Gender in Aquaculture and Fisheries: Moving the Agenda Forward
Asian Fisheries Science Special Issue Vol.25S (2012):1-13

ISSN 0116-6514

Asian Fisheries Science
The Journal of the Asian Fisheries Society

Guest Editorial: Gender in Aquaculture and Fisheries - Moving the Agenda Forward

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In this Special Issue of *Asian Fisheries Science,* we are pleased to present 21 papers that resulted from the 48 presentations and posters[1] of the 3rd Global Symposium on Gender in Aquaculture and Fisheries (GAF3), 9th Asian Fisheries and Aquaculture Forum, April 2011. GAF3 was the fifth triennial women/gender Symposium organized by the Asian Fisheries Society. The proceedings or selected papers from each can be found in Williams et al. (2001), Williams et al. (2002), Choo, Hall and Williams (2006), Development (2008), and in this Special Issue. Thus, beginning in 1998, the Asian Fisheries Society has supported gender topics for over 15 years, and even longer if we take into account the earlier work led by Dr M.C. Nandeesha in Cambodia and Indo-China (Nandeesha and Tech, 2002). This is the longest continuous series of women/gender symposia for a professional fisheries society.

Following GAF3, on 23-24 April 2011, the Food and Agriculture Organization (FAO) of the United Nations convened a Special Workshop on "Future Directions for Gender in Aquaculture and Fisheries: Action, Research and Development" in order to generate strategic ideas and actions that could be used to develop a "road map" for future directions on gender in aquaculture and fisheries. Attended by 24 experts, the Special Workshop concluded that those working in the field first needed a vision for engendering aquaculture and fisheries. We trust that this Special Issue will contribute to the knowledge underpinning such a vision.

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[1] http://genderaquafish.org/gaf3-2/

Yet, along with the pleasure of introducing this Special Issue, we feel a mix of optimism and pessimism - pleasure because of the breadth and depth of the knowledge contained in the papers, optimism because of emerging interest in gender in aquaculture and fisheries, and pessimism because we feel that gender in aquaculture and fisheries research has not progressed as strongly or as rapidly as it should. Despite the evidence that women play large, though undervalued, and functionally critical roles in fish supply chains, the slow progress in advancement of women reflects a global lack of priority and resources, evident also in Asia, to women and gender issues in aquaculture and fisheries.

Let us first explain the causes of our pessimism and optimism through three observations before turning to an outline of the papers.

First, we observe that women and gender topics are "not on the agenda" in aquaculture and fisheries. Research and action receives very little support from governments, universities and external funders such as development donors and non-government organizations. In Asia, a few exceptions stand out. One is the Mekong River Commission Fisheries Program and its 4 member countries fisheries departments that, for 12 years, have conducted a Mekong basin-wide Network for Promotion of Gender in Fisheries (NGF). Another exception is the International Collective in Support of Fishworkers (ICSF) which has the biannual Yemaya newsletter on women in fisheries, takes up women's issues through its regional partners and recently held a global workshop on the gender agenda in fisheries (ICSF, 2010).

The lack of attention to women and gender starts in policy-blindness. Women and gender issues are missing from key global normative fisheries (and aquaculture) products such as the Code of Conduct for Responsible Fisheries (FAO, 1995) and many of its succeeding instruments and technical guidelines (Williams, 2010). These instruments reveal how aquaculture and fisheries are presently framed, and hence the priority issues addressed – gender is not visible. Other human dimensions are similarly lightly treated. Technical production, market driven and environmental issues predominate, such as illegal fishing, aquaculture production and product certification, and the ecosystem approach to fisheries. Even where these areas of focus would be expected to encompass significant gender and other human dimensions, they rarely do. A turning point may have been reached, however, as the 2010 Global Conference on Aquaculture, conducted by FAO, the Network of Aquaculture Centers in Asia and the Thailand Department of Fisheries, included a gender and human capacity development segment (Williams et al. 2012).

Without focus and resources, progress is difficult and slow. Many of the authors in this Special Issue are conducting gender studies as a sideline to their main fields of work and some have entered the field as non-specialists who have realized the need, in the course of other studies.

