‘There are More Vets than Doctors in Chiloé’
Social and Community Impact of the Globalization of Aquaculture in Chile[1]

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ABSTRACT

This paper explores the complexities associated with globalization within the context of salmon farming in southern Chile, specifically whether the high levels of foreign investment and exponential growth in the industry have impacted positively or negatively on the people and communities of the archipelago of Chiloé. It is our argument that the responses to this issue require a subtle understanding of both the dynamics of community and the dialectics of modernity. We find substantial evidence that surplus labor, low wage levels, and poorly enforced or non-existent health and safety standards are conditioning factors in the success of salmon farming in southern Chile. We conclude that a 'sustainable community' approach is preferable to a 'social sustainable' approach as the former focuses attention on the entire range of issues important to communities and the options open to them in confronting wider structures that affect their lives.

Key Words: Sustainability; Aquaculture; Globalization; Gender; Latin America; Chile

1. INTRODUCTION

Economic globalization, i.e. big business and modern industry, often are successful at the expense of traditional sources of income and livelihoods, particularly in developing countries. This paper explores some of the complexities associated with globalization within the specific context of salmon farming in southern Chile. The central question is whether the high levels of foreign investment typical to Chile and exponential growth in the industry, have impacted positively or negatively on the people and communities of the archipelago of Chiloé. Two key propositions underlie the research. The first proposition is concerned with the relationship between the growth of the salmon farming industry and the issues of wages, labor conditions and employment levels, while the second proposition addresses the debate surrounding this growth in industry and traditional lifestyle and culture. There is substantial evidence that surplus labor, low wage levels, and poorly enforced or non-existent health and safety standards are conditioning factors in the growth of the salmon industry. Further evidence indicates that the traditional lifestyle, namely that of fishing-farming subsistence households, which has characterized Chiloé for generations is not being abandoned as rapidly as expected. While modernity, in the form of increasing consumerism and the creation of a credit-based society, is advancing in the communities. Overall communities seek to adapt to the new conditions presented to them as modern industry tends to impose its presence.

This paper is divided into five sections. This first section is the introduction, which provides the theoretical overview of the concept of social sustainability and the research design of the study. The second section presents the background on the salmon farming industry in Chile. The third section overviews Chiloé, which is the specific setting of the study. The findings of the interviews and research are presented in the fourth section, divided into three demographic categories: salmon industry workers, artisan fishers and aquaculturalists, and community women. Finally, the fifth section is a discussion of the findings.

2. THEORETICAL OVERVIEW

Since the World Commission on Environment and Development Bruntland Report in 1987, the issue of sustainability has been at the forefront of discussions of development. While many scholars are quick to dismiss its utility, particularly in the context of global capitalism (see, Leonard, 1985; Merchant, 1992; Murphy, 1994), others have carefully dissected it into three relatively useful components: environmental, economic and social (see, Lele, 1991). The three aspects of sustainability are typically employed to assess the developmental impact of technology, restructuring, capital investment or development proposals. The degree to which environmental, or economic or social sustainability are studied varies greatly from the global level down to the community level. One can understand why the term sustainability has become tarnished from a social science perspective as it has been subject to wide and varying definitions and usages.

The theoretical concern of this paper is to explore the concept of social sustainability. The term generally refers to the aspects of human social and cultural life such as equity and levels of inequality, public participation in decision-making, and finally a variety of indices of well-being such as health, education, cultural autonomy, personal autonomy, security and happiness. (see, Apostle et.al, 1998; Chambers, 1987; Bernstein, Crow, and Johnson,1992). However, given the central question of this paper it is relevant to ask if this approach is sufficient to capture the complexity and diversity of community experiences under globalization and modernity? Two specific questions arise: (1) Why do some communities collapse into a marginal malaise while others thrive under very similar influences? (2) Given the influence of the growth of both globalization and modern salmon farming industry in an entire region in southern Chile, are some communities more likely to achieve social sustainability than others?

A modernist perspective on economic growth underlies the salmon farming boom in Southern Chile. From this perspective the growth of industry is nothing less than a blessing to a

marginal region that has been mired in poverty for generations. Social sustainability will come as households are given an opportunity they did not have before to gain modern skills, experience, training, and an education. The disparity between the high profits in the industry and the low incomes of the population are a small price to pay for these benefits to the community. Eventually the living standards of the population will improve. Disruptions, such as the damage to an antiquated road system caused by industry trucks, are temporary obstacles to be tackled on a case-by-case basis.

This perspective on salmon farming in Chiloé has come under severe criticism from a research report prepared by Fundación Terram (2000).

