable development and animal welfare programmes. Conscious, deliberate and organized international spreading of diseases can be understood as a crime and in case of dangerous zoonoses as a crime against humanity, eventually as unintended indirect support of bioterrorism.

The SPS converted OIE reasonable recommendations for import minimal conditions into binding maximal limits. Fair trade requirement for quality guaranty (with full responsibility for guaranteed status) was replaced by already established information certificate. The export of diseases combined with subsidized prices is detrimental to livestock production of importing countries (e.g. reducing local concurrence) requiring, to meet national needs, further import (not always of good sanitary quality) and costly measures for imported disease control, if feasible.

Discovery in time, successful control and eradication of imported and spread diseases are usually extremely difficult, often practically impossible, even in very developed countries. Theory, computer use, modelling and administration cannot replace the key activities in the field. To discover all affected animals and to report true disease situation is usually almost unrealistic. Other than notifiable diseases (i.e. overwhelming majority) are entirely out of the control and spread freely. Some etiological agents are able to spread through the barriers even of the best isolated laboratory. They can spread through trade to almost anywhere within 1-2 days. The ratio primary/secondary outbreaks expresses the grade of post-import spreading reflecting enormous difficulty to manage imported diseases.

Examples: “In Taiwan FMD occurred in 1997 and during four months 6147 farms were infected.” (4); i.e. the ratio = 1 : 6147. “It is assumed, that for every case of salmonellosis recorded in humans in the United States at least nine are not reported" (6). "In 1978, the Plum Island Animal Disease Research Center identified FMD (type O) in cattle in a holding area on the island near the Laboratory." (2). Before 25 years imported ASF in one developed country is still waiting for eradication (meanwhile pork export increased 40 times). (1,4).

Very few successful eradication programmes are unable to compensate mass and rapid spread of animal diseases. Too many results of diseases control and eradication achieved by previous generations were gradually devaluated through disease import, which “demotivates” the efforts to start new programmes or to continue with existing ones. For
exporting countries, there is easier to exploit limits imposed by the SPS upon importing countries protection than to carry out demanding control-eradication programmes (strategy “doing nothing”). Minimized public services are often unable to control trade on the spot and to supervise not always independent, reliable (profit before ethics) and properly qualified attests issuing accredited veterinarians.

Examples: In Czech Republic, the number of disease introductions through legal import for “livestock improvement” (with international certificates according to the SPS and OIE Code) from developed European countries, incl. some globally influential ones, reached during 1990-1996 following values: from 326 shipments of cattle (19350 heads) were found 181 (55.52%) as affected – in 24 shipments by paratuberculosis (never recorded in indigenous animals), in 3 shipments by bovine tuberculosis (long before eliminated), in 18 shipments by hypodermosis (long before eradicated), in 39 shipments by IBR and in 86 by trichophytosis (both under advanced elimination programme); from 500 shipments of sheep (9880 animals) were found in 16 shipments maedi-visna (never recorded), in 16 shipments scrapie (never recorded), in 4 shipments paratuberculosis (never recorded), in 3 shipments mange (long before eradicated), etc.; results of these imports – lost of healthy herds. In 1995 from imported meat were 51 times isolated *Salmonella* spp. (incl. *S. typhimurium, S. enteritidis*). (5). "A large rendering company in UK continued and expanded its export of meat and bone meal, which may have been contaminated with BSE, for 8 years after EU ban in 1988, to 70 countries in the Middle and Far East.”(3).

Increasing man-made irreparable global ecological disaster due to mass spreading of animal diseases, not being blocked by effective measures, represents a serious global crisis of preventive and population veterinary medicine, of which historical mission is to protect and recover animal health. The key criterion is practical impact on the world populations, i.e. how far is protecting and improving animal health. Alarming situation calls for thorough analysis and rectification of global animal health policy and of all branches of veterinary medicine to be able to cope effectively with the new problems. The SPS and all provisions supporting disease spreading to be abolished. World public, consumers, farmers and governments to be truthfully informed about the risks. National authorities, responsible for the health protection, must have the right to decide about import conditions (every case is different) without any outside interference or dictate. Let the countries to find the solutions themselves. Globalization yes, but of the health, i.e. creating and expanding specific disease free herds, populations and territories. Primum non nocere!

References
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