We have also witnessed the phenomenon of women and gender specialists in social science research departments moving on from studying aquaculture and fisheries to studies in other sectors or overarching themes such as climate change and women's mobility. Some among us are part of this shift. In order to flourish, any field of research and education needs resources – researchers, funds, students. Like other researchers, women and gender researchers and students "follow the money." Because gender and fish sector funding is minimal, some of the most significant researchers in the field have moved on to study gender in other fields.

To compound the problem of low support, many researchers and activists have been disheartened because their advice was rarely sought, or accepted and used when given. For example, inshore fishers, and especially women, warned that the North Atlantic cod stocks were in decline years ahead of Canadian government recognition of the crisis (Neis, 2000, Grzetic, 2004).

Development assistance agencies often fund research and then they use the results to inform their actions or set new programme directions. Few aquaculture and fisheries projects, however, have gender components and hence development assistance agencies are providing little support to research in gender in aquaculture and fisheries. A current exception is the FAO-Spain Regional Fisheries Livelihoods Programme (see papers by Lentisco and Arenas, Nguyen Dang Hao and Segundia et al. in the current Special Issue).

The lack of attention to gender in fish sector projects could be partly compensated by borrowing from gender work in other rural sectors. The quantum of gender and agriculture work seems to be increasing since FAO highlighted the "gender gap in agriculture" in its State of Food and Agriculture report (FAO, 2011). The report also touched lightly on aquaculture and fisheries. Following this report, more attention to women in agriculture is evident among the multi-lateral development agencies such as FAO, the International Fund for Agricultural Development (IFAD) and the World Bank. Several new electronic platforms have been created to promote gender and agriculture research and action, and other significant development actors have distilled practical lessons learned from helping women, e.g., Anonymous (2012). In March 2012, the Indian Council for Agricultural Research and several international professional bodies sponsored the first Global Conference on Women in Agriculture. Agriculture researchers are addressing land rights issues for women, measuring women's empowerment and assets and mapping women's activities. The fish sector was acknowledged to some extent in the 2012 Global Conference on Women in Agriculture.

We cannot take for granted that this flurry of attention to women in agriculture will also stimulate more research and action on aquaculture and fisheries. It is, however, a positive development that should be harnessed. Choo et al. (2008) pointed out that fisheries and aquaculture are influenced ultimately by global trends in development. So far, no large scale quantitative study on gender and fisheries has been conducted in any part of the world, unlike on gender and agriculture.

As we write, other signs of optimism closer to aquaculture and fisheries include that several mainstream institutions are beginning to include gender work and strategies in their programs. For example, The CGIAR recently adopted a new research program on aquatic agricultural systems. The program focuses squarely on food security and integrated livelihood for the poor. It is an innovative and ambitious research program that has strong focus on gender mainstreaming, as can be seen from the fact that one of the six research themes is on gender equity. Noting that the total requested budget for the program is US$59.4 million with projected partner funding of US$300 million over a three years period, it may provide substantial resources for advancing gender and fisheries research. What is important to note is that such strong gender focus is possible because the program moved away from component crops and fisheries and focused on integrated livelihood systems. By looking at the system that women and men are working/living in, rather than looking only at fish, there is greater opportunity to address the issues of gender equity as well as other social issues.

Further optimism comes from the rising interest in value chains in fisheries research. Just because few women go out in large boats to fish, they are often not considered fishers and marginalized in fisheries sector analysis, as many of the papers in this volume pointed out. The focus on value chains puts a new light on women's role in aquaculture and fisheries, and highlights the importance of post harvest activities such as trade and processing. This is becoming all the more important because of the regional economic integration, such as in the ASEAN region.

Our second observation is that women/gender studies in aquaculture and fisheries are not monolithic and they will not be addressed by a single discipline or epistemology. This methodological plurality contrasts with the case in technical fields such as fish diseases, stock assessment, hatchery technology and safety at sea. Indeed, considerable differences of opinion prevail over gender research, and even whether "gender" approaches are weakening attention to the very urgent problems that many women, especially poor women, experience in the fish sector, e.g., Biswas (2011).

One of the problems of advancing the gender and fisheries/ aquaculture field is the difficulty in conducting truly multi-disciplinary research. Fisheries biologists realize that they need to understand about the people who are engaged in fish production, hence focus more on gender division of labor in fish production. Social scientists are concerned with social relations and structures as well as livelihood systems but often lack knowledge of fisheries/aquaculture systems and technologies and fish species that people are engaged with. In order to advance the field, we need to combine both perspectives. For example, the following questions can only be answered through work by multi-disciplinary teams.

