

AQUACULTURE FOOD SAFETY CONTROL IN VIETNAM

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SUMMARY

1. Overview on Vietnam fishery production and trade
2. Aquaculture food safety concerns
3. Solutions to food safety concerns in aquaculture supply chain
4. Conclusions

Overview on Vietnam fishery production and trade

Potential of Vietnam's fishery production

- Coastal line of 3260 kms, spreading more than 15 latitudes.
- Exclusive marine economic zone of more than 1 million km².
- Aquaculture fresh water and brackish water of 1 million hectares
- Main aquaculture species:
 - Catfish (Tra, basa)
 - Black tiger shrimp, white shrimp

Overview on Vietnam fishery production and trade

- Bivalve mollusks: clam, cockles...
- Tilapia, scampi, mud crabs, snake head, carps (common, grass, silver), rainbow trout, cobia, grouper, snail...
- Seaweed (*Gracilaria asiatica*; *Kappaphycus alvarezii*...)
- FAO's ranking for aquaculture
 - In 2003, pertaining production, Vietnam stood fifth after China, India, Thailand, Indonesia.
 - In 2005, pertaining export value Vietnam stood third after China, India

Overview on Vietnam fishery production and trade

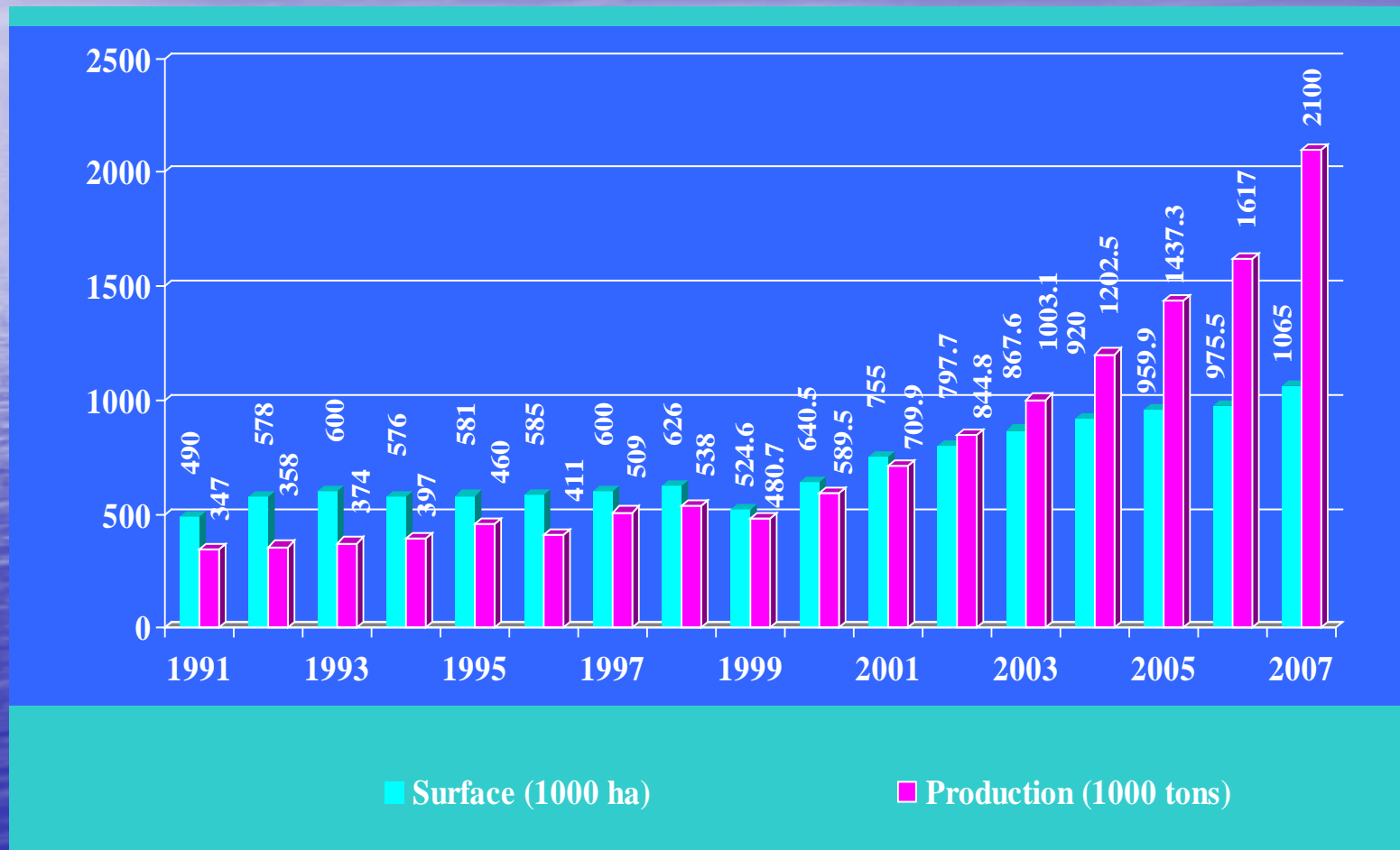
a. Fishery production and export turnover 1990-2007