> In Chiloé, the social and cultural impact has been highly remarkable. Men traditionally engaged in fishing, harvesting of shellfish and algae, as well as small-scale agriculture have migrated and, once self-supporting, now depend on third parties to earn their living. They have sold their lands, impoverished their families and developed undesirable habits (increased alcoholism), thus contributing to the loss of a distinctive culture in Chiloé (30).

This report makes two rather stark claims that can be counter posed to those of the modernist perspective. First, the labor issue is critical to any social impact assessment. The rewards enjoyed by labor in the industry are low and stagnant in relation to the skyrocketing returns to capital in the last decade. While the relative share of profits in value added jumped from 48.5% to 60.5 % in the first 5 years of the last decade, the proportion of wages for unskilled workers dropped from 20.8% of valued added in 1990 to 15.7% in 1995 (40). In addition, the character of employment in the salmon farming industry has been changing. Automation of the feeding process since 1992 has led to a decrease in jobs by 40% in the industry since 1998 (39). The least skilled workers

have been hardest hit by redundancies, and a greater percentage of workers are now temporary, casual labor brought back into the industry only during peak periods.

Proposition #1: The industry thrives on cheap labor, and mechanization has led to a structural change in the nature of work and the labor force. Labor conditions are unfavorable, low and stagnant wages characterize the industry, and full-time employment has been declining in both absolute terms and relative to casual work.

Counter-Proposition#1: Wage levels in Chile are universally low, the state mandated minimum wage is 105,000 pesos (approximately $US190 per month) and realistically the salmon industry is no worse and in some cases better than other sectors. Chiloé is not characterized by the high levels of unemployment that are typical of other areas of Chile.

The second claim, counter to the modernist perspective, is that the aquaculture industry has accelerated a cultural disintegration process in Chiloé begun with the collapse of the capture fishery. One argument is that the over-exploitation of marine resources and the subsequent decline in small-scale fishing has forced artisan fishers to become laborers in the salmon farming industry (38). Traditional *Chilota* culture, the isolated, hybrid culture that has emerged over 300 years of contact between the indigenous *Huilliches* [people of the sea] and Spanish settlers, is seen to be threatened by this development. For centuries local subsistence based on fisher-farmer households contributed to a largely self-sufficient island economy. The new industrialism, combined with the decline of traditional pursuits, has led to the abandonment of a traditional economy by the young.

> A strong negative cultural impact [results] because if the local people accept those job positions they abandon the work on the land and fish; thus they abandon their

> practices and natural richness. Consequently, they went from a situation under which they were the owners to one where they depend on third persons to survive, selling their lands and impoverishing their families, developing negative habits, contributing to the loss of the *Chilota* culture (Fundación Terram, 2000: 43).

Proposition #2: The aquaculture boom has led to a decline in *Chilota* way of life. Young people are abandoning traditional pursuits, there is a debilitating dependence on wage employment, a decline of subsistence production, land losses, increased poverty, and general social disintegration. Decline of artisan fishing is a consequence of the aquaculture boom.

Counter-Proposition #2: Traditional sectors like artisan fishing and farming are in decline anyway. Aquaculture in fact offers a modern, cash-based alternative to the people of Chiloé. Typical of the process of modernization, this process is resulting in a de-peasantization of Chiloé, however, it is not necessarily a threat to the culture and tradition of the communities.

3. RESEARCH DESIGN

To address the social impact of the globalization of salmon farming, we gathered information from a cross-section of groups in a range of coastal community settings in Chiloé. The focus of the research design was to capture the qualitative dimensions of the range of opinions and experiences that members of the community had with regards to salmon farming. We conducted both semi-structured interviews and focus group interviews with women's organizations, indigenous groups, salmon farm workers, processing workers, technicians and supervisors, fishers, and artisan aquaculturists. In addition, we conducted key informant interviews with a trade union organizer, a number of community development workers, municipal and provincial government officials, and industry and research agency representatives.

Eight communities on *Isla Grande*, Chiloé were visited between December 2000 and May 2001. We visited the towns of Castro and Quellón, the villages of Tenaun, Villa Quinchao, Pulelo, Hueihue, Cohem, and the Island of Cailin. The communities provide a diverse representation of rural life in a number of respects, such as organizational culture and civil society, ethnicity, degree of economic development, physical infrastructure such as roads or electricity, access to modern amenities such as hospitals, schools or shops and degree of physical isolation.

4. SALMON FARMING IN CHILE

Chile has experienced remarkable growth in salmon farming. In a few short years, Chile has become the second largest exporter of farmed salmon in the world (APSTC, 2000). The Xth Region of Chile, particularly the Archipelago of Chiloé, accounts for the vast majority of aquaculture production in Chile, notably 100% of Atlantic salmon production. Of registered fish farming centers in Chile, 81% (or 324 sea water sites) are in the Xth Region. Fish farming employed 23,000 people by the end of the 1990s, reflecting a regionally based labor force growth of 7.1%, outstripping national employment growth rates by 2.1% (Fundación Terram, 2000).