- With increased demand for water for agriculture/industries/tourism/fisheries, how much water would be available for fisheries and aquaculture? How much would fisherwomen be able to negotiate for water for their own production, giving their weak negotiating power and low

visibility in the sector? How would that affect the fish availability for fishing/fish culture households? What are alternative livelihoods or possibilities of upgrading women and men's present positions in aquaculture and fisheries?

- How would fish production technology help in improving food security? For whom? Why?
- With cross-border trade facilitated, what are the implications for food security for the poor? How would aquaculture and fisheries play a role in food security for the women and men in poor households? How can poor women maintain access to fisheries resources for their food security? How can women retain or gain access to fish for processing and sale against other competitive buyers?

Another problem of gender and fisheries research is that when we look at only the gender division of labor, we often cannot deny that women are playing a marginal role vis-à-vis men. However, when we look at the dimension of household food security and livelihood, we find that women contribute as much and sometimes more than men. What are the species available for women to catch and trade, or to be consumed at home? What are the aquatic resources available for poor women for processing and trade? What are the technologies available for them? What bargaining power do women have in the value chain, including rights to exploit fisheries resources? Gender and fisheries needs to take a more systems approach in order to reveal the gender relations and problems that women face in fisheries. To do so requires collaboration between social science and fisheries biologists.

Compared to fisheries, gender and aquaculture needs a totally different framework of analysis. The issues for gender and aquaculture are more similar to issues in gender and agriculture or gender and enterprise development. Hence, basic gender analysis concepts such as gender division of labor and access/control over resources provide us considerable insights into the gender issues in gender and aquaculture. IFPRI together with USAID and the Oxford Poverty and Human Development Initiative (OPHI) has developed a women's empowerment index in agriculture (IFPRI et al 2012); gender and aquaculture can learn much from them. In terms of methods, the IFPRI researchers conducted a questionnaire survey for both wives and husbands in households, allowing better insights into the intra-household gender relations in farming, and to some extent in fisheries.

Thus, looking at fisheries as a system and aquaculture as a household economic production activity, existing methodologies can be expanded into the field of gender in aquaculture and fisheries.

We need to integrate and build on the skills and knowledge of both the fisheries scientists and the social scientists if we are to address the problems confronting the fish sector. We need to investigate, in depth, the complex relationships among resources and environmental sustainability, and the conditions of harvesting and processing fish resources and the social and cultural context in which fishing and fish processing takes place.

Each fish production system has its own needs for research and action. At the broadest level, we need to stop simplifying the fish production sector by lumping aquaculture and fisheries, and by failing to take local soci-ecological settings into account within each type of production system.

This leads to our third observation which is that: much work is needed to develop and disseminate better conceptual frameworks for studies on gender in aquaculture and fisheries. Building the new foundations requires the engagement of the more academic researchers and activists who have been engaged in Asian Fisheries Society symposia, and more besides these. Until more financial and institutional support is available to this field of research, progress will continue to be modest.

Experience has shown that women/gender issues are invisible to many in the fish sector and advocacy is required to raise the profile of gender. Credible, dedicated and persistent champions are needed. One initial target of action is to bring about policy changes to engender aquaculture and fisheries because, without this, the mandate and platform for gender focus is lacking.

Above, we commented that many of those doing gender research are not educated in gender research methods. Beyond this small group, most experts in aquaculture and fisheries have no gender education and very little awareness of the issues. Gender training, education and extension, therefore, are needed to reach a wide spectrum of people in aquaculture and fisheries. Basic concepts need to be defined, disseminated and understood; gender disaggregated data should be routinely collected; and research and comparative analysis conducted. With development and broader use of conceptual frameworks for data collection and research design, cross country comparisons would become possible. They are presently impeded by statisticians and researchers using different approaches. To illustrate the demand for more solid foundations, on our Genderaquafish website, the glossary of terms, compiled from authoritative sources, is the most visited page apart from those dealing with GAF3 (http://genderaquafish.org/resources-3/glossary-of-terms/).