Overview on Vietnam fishery production and trade

Item	2009	First 6 months of 2010	Estimated 2010
Catching production (tons)	2,277	1,176	2,200
Aquaculture Production (tons)	2.569	1.245	2,600
Export value (Mil. USD)	4,250	2,000	4,800

Overview on Vietnam fishery production and trade

b. Aquaculture surfaces and production 1991-2007



Source: Annual Report of the Ministry of Fisheries

Overview on Vietnam fishery production and trade

c. Importing markets

Year	Japan	US	EU	Other
2001	32%	20%	5%	43%
2003	27%	33%	6%	34%
2006	25,3%	20%	21,6%	33,1%
2007	21,1	20,4%	25,5%	34%



WSSV



Bacterial
disease



HPV





Not proper
waste water
treatment

Abuse of
chemicals
&vet.drug
s

Bad
feeding
managem
ent

**Disease
outbreak**



- Abuse of chemicals for ponds preparation/ water treatment
- Abuse vet. drugs/not respect withdrawal time
- Illegal use of banned chemicals and vet.drugs
- Pathogens contaminated by poor inlet/outlet water treatment and post harvest practices

Food safety concerns

Year	Imposing country	Product	Reaction
	Importing countries	seafood	Reject of consignment contaminated with pathogen (salmonella, Vibrio Cholera...) or heavy metals, biotoxins...
2001	EU	Shrimp	Destroy/reject of consignment contaminated with chloramphenicol
2002	US, Canada	Shrimp, crab meat	Reject of consignment contaminated with chloramphenicol

Food safety concerns

Year	Country	Product	Reaction
2003	EU, US, Canada	Shrimp	reject of consignment contaminated with Nitrofurans
2003	EU	Panganius/Basa	reject of consignment contaminated with malachite green
2004	US Canada,	Aqua. food	reject of consignment contaminated with Fluoroquinolones
2006	Japan	Shrimp	reject consignment contaminated with CAP, Nitrofurans
2009	Japan, EU	Panganius/Basa	reject of consignment contaminated with trifuraline

Strategy for reduction/elimination of pathogen and chemical residue

1. Application of GAqP/BMP, GMP/GHP and HACCP in aquaculture production chain in Vietnam

At farm level	BMP/GAqP
At fishing vessels, fish landing sites, first sale markets, fish collection and/or small scale pre-processing(preparation) facilities	GMP/GHP or SSOP
At large scale fish preparation and fish processing facilities	HACCP based QA program

Activities conducted and implementation status of BMP/GAqP in aquaculture

- Purpose of BMP/GAqP application:
 1. Effective prevention of disease: Reduce and successfully manage disease
 2. Ensuring safe food: free of pathogens, residues of antibiotics, chemicals & other contaminants...
 3. Reduction of environment affection (no cause mangrove forest destruction, land salinity, water resource pollution...)

Activities conducted and implementation status of BMP/GAqP in aquaculture

- Differences of BMP, GAqP:
 - BMP: applicable for small scale farms with not proper infrastructure (lack of investment). Core requirements focused on better management practices (water, feed, chemicals & vet.drugs use, harvest practices). Purpose: Reduction of disease outbreak and food safety
 - GAqP: applicable for farms with proper infrastructure. Requirements are comprehensive including also pond&inlet water preparation, waste water treatment.... Purpose: Reduction of disease outbreak and food safety and environment affection

Activities conducted and implementation status of BMP/GAqP in aquaculture

- Preparation for implementation of BMP/GAqP
 - Cooperation with USFDA on research of microbial contamination of shrimp farm as base for GAqP development; on GAqP training
 - Pilot design and implementation of BMP, GAqP for shrimp hatchery and grow-out farm
- Development of training materials and conducting training of trainers (extension workers and local authorities)
- On farms training of farmers on BMP/GAqP

Activities conducted and implementation status of BMP/GAqP in aquaculture

- Pilot application of GAqP at aquaculture farms/cooperatives in different ecological key aquaculture regions
- BMP was pilotly applied by NACA/SUMA(FSPS1) in black tiger hatchery in Khanh hoa prov. and grow-out farms in Nghe An province
- BMP/GAqP were implemented by huge number of farmers after being trained and guided for application of BMP/GAqP.
- BMP/GAqP certification was limited due to high fee and lack of promotion of the certified product

Activities conducted and implementation status of BMP/GAqP in aquaculture

- Private certification
 - Basa/tra farms/collectives applied and were certified to SQF by SGS...
 - Basa/tra and shrimp farms were certified to BAP by GAA...
 - Basa/tra farms were certified to GlobalGAP by third party certifiers
 - Shrimp farming cooperatives were certified to organic shrimp standard by Natureland...
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 - Results: high fee, unknown benefits (better sale, better price?)