The salmon farming phenomenon has occurred in the context of neoliberal free trade policies and deregulation in the capture fishery. The deregulatory climate associated with Pinochet's regime precipitated an over-fishing crisis in the marine harvesting sector. Privatization, industrialization and the concentration of ownership led to over-expansion and over-capitalization in the industry. By the late 1980s the state introduced new regulatory measures to stop the industry from imploding. A 200-mile fishery management zone and strict entry restrictions, have led to a scenario of investment stagnation in the capture fishery (see, Barton, 1997; Ibarra, et.al., 2000).

It is within this context that there has been an infusion of foreign investment into

aquaculture. State support for export-led growth instigated during the Pinochet years has been intensified in the 1990s and has led to foreign investment booms, for example in the fish processing sector (Barton, 1997; Ibarra, et.al., 2000). Aquaculture has benefited from this trend beginning in the late 1980s onwards as foreign capital can own 100% of the shares in Chilean aquaculture companies. According to statistics from the Central Bank of Chile, in terms of overall percentage of GDP, the aquaculture and fishing industry average of 1,5%, between 1995-2000, does not compare to that of other sectors such as commerce and manufacturing, 17% and 15.1% respectively, (Lizondo et al, 2001).

The salmon export industry in southern Chile has experienced steady and significant growth over the last ten years. In 1990, salmon (trout is also included in these statistics) production for export was 23,800 net tons. There was an incremental growth in production until 1998 when 181,600 net tons were produced. There was a slight decrease in 1999 with 154,900 net tons, however the recovery was immediate in 2000 when production had reached 206,000 net tons (Chilean Salmon and Trout Production, Asociación de Productores de Salmón y Trucha de Chile, 2001). With respect to dollar value, salmon exports have risen from 1.8% of total Chilean exports in 1991, to 5.4% in 2000 (Ibid).

Tim Seward, owner - manager of Chilefish SA states unequivocally that high profit rates in the industry are the impetus behind this expansion:

> "Last year and this year [2000], more than 40 per cent of sales have been pure profit. It is unrealistic to expect that this level will be sustained in the long term, but I'm betting that it remains this way for the next three years. Another plus for those of you who have money - company tax is low, only 15 per cent." (*IntraFish*: 11)

Of Chile's farmed salmon exports, in the year 2000, 54% went to Japan and 32% to the U.S. (Asociación de Productores de Salmón y Trucha de Chile). Geography is clearly not advantageous to Chile's market position, therefore, a key question is: what allows the companies in Chile to overcome the comparative disadvantage of distance? One answer is that environmental regulation of the industry is based on a 'competitive' model that allows the market unprecedented liberty (see, Barton, 1997). But we would argue that the 'social environment' plays an equal or greater role in the success of the industry. Transportation costs are five times lower in Chile than in either the United States or Canada (*IntraFish*, 2000: 6). In addition salmon producers in Chile market a value added product with greater consumer appeal, 57% (source: Asociación de Productores de Salmón y Trucha, *El Mercurio*, Santiago, February 8, 2001). Underlying both strategies are very low labor costs. According to Seward:

> "The secret behind the Chilean salmon success is that we have made the fish easy to eat. We take the bones out.....In Norway you sell practically only raw material. We add value to the raw material by transforming it into different types of products. This is possible because manual labor is cheap in Chile. People can never be entirely replaced by machines." (12)

Consequently, we would argue that the labor question lies at the heart of Chile's aquaculture success and issues of social sustainability, not just environmental sustainability, need to be front and center in any assessment of the salmon farming sector in Chile. (cf. Barton, 1997).

5. THE SETTING: CHILOÉ

The archipelago of Chiloé is a province in the X Region of Los Lagos. Chiloé is made up of the *Isla Grande* and more than 30 smaller islands. The population of Chiloé is 140,000, of which just over 50% is rural. In the rural areas, 23% of the population lives in poverty. These facts reflect

the marginalized and isolated nature of the population. The province is divided politically and administratively into ten municipalities, which represent a great diversity in terms of rural conditions, production structure, levels of development, and social and economic integration. The traditional productive activity of the province is based on its renewable natural resources, namely in the primary sectors of agriculture, fishing, forestry, and more recently tourism.