In summary, we find that women/gender studies are progressing only slowly in aquaculture and fisheries because they: (1) are not on the policy agendas and action plans and therefore minimal resources are devoted to them; (2); are not amenable to a single epistemology and different visions compete; and (3) require stronger conceptual foundations to be developed, disseminated and used.

The Special Issue

In terms of topics and study approaches, the GAF3 Special Issue papers are heterogeneous. They examine some of the major themes of gender in aquaculture and fisheries, using different disciplines including sociology, political science, geography, economics, anthropology, rural development and supply chain analysis.

In this overview, we categorize the papers into three streams of work, but we recognize that they could also be grouped in other ways. The reader should note, however, that in the Special Issue, the papers are grouped according to their classification as research papers (as defined for regular volumes of *Asian Fisheries Science* journal), technical papers (containing significant new technical information gathered from original studies), and short reports (on development work, surveys or projects).

In this thematic overview, the first and largest set, 13 papers, explores gender roles in widely varying aquaculture and fisheries socio-ecological systems, *sensu* Elinor Ostrom (Ostrom, 2009). The second set of six papers explores or reveals women's agency in fish supply chains and ecosystems. The third set, of just two papers, probes inclusion of women in aquaculture and fisheries institutions.

Gender roles in aquaculture and fisheries socio-ecological systems

Women and men exist in complementary (Della Bacaltos et al.; Mohammad Nuruzzuman) and competing (Ramachandran C. Nair) spheres in aquaculture. GAF3 papers in this Special Issue show that support to address gender inequity in the aquaculture sector is heavily focused on poverty alleviation aimed at addressing short term goals and do not take long term goals into account. Solutions are piecemeal, and bigger issues involving property rights, advocacy and male-dominated monopolisation of profit have not been given much attention (Ramachandran).

Aquaculture development support is aimed mostly at poor women to operate low technology and low input systems (such as mussel farming, seaweed culture and backyard shrimp farming), which help to supplement their incomes. Ramachandran described mussel farming as almost "do-nothing farming" because of its simplicity and quick production. In Bangladesh where women were previously not actively involved in aquaculture, Md. Nuruzzaman described how they were introduced to small-scale shrimp farming where they worked as labourers in low-skilled jobs like bund repair, pond and feed preparation. Hazard and Critical Control Point (HACCP) and Good Aquaculture Practice (GAP) training programmes were attended mainly by men. Women were often left out and had little opportunity to pick up higher level or new skills, even though the pioneering household and community development project on which he worked and reported showed that women as well as men picked up well on course materials.

When an activity becomes commercially profitable, very often women doing the work are displaced, lacking the use rights to farming areas and the economic power to resist, as seen in the mussel culture activity in India (Ramachandran). By contrast, in the Philippines, the collaborative seaweed industry platform, incorporating women and men's roles, appears to offer, simultaneously, the means for small-scale operators to engage more positively in the value chain (Della Grace Bacaltos et al.).

The fisheries papers of this Special Issue analyse many different ways in which women and men participate in the harvesting sector. While women are still a very small proportion of harvesters, particularly in offshore fisheries, their contribution is vital, especially in the small scale inshore fisheries and in small communities. Two papers address overarching issues. Marilyn Porter makes the sociological argument that policy is often directed narrowly at improving fish harvesting and processing, without taking account of its impact on women, families and the community, drawing on data from the contrasting situations in coastal Tanzania and Atlantic Canada. She argues that studying coastal communities through a gender lens would have greater impact if the research could be commonly framed and attention paid especially to power, inequality and discrimination and how women manage to negotiate better positions for themselves and their families. Holly Hapke's paper uses feminist commodity chain analysis, livelihoods analysis, and insights from feminist studies of gender and development to examine different impacts of globalization rooted in gender divisions of labour, taking her examples from Kerala, India.

Two papers deal with the unique practices and experiences of women who free dive for shell fish, seaweed, sea urchin, lobster, sea cucumber, oyster, octopus and abalone in Japan and Korea. Cristina Lim and her colleagues contrast the skill and high earnings of Japanese women divers with their low social status. Sun-Ae Li makes similar points about Korean divers, but also traces the long and complex history of the women divers and accounts for the dwindling of the occupation. Nguyen Dang Hao moves our attention to Vietnam, with a detailed account of the unequal and inferior position of women in fishing communities in central Vietnam. Despite their longer hours of work and active participation in fish processing and trading, they have higher rates of poverty, lower levels of education and are excluded from all the significant locations of decision making and social power. The education, income and asset patterns across better-off, average and poor households showed that women in average and poor households were the most poorly educated and engaged more in small scale and less remunerative activities, than was the case for men. Even in better off households, women's activities were less remunerative than men's.