Activities conducted and implementation status of GMP/GHP and HACCP

- Preparation for application of GMP/GHP, HACCP
 - Oversea training/workshop for experts
 - NMFS, FAO, ASEAN-Canada Project's trainings of trainer on basic HACCP and HACCP audit
 - Development of National HACCP based QA program training materials
 - National HACCP based QA program and HACCP audit training of trainers
 - HACCP based QA program training of Managers and QC/HACCP team of fish processing facilities
 - Development of GMP/GHP or SSOP manual/training material for pre-processing establishments (PPE) and traditional processing establishments (TPE)
 - Training managers of PPE and TPE

Major considerations and issues for implementation of GMP/GHP and HACCP

- HACCP based QA Program consist of GMP,SSOP &HACCP plan
- HACCP based QA program is suitable for large size processing establishment
- HACCP based program is well implemented in fish processing establishments, but many especially small scale pre-processing establishments which supply semi-products to those fish processing ones have not implemented HACCP based program yet, so it has brought the risks to the processed ones.

Major considerations and issues for implementation of GMP/GHP and HACCP

- GMP/SSOP or GHP are suitable for small scale fish pre-processing establishments (PPE) and traditional processing establishments (TPE) because:
 - PPE and TPE are SMEs having difficulties to apply HACCP due to economic and technical constraints
 - GMP and GHP/SSOP could ensure the food safety assurance principle "as clean, quick and cold as possible"
 - GMP and GHP/SSOP as a first step so the managers of PPE and TPE to get involved and experience towards the HACCP application

Major considerations and issues for implementation of GAqP, GMP/GHP and HACCP

- Constraints faced in implementation of GAqP, GMP/GHP and HACCP
 - Poor coordination between relevant authorities/ stakeholders. Lack of enforcement to comply the regulation.
 - Lack of human and financial resources.
 - Lack of awareness, understanding of HACCP of relevant stakeholders including fish processors especially for SME's
 - Lack of proper education and training method on the part of processors and traders. Extension trainings/workshops/seminars are needed

2. Control measures for chemical residues in fisheries

- a. Antibiotics (i.e. Chloramphenicol (CAP), Nitrofurantoin (NTr), Malachite Green (MG)) had been popularly used for farmed fish disease treatment.
- b. CAP had been used by some ice producers as additive in ice – water for preservation.
- c. Workers had used hand-cream containing CAP

a and b are principal causes of chemical residue in Vietnamese fishery products

Control measures for chemical residues in fisheries

1. By Government authorities:

- ✓ Promulgating the list of 17 banned and 34 restricted antibiotics in fishery production, in compliance with regulations of the EU, the US, Canada, Japan and other importing countries.
- ✓ Strictly controlling feed and vet drug producers, feed and vet drug importers and exporters. It is regulated to print statement "free of banned antibiotics" on labels of any products, in compliance with former Ministry of Fisheries regulations (now the Ministry of Agriculture and Rural Development)"

Applied measures to control antibiotics and chemicals residues in fisheries

- ✓ **Improve testing capacity: Allow government labs. to purchase LC-MS/MS and HPLC for testing antibiotic residues**
- ✓ **Constantly disseminating information on prohibited antibiotics on mass media (central and local televisions, radios and newspapers)**
- ✓ **Investing in research on production of vaccine for tra/basa catfish and immune-enhancing bioproducts for shrimp .**

Applied measures to control antibiotics and chemicals residues in fisheries

2. By competent authorities

- ✓ Sending analysts to trainings in Europe (the Netherlands, France, Germany), America (FDA, CFIA), Asia (Singapore, Japan, Korea).
- ✓ Labs. participation in proficiency tests on antibiotic residues with foreign reference laboratories (England, Newzeland).
- ✓ Since 2001, annually organizing education and training of farmers and processing establishments.
- ✓ Since 2001, annually distributing hundred thousands of leaflets and posters to stakeholders in fishery production chain

Applied measures to control antibiotics and chemicals residues in fisheries

2. By competent authorities

- ✓ Testing fishery consignments intended for export to markets where antibiotic residues have been detected in.
- ✓ Guiding the application of Good Aquaculture Practices -GAqPs or BMPs.
- ✓ Validating test kits for CAP and other chemicals for preservation in farms, fishing vessels and transporters.