Based on our interviews the *Chilota* household is rooted in pluri-active self-provisioning. Potatoes, wheat, oats, and garlic are common crops grown on agricultural land. Fruit trees such as apples, pears, and cherries are also an important part of household assets. In one community a property of four hectares is considered large, in another the average is six hectares, while the largest property is ten hectares. Individual households also commonly raise cows, pigs, sheep, goats, turkeys and chickens, geese and ducks, while oxen, and horses are an investment as work animals. Flour and *chicha* (alcohol made with apples) are the main home processing activities in the communities. Common lands are also important for household subsistence activities. For example, forests are used for firewood and the gathering of medicinal plants; and shorelines are used for gathering shellfish and algae.

The villages we studied are homogenous culturally and in terms of class. The average household size amongst respondents is four to six persons. They remarked that their families have lived in their communities for generations, dating back to the 1700s in some cases. Mutual obligation and reciprocity are lingering community norms, which contribute to a strong sense of solidarity. Neighbors are well known and visit often. Their communities are seen to be cohesive, neighbors are friendly and people look out for one another. In Villa Quinchao, respondents observe that, “[everyone] helps each other out with favors, gifts, work. If someone is sick or dies, they all help the family. This form of community has been the same for generations.”

Communities are seen to be generally egalitarian by our respondents. When asked about reciprocity and sharing in the community, people responded that within the communities there is

very little that differentiates one household from another. When asked if they perceived differences between people in the community, the common response in Cohem was: “No – same level, all same salary.” In the community of Villa Quinchao, women in one focus group reiterated the point: “...we are all equal, peasants working the land…all Catholics. Education levels are the same, most completed three years in school, but our children now tend to complete eight years.” Average household income in Cohem is 100,000 pesos to 150,000 pesos, “for example, it all depends on whether in a particular month they have an animal to kill**.**” In Villa Quinchao, women responded somewhat differently stating:

> “A family needs at least 60,000 pesos/month to live – to buy flour. This is for a small family. We are three people and can live with this but when my grandchildren come it is not enough. For example, we are five in the house and with the grandchildren we need at least 200,000. In the countryside, people eat a lot, especially when more people arrive, and therefore, we need more money.”

The gender division of labor is fairly traditional. Women are responsible for housework, looking after animals and tending kitchen gardens. In the particular case of Villa Quinchao the women generally do not work in the salmon industry as there is not a processing plant close by. One group of women noted that, “men do not work in the fields or gardens at home. Some men do cut wood or tend the animals. Men come home from working at the salmon sites (men traditionally are more likely to travel a distance for work) very tired. A person (woman) can die working in the fields.”

In the towns of Castro and Quellón, our worker interviews indicate that unions are the only major type of activity for which they have the time or inclination to participate. The villages in our study are noticeably different in this respect. Civic activity flourishes in the form of

religious groups, neighborhood associations, father's and mother's centers, senior's groups, sports groups, and trade unions. A core of active, dedicated individuals is commonly seen at the heart of these organizations. With the active involvement of the intergovernmental development agency ProRural (*Red de Cooperación Institucional para Zonas de Pobreza Rural* – Institutional Cooperation Network for Rural Poverty Zones) four communities we visited had been able to garner funds from FOSIS (*Fondo de Solidaridad e Inversión Social* – Solidarity and Social Inversion Fund) and/or *Fundación Chinquihue* (a private foundation) to build community centers. Respondents remarked: "This has made a big difference. We no longer have to meet in someone's home. Many times if there was personal animosity between people in the group, someone wouldn't attend a meeting, or be as open with their opinions." This type of center is generally recognized as the fundamental ingredient for an active civil society (see, Barrett, 2001; Read, 2000; VanderPlaat, 1998).

6. FINDINGS

To adequately capture the range of opinions and experiences relayed concerning the social impact of salmon farming, the findings are presented according to the perspectives of three major groups: salmon industry workers, independent artisan fishers and aquaculturists, and community women. The first of these groups represents the impact of the industry on labor, while the other two groups capture the impact of the industry on community.

(a) Salmon Industry Workers

The impact of the salmon farming boom on workers is the most direct, and a critical element of any social sustainability question. The interview questions focused on salient issues related to conditions of work, income, health and safety, unionization, land issues, and educational opportunities. Interviews encompassed workers from all aspects of the industry, salmon farm

feeders, technicians, processing plant workers and supervisors; in three communities: Castro, Tenaun and Quellón.

(i) Conditions of Work

The findings in terms of labor conditions echo those of Silva and Schatan (1998), namely that the main issues are low wages and the physical nature of the work, tendency toward replacing permanent workers with temporary ones, and massive firings due to new technology. In the case of the salmon farm workers we spoke with, three to four workers are employed at each of their sites, whereas prior to the mechanization of feeding operations, there had been seven or eight. The processing plants employ on average 250 to 300 workers per plant. In terms of gender division 30% of the labor force on the salmon cage sites are women; nearly 80 to 100% of salmon processing workers are women. Many of the women working in plants are single parent, household heads.