Two papers present women's role in coastal cities and remote fishing communities in Indonesia. In fishing communities in two coastal cities of Central Java, Zuzy Anna used rapid quantitative appraisal (rapfish) research methods to analyze the ecological, economic, social and institutional uncertainties challenging women. The most important indicators for the different dimensions of uncertainty were: drought, pollution and season (ecological), uncertain production and income (economic), high divorce rates, high unemployment and poor health (social) and high dependency on credit and local financiers (institution). The women cope with the uncertainties by controlling spending and by taking part-time employment outside the home. In the remote Pantar islands of Indonesia, women were not as highly regarded as men as users of marine resources. Ria Fitirana and Natasha Stacey used participatory rural appraisal and focus groups discussions to analyze the gender dimension related to fishing activities throughout the supply chain.

Fishing activities included a wide range but some women and men's activities overlap. Yet, the women of the Pantar fishery ran the real risk of not being included as key stakeholders in consultations over the local emerging marine conservation plans under the Coral Triangle Initiative.

Xijie Xu and colleagues' paper on women's roles in China's new inland and coastal fishing villages emphasizes the pivotal roles and opportunities for women in the newly constructed villages. Women make up about 60% of the labor force and have a heavy work load. Although women's organization skills have strengthened the construction of new fishing villages, women are still considered marginal and still lack full participation in China's new economic era.

Microfinance has become popular for many vulnerable fishing households in Kerala, India. Microfinance is often given to women without any study undertaken on its impact. In their paper, Nikita Gopal and colleagues reported that microfinance schemes have supported family finances and have improved household financial decision-making in poor households. Most of the microfinance funds have supported household expenses and have had very little impact on developing entrepreneurial opportunities for women. The credit has encouraged consumption rather than production. The study stressed the need to further examine the use of credit as a financing mechanism in poor households.

In different ways and drawing on data on women and men from different societies and in different socio-ecological settings, all these papers draw attention to the significant contribution that women make to fisheries – but also that in all cases women benefit less than men do, carry heavier loads of work and responsibility and have much less access to decision making and resource management.

Generally, the role of women in fisheries has been most visible in post harvest activities but this Special Issue has only one paper focusing just on post-harvest. While the physically demanding sea fishing was primarily (though as evidence shows, not exclusively) a male domain, women were the main handlers, processors and marketers of fish on shore. This division in labour was observed in the study from Philippines by Corazon Macachor and colleagues. The men were involved in fishing activity but the production of smoked frigate mackerel was predominantly a female preserve based on traditionally acquired knowledge. When it came to marketing, the women processors' area of operation was limited and the far off markets were catered to by men.

Women's agency in fish supply chains and ecosystems

Six papers discuss women's own agency in aquaculture and fisheries production. All highlight the important roles women can or could play in this sector. Importantly, all papers explore how through proper intervention, women's roles can become more visible and their agency can be strengthened through their involvement in aquaculture and fisheries. Three papers discuss different ways involvement in aquaculture and fisheries can benefit women.

In Nepal, Sunila Rai and co-authors analyzed how household ponds can lead to increased consumption of micro-nutrient rich small indigenous fish species, benefiting nutrition levels of women and children. Rosaria Gaerlan Segundia and co-authors demonstrated how value-added fish products can lead to women's empowerment in the Philippines. For Thailand, Cristina Lim and Amporn Laowapong argued that with leadership opportunities and training, women in coastal communities can take a greater leadership role through their involvement in fisheries. Their position is illustrated by five compelling case studies.