Applied measures to control antibiotics and chemicals residues in fisheries

3. By Vietnam Fisheries Society (VINAFFIS)

- ✓ In collaboration with NAFIQAD, disseminating information on the impact of use of prohibited antibiotics to members.
- ✓ Training members on the application of GAqP and BMPs
- ✓ Co-organizing the contest on fishery quality and safety

Applied measures to control antibiotics and chemicals residues in fisheries

- 4. By Vietnam Association of Seafood Exporters and Producers (VASEP)**
 - ✓ Training managers of establishments on risk assessment in whole production chain and raw material supply system so that the latter could train their suppliers on how to keep product free of residue.
 - ✓ Encouraging fishery processing establishments to invest equipment for raw material testing.
 - ✓ In case of detection of antibiotic residues, with the implemented traceability system, establishments could define causes of contamination and apply corrective actions.

Applied measures to control antibiotics and chemicals residues in fisheries

5. Other stakeholders in fishery production chain

- ✓ Being aware of impact and loss in case of antibiotic residues detection.
- ✓ Actively applying GAqP/BMPs in aquaculture, GMP in feed production and handling of fishery products on fishing vessels.
- ✓ Improve HACCP based program for strengthening control of pathogens and residue in raw materials and during production chain

Difficulties in veterinary medicines residue control

- 1.** Lack of information on importing countries new or revised regulations/standards especially the time of enforcement so capacity building is not timely able to respond to
- 2.** Zero tolerance policy was applied differently from country to country even inside of EU. The MRPL policy is a progress however is based on detection limit of machinery rather than on risk assessment?
- 3.** Very difficult for developing countries to invest very expensive machinery LC/MS/MS for residue detection as MRPL required by EC regulation
- 4.** List of banned substances is different from country to country cause difficulties for exporting especially developing countries (for exp. US sets zero tolerance for fluoroquinolone, EU still allow restrictive use of this group of antibiotics).

Improvement of food safety

- More 600 intensive farms are applying GAqP
- Residue monitoring program show the reduction of samples contaminated with banned substances (0.3% in 2007 vs 0.7% in 2006)
- Surveillance sampling of fishery products show significant reduction of samples contaminated with pathogen or chemical residues
- Reducing number of consignments alerted by importing countries due to contamination with residues of banned substances
- Increase confidence of safe seafood to local consumers: Consumption of seafood per capita increase from 15 kg/person in 90's years to 21 kg/person in 2008

Recognition/agreement/MOU with importing countries

N0	Country	Recognition/agreement/MOU
01	EU	Decision 2004/267/EC of EC recognising equivalency of Vietnam fishery production and export and NAFIQAD
02	South Korea	Agreement on cooperation in food safety control of seafood import-export
03	Canada	Agreement for inspection and certification of residues for seafood exported to Canada
04	China	Agreement on cooperation in food safety control of seafood import-export
04	Thailand	MOU on technical cooperation in aquatic animal health food safety control
05	Cambodia	MOU on technical cooperation in aquatic animal health food safety control

Number of approved Processing establishments

	No/Year	2007	2008	2009
1	Approved by NAFIQAD	386	432	457
2	Approved for export to EU	245	303	331
3	Approved for export to South Korea	386	432	452
4	Approved for export to China	386	432	450
5	Approved for export to Russia	11	38	33
6	Registered for testing and certification for Canada	220	232	246

Activities conducted and implementation status of GAP, GMP/GHP and HACCP

TT	Item	Total No inspected	Up to GMP/GHP	
			No	% vs total No
4	PPE	1,258	568	45.1%
5	Processing SME	3,068	544	17.7%

Conclusions and recommendations

- ✓ Preventing prohibited antibiotics and giving up use thereof for fishery disease treatment should be continuously and tenaciously implemented.
- ✓ Guiding for the implementation of GAqP /BMPs in aquaculture and HACCP based program in whole production chain becomes principle preventive measures.
- ✓ Up to date, Vietnamese exported fishery products have been not detected with banned antibiotic residues or detected with a very low rate of 0.1% of total inspected consignments.
- ✓ Technical assistance to developing countries to update and prepare capacity to respond new/revised regulation/standards just after adoption
- ✓ New policy of zero tolerance application
- ✓ Harmonised list of banned substances is required (CODEX list)



Thank you !