Working conditions, and the satisfaction individuals receive from their work are a function of their relative position. For example, fish filleters and packers, farm workers and technicians are the least satisfied with their work, levels of supervision, hours of work or prospects for promotion. On the other hand, the mechanic, a supervisor, and an older female worker said they are quite satisfied with their jobs due to levels of autonomy, workplace motivation, and cooperation within a work team environment.

According to the interviews, hours of work fluctuate seasonally with peak production levels between November and March every year. During this time the labor force in the industry jumps 300% to 500% in some plants as casual workers are brought in for the salmon harvest. Processing workers in Quellón and Tenaun normally work a 48 hour week: eight hours a day, six days a week. During the high season, workers put in 10-12 hours a day with overtime pay. The workers in Quellón reported that if time is missed due to sickness or child care responsibilities, it

has to be made up on Sundays or through unpaid overtime, or else their monthly pay is docked for time missed.

(ii) Income

Wage levels varied widely according to position and company. Two fish packers interviewed in Quellón who work for *Yadran*, told us that even after more than ten years experience, they received the minimum pay with no opportunity whatsoever for promotion. Their base salary is 65,000 pesos a month plus incentives: *"bono de incentivo"* after they meet a base production quota of 100 tins per person per hour; and *"bono de produccion"* for total monthly production levels. There are two important issues underlying this system of pay. First, by law every worker must be paid the minimum wage of 105,000 pesos per month. So this system allows companies to technically pay less, and use the incentive system (and thus ensure high production levels) to bring individual salaries up to the national minimum wage level. If a particular worker does not meet the production quotas, the manager is said to "fudge" the paperwork to bring the worker's salary up to minimum level. However, as the workers stated in their interviews, if this happens more than once with the same worker, they are likely to lose their job. Second, the incentive system results in competition among workers who actually work together in groups of five or six people. This impedes any degree of cooperation among workers necessary to form unions, etc, that could provide the voice to improve their situation.

A union organizer commented on the minimum wage issue as follows:

> "We have a problem with Chilean companies. They do not want anyone paid more than the minimum wage. The Association of Salmon and Trout Farmers [*Asociacíon de Productores de Salmón y Trucha*] do not want any companies paying their workers more than others. A manager in Chiloé makes the salary of

100 workers."

We also found that wages vary dramatically according to position and company. Line workers are paid as low as 115,000 pesos plus production bonuses in two plants, *Invertec* and *Unimarc*, while technicians earn 300,000 to 400,000 pesos a month, center bosses, 500,000 to 700,000 pesos; and area bosses 700,000 to 1million pesos a month. At *Invertec*, workers are eligible for a raise to 150,000 pesos only after four years of work. Invertec also provides workers with breakfast, lunch and tea, while *Unimarc* does not. The workers at *Yadran* receive lunch only if they live more than 30 minutes from the plant. Day care for children up to two years of age is also provided by the *Yadran* plant. Even though workers have to travel greater distances in Chiloé to work due to the impact of mechanization, we did not encounter any firm that provides or subsidizes transportation for workers.(see also, Phyne and Mansilla, 2001).

In the community of Tenaun, community members and workers discussed the modernization impact of salmon farming. They feel that cash income has led to improved purchasing power, for instance of domestic appliances or telephones. However, it was suggested that an increase in "things" in the house is more likely a reflection of normal changes: "the community entered globalization. It is a natural course." More than the income itself, work in the salmon industry allows people to go to the city and purchase on credit. The most common purchasing practice in Chile is a quota payment system. Chileans use this quota plan to buy everything and anything, from a pair of shoes to a vacation. It is this type of credit people strive to obtain. The workers with their salary, are therefore, converted into potential consumers. Sales people arrive to offer credit cards. A worker in Quellón said: "There is the possibility of credit to be able to buy more than just food. We are constantly visited by credit card and loans promoters."

(iii) Health and Safety

The most common complaints by workers about their jobs have to do with health conditions in the plants and on the salmon farms, particularly for women. The workers at cage sites interviewed spoke of women fainting on the job as there are no washrooms for them to use. Working conditions are often cold, wet and unhygienic with no place to change into dry clothing. Workers in Quellón observed that they have no chairs to sit down and building maintenance was so poor it left workers vulnerable to accidents. The irrelevance of the safety issue from the companies' perspective is apparent from one particular incident related during an interview: "The person in charge of safety in the plant was called because of an accident inside and did not know where the entrance to the plant was!" Common work-related illnesses and injuries cited are lower-back ailments, cuts, tendonitis, and fungi on hands. Plant doctors or nursing staff are unheard of. The union organizer interviewed summed up the situation: "There are more vets than doctors in Chiloé." He went on to discuss the health and safety situation in the salmon farming industry as follows:

> "There are no washrooms for the women. They work eight hours a day on the platforms [i.e. of salmon cages]. The men's "washroom" is over the side of the boat. Many women complain of cystitis, however companies do not treat this as a work related problem. They work outside in wet weather all day. After five to six years workers do not want to do this anymore. The companies have a legal responsibility to investigate health conditions, and according to law they have a responsibility to deal with diseases related to the job, but there is no enforcement of these laws."