The other three papers explored how organizing women through self-help groups in fisheries can empower women in their fisheries related activities. B. Shanthi and her colleagues, by describing various cases of women entrepreneurs involved in fish related business, showed that self-help groups as well as better education in general supported their businesses as well as helped them to achieve higher entrepreneurial skills. However, one catch was that most of these women were involved in traditionally defined women's activities. Md Ghulam Kibria and Gosbert Hamutenya described a case in Namibia where a women-run aquaculture project, though producing only a small harvest, has provided women with a place to discuss future plans to improve future yields. Farisal Bagsit and Caridad Jimenez, in their case in the Philippines, showed how women call their work on mangroves "meetings", and demonstrated excellent feedback mechanism that lead to well-managed mangrove reforestation program. This project was considered to be an exception where most of the other mangrove programs were dominated by men, although the women's group still had difficulty in getting acceptance from the community as a whole.

Women in aquaculture and fisheries institutions

Two papers dealt with women in aquaculture and fisheries institutions.

The first paper, by Angela Lentisco and Enrique Alonso, on gender mainstreaming strategies and tools in fisheries development projects gave as an example the Spanish-funded Regional Fisheries Livelihoods Programme (RFLP) implemented by FAO which considered gender mainstreaming as an important cross-cutting issue of its implementation. The RFLP is aimed at improving the livelihoods of small-scale coastal communities while contributing to sustainable management of aquatic resources.

A set of actions contained within the broad theme of information gathering, knowledge sharing, implementation, monitoring and evaluation, and capacity development comprise the overall strategy for gender mainstreaming of the RFLP.

To support the implementation of this gender mainstreaming strategy, a handbook was developed, presented during a workshop on best practices, and improved prior to publication, taking into consideration the debate on policies, concepts, tools and frameworks for gender analysis, and

including field experiences, case studies and other strategies towards addressing and integrating gender dimensions in development projects.

Key lessons for effective gender mainstreaming in the fisheries sector based on RFLP experience include: (1) the need to highlight the roles and contribution of women; (2) the importance of gender analysis throughout all phases of project development; (3) the value of local context and the skills and knowledge of researchers when applying gender mainstreaming tools; and (4) the need for more policy and institutional support from governments and relevant organizations.

The second paper, by Hillary Egna and co-authors, on improving gender equity in aquaculture education and training was based on 30 years experience under the AquaFish Collaborative Research Support Programs (CRSP, 2006 to present) and its predecessors, i.e. the Pond Dynamic/Aquaculture (PD/A CRSP, 1982-1996 and the Aquaculture CRSP, 1996-2008). These programmes were dedicated to improving gender equality in the aquaculture and fisheries sectors by creating equal opportunities for women and men to participate in the programmes' research, training, educational and other activities – thus creating tools to empower especially women, increase their bargaining power and enter new career opportunities. A multi-faceted approach was adopted to promote and integrate gender equality through specific actions including: (1) collection and analysis of disaggregated data; (2) setting a 50% benchmark for women's participation in both formal and informal training opportunities; (3) requiring a gender strategy for all core research projects; (4) ensuring at least one gender-focused investigation in all of the core research projects; and (5) providing extension and technical services directed at women in sustainable aquaculture and aquatic resource management.

While great strides have been made recently in terms of equal rights, educational and professional opportunities, better wages and political power for more women in the formal sector, statistics from AquaFish showed characteristics of a "leaky pipeline". The paper makes recommendations to help overcome this phenomenon in the programme.

Conclusions

Although the field of gender in aquaculture and fisheries is still under-researched and under-funded, an increasing number of people and institutions are interested in it, as can be seen by the number of papers submitted to the 3rd GAF symposium, and the number of papers in this Special Issue. As presently comprised, GAF researchers form a loose network comprised of biologists as well as social scientists from several disciplines, placing interested parties in a good position to coordinate innovative research with a multi-disciplinary approach. The collection of papers in this volume shows that we have become quite successful in visualizing women's contribution to fisheries and aquaculture. We have also been able to come up with more structural analysis by looking at value chains and institutions, dealing squarely with the relations of women in fisheries/aquaculture with other actors. The field is now faced with more challenges with climate

change and economic integration, which would require us to do a more nuanced analysis on different contexts and ecological/economical/political/cultural systems.

We also need to highlight the issues of inter-sectionality – the axis of analysis is not only about women and men, but how the other factors such as class, age, ethnicity, race, caste, religion etc all come into play to define/condition the relations that one would have in the fisheries/aquaculture systems. We hope that in the near future, we will be able to report very optimistically on progress in gender in aquaculture and fisheries research and development.

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