Another example of a health problem facing workers is that of antifouling paint which is applied to the salmon cage nets. Two workers have died as a result of collapsed lungs. No safety equipment is used when this is sprayed on nets, and indoor air quality is very poor as there is no ventilation.

(iv) Unionization

Efforts by workers to unionize and improve their working conditions and incomes have met with little success. Besides the limitations on cooperation due to the incentive system of pay, workers told us of discriminatory practices used by companies against workers trying to organize, such as firings, loss of benefits and production bonuses. Other common barriers to union participation are lack of interest, i.e. workers prefer a direct relationship with their employer, "individualism" is prevalent in Chilean society, and lack of knowledge on part of workers regarding efficient union action (Silva and Schatan, 1999).

A surprise was the discovery of companies where 20 to 40 % of workers would be members of independent unions that did not have bargaining rights. In fact, only one plant in Chiloé had a certified union. The most common reason for this was expressed by one worker in Quellón: "More people do not participate [in unions] because they want to be in the production bosses' good books." The union organizer we spoke corroborated this view:

> "During the harvesting period a 12 hour day is common, but with no changes in salaries. We have tried to organize the workers, but they are reluctant to dissent. There is a productivity bonus over and above the wage, which provides an incentive to harvest more. The salary remains the same every year. [In some cases] after eight to nine years a worker makes the same salary, there is no seniority."

In one instance a union campaign was countered by a company publicity campaign to dissuade workers from joining the union suggesting they would earn less. Shortly before our visit in November 2000, a strike had occurred at one of the production sites of *Invertec*. The union organizer recounted the following events for us:

> "We had three days to deal with the issues. The strike began early in the morning. The union occupied the sites and principal office, which surprised the managers. The *carabineros* [Chilean police] had orders to get workers out by 11:00 a.m. The union spent all day in negotiations with officials in Santiago. The general manager from Santiago said that the president of the union could not control the situation as the navy were close by with their guns.
>
> The Governor of Chiloé and others sat down to look for a solution. It took five minutes to resolve. The union's mistake was that it was over too quickly, but they were able to demonstrate that the union could accomplish things. We reached a 30% increase in workers' wages, 10% now and the possibility of 20% more. Previously, they were below what others were paid."

Finally, we were given a clear impression that companies deliberately stratified the workforce in terms of regional origins. For example, the labor organizer remarked:

> "Middle management are mostly people from Santiago. They [salmon farming companies] don't like to have middle management from here. A young middle manager from Santiago will not refer to older workers in terms of the formal "you," which is part of the local culture [the formal "you" shows respect for elders]. We have respect for elderly people in Chiloé, but it is not shown by the

> middle managers from Santiago. There is no respect for the age and experience of older workers."

(v) Land Issues

Another issue was whether the observations of the Fundación Terram study concerning land losses were accurate. During the interviews, the workers in Tenaun replied that they were surprised by this and knew of no one in Chiloé that had had this experience.

> "In other parts of Chiloé people have sold their land but it is to find work in the city and is not related to the salmon industry. In Chiloé people think of their land as a valuable asset for the future. Chiloé is unique (in terms of other parts of Chile), because individuals tend to have larger lots of land."

Salmon farm and fish processing workers, both women and men, who continue to live in the villages and on farms still rely heavily on household-based, self-provisioning.

In a discussion with a rural development worker, the land issue is seen to be related to the natural process of modernization, not the arrival of the salmon industry. As more people choose to move to the urban areas there will be a "de-peasantization" of Chiloé. This decision to move now occurs among the modern generations as they seek the conveniences concentrated in the urban areas. For this reason, future generations may be more likely to sell the land. Noticeable changes in land use over these last few years has been the proliferation of land being devoted to vacation use. This is related to the increase of the importance of tourism in the area.

(vi) Educational Opportunities

In general, no previous knowledge, education or experience is required of new workers. Labor

turnover is relatively high at the unskilled level. A worker in Tenaun remarked: “There are only two levels in the case of salmon in Chiloé: top-level technology on the one hand, and primitive manual labor on the other.” Turnover rates are similar in the processing plants and the platforms. At the unskilled level, managers seem to make a special effort not to hire pregnant women (see also Silva and Schatan, 1999). This point was mentioned in an interview: “Pregnant women are not hired, they have to cover it. The first contract is for one month...after that they sign a contract for one year.”

Upgrading technical courses were sometimes made available to workers. One interview question asked the workers if these courses provide them with any prospects of job improvement either inside the plant or elsewhere. Workers in Quellón remarked that the courses are typically very task specific, given during work hours, designed primarily for production performance, and of no personal use to the workers. They remarked that there is absolutely no possibility of promotion in their jobs and said that apart from different places on the processing line, they had not experienced any change in the 13 plus years they had worked there. A woman interviewed who works at the *Yadran* plant remarked that even after 13 years on the job she felt very insecure, “someone new could come along tomorrow with more agile hands and replace me.” The courses offered are seen as ‘window-dressing’ designed to give the company a good public relations image rather than to train the workers and provide them with the skills that could lead to greater job security and prospects.

(b) Artisan Fishers/ Aquaculturalists

Artisan fishers we spoke to in Hueihue felt that the main positive impact of salmon farming is the work possibilities for youth. This point warrants elaboration. As explained in a discussion with ProRural, prior to the arrival of the salmon industry there was no salaried employment in these communities. In fact there was very little in Chiloé, only in the service industry (restaurants,

corner stores, etc.), forestry and some fishing. A second positive impact is salmon escapement, which provide lucrative returns when these salmon are caught. However, while the artisan fishers themselves consider salmon escapement as a positive impact, this is debatable. From an environmental point of view, salmon are voracious predators and those that escape are responsible for the diminishment of native stocks. Also, legally, fishers cannot capture the escaped salmon, so this is a "black market" activity.

The major negative impacts from their point-of-view stem from user conflicts in the coastal zone. Fishers have lost traditional fishing and diving territories in proximity to salmon cages. An informal 100 meter exclusion zone is enforced around each salmon farm site by the companies without any legal justification to do so. A rural development worker remarked:

> "There does not exist any law or regulation which states that fishers must fish a certain number of meters from a salmon farm. The salmon farm has a legal concession space, well marked, and one cannot fish within this area. However, apart from this, they can put their nets and their lines where they want."

An aquaculture concession is the administrative act by which the Ministry of National Defense grants a person the rights to use and enjoy, for an indefinite time, certain national property in order to realize aquacultural activities (Law No. 18,892, Fishing and Aquaculture General Law, 1999). If the nets or cages are for cultivating salmon they must be placed within the space assigned as the aquaculture concession. If the nets are for fishing, the artisan fishers must be properly registered to carry out this activity, and then the only stipulation is that they must be outside all aquaculture concessions.

Another negative impact on fishers is the contamination that results from the fallowing system used by salmon farms in Chile. The relative unavailability of vaccines and expense of antibiotics means that rather than active prevention of disease or treatment of infected fish within existing cages and sites, the site is abandoned and diseased fish are left behind. The seriousness

of the issue of disease among salmon in Chile is reflected by the following statistics: in 1998 losses as a result of disease were approximately US $100 millions, while in the same year the total export income was US $668 millions (Bravo, 2000). While some vaccines are available in Chile and others are being developed, antibiotics are still heavily used. In 1997, the quantity of antibiotics used was more than 90 tons in Chile, while in Norway where there exists a sophisticated use of vaccines, only 0.75 tons of antibiotics were used (Bravo, 2000).

IntraFish (2000) explains the practice and its relationship to the mechanization of production as follows:

> A Chilean company increases production at one site when they need to fallow another. Losses are not as great with this practice. The outcome is that some farms that previously produced 300 tons of salmon, now produce more than triple in the same area. Where a company previously managed using manual labor, it now needs machines and technology to cope with increased production (7).

Fallowing and the increased production related thereto, compounds the confusion fishers face concerning the actual size of the legally mandated salmon concession vis-à-vis their own traditional fishing territories. These difficulties have spurned both fisher organizations and state authorities to delimit maritime concessions for artisan fishers under self-management regulations. In an interview with an ecologist community advisor it was explained that the Xth Region has been the last region in the country to adopt such policies due to strenuous industry opposition. Artisan fishing territories are seen as a significant potential threat to the freedom enjoyed by the salmon farming companies in locating and expanding their sites. Fishers face a daunting legal system in trying to gain such concessions. One union member described their frustrations in gaining a maritime concession for their village:

> "[Our main] priority is to obtain a maritime concession. To have a specific place to work, so there will not be the need to migrate in the bad months [March-November] when there may only be one day a month to fish. The union needs a designated aquaculture area to have something secure for the people in the union.
>
> The process is complicated. As an individual or as a union, the process costs around 500,000 pesos, including the paper work, managing the request, etc. The union has very few resources. However we raised this money to make the request and presented the documents. One month after our request another request was made which results in an "over-possession," i.e., our concession is running up against another. To resolve this we have to start again and make another request and we have lost this money. In other words, the resources available at the moment are insufficient to manage this type of bureaucracy."

In another case the outcome has been better. With financial support from Fundación Chinquihue and administrative support from ProRural an artisan syndicate has been successful in gaining the first maritime concession on *Isla Grande*. Oysters and algae are cultivated for sale by the union of 25 members.

> "Previously nobody had concessions here and everybody had small areas each for their own use – but then we heard that people from outside were going to come here and set up concessions. So we organized with the idea of having our own concession. The hope is to develop a stronger, unified group to work within the system so that commercialization is faster and more effective."

The project has been remarkably successful in terms of significantly increasing

production in the community. At the same time there has been the development of a fairer system of work that permits an egalitarian distribution of the gains among members of the union. The women of Villa Quinchao had a similar experience. Their syndicate, under the guidance of ProRural, gained an oyster concession in a nearby bay, “the oyster concession has changed our lives because this represents a source of income for us directly. So now, as women, we are more independent.”

(c) Community Women

The interview/focus groups with community women provided quite a different representation of the impact of the salmon industry on the community from that documented by Fundación Terram. In no instance did the people lament the loss of a traditional way of life. Rather their impression is that the new employment prospects have helped revitalize the economic foundations of the community. Further, in the case of the most isolated community visited, the salmon industry has meant that new (albeit dirt) roads have been built. Also, boat launches have been constructed (by the salmon companies) which have allowed the community better access to fishing sites.

There is agreement among all women on one critical point, namely, the salmon industry has brought with it the opportunity for employment (irregular or not) within the community. In the past, the male head of the household had to migrate to the mainland or Argentina for seasonal (salaried) work, leaving the household and farm to the women and children. Today husbands and fathers no longer have to leave home, which allows them to have contact with their families and communities.

> “Our sons and husbands work in the companies, this is how the money arrives at our homes. Almost all work in salmon. Our sons now may travel away to work,

> but our husbands less so. Before the women were alone in the homes, and the men traveled to Punta Arenas or Argentina. Now the men stay here. Our children now study."

A woman in a focus group in the community of Cohem remarked that: "Women can now live with their husbands. In the past one woman would have to raise nine children on her own. Now there is never a lack of food. The changes have been positive." Another woman commented that salmon income makes a huge difference to household survival: "life is not as critical now." But the presence of the men does not necessarily seem to have eased the burden of household subsistence production on the women and children. We were told on a variety of occasions that women still do the vast majority of the agricultural chores.

The employment opportunities for young adults is seen to offer the household a number of new opportunities to overcome past difficulties and improve prospects of starting a new family and getting on their feet financially. Women respondents in one focus group stated:

> "Now that youth are able to work close to home they can get married and start up a more stable life, i.e. fixing up their homes, buying things. If it were not for the arrival of the salmon the problem of unemployment and poverty would have continued. Also now people can go to work and arrive back home in the evening so they get to see their families."

While in general children now have the opportunity to attend school longer than their parents, education still remains an enormous issue. There has been no noticeable impact on education in the communities related to the salmon industry. Perhaps the only arguable contribution is that the construction of roads allows children better access to attend school.

There is recognition that ‘outsiders’ gain more benefits from the salmon farming boom than locals do. One respondent remarked: “Chileans are only the poor workers and it is foreigners who “fill up” with the gains.” For instance, in one community without electric lights a woman explained that it is very difficult to get light because of the paper work, bureaucracy, and costs involved. She said light is so important because it makes life easier, more convenient, and makes people happier. “Yet, people from a company arrived here, and they all got light right away. So instead of the people in the community getting it, these people all did.”

Women in the community of Cohem also recognize that the mechanization of food dispensing equipment in salmon farming has led to a lack of work. People have to travel to other locations in Chiloé where there is work. For men working on the salmon farms, therefore, there is little time to participate in community affairs and the community stands to suffer as they lose their experience and input.

The most common negative impact that community members referred to is the damage that salmon trucks do to rural roads. Women in Villa Quinchao remarked that it is also a lack of respect for people, particularly school children, who walk along the edges of the dirt roads in fear of being hit by flying stones from speeding vehicles.

A second complaint voiced by the women is that residual marine contamination has destroyed algae and the shellfish resources both which were formerly an important source of cash income as well as an element in their local diet. People in the communities of Tenaun and Isla Cailin observed that the feed used in the salmon cages escapes into the surrounding environment and other traditional food species such as shellfish and hake feed on it. The result is that the look and taste of the fish that eat this food has changed noticeably. In the community of Isla Cailin, trash from the nearby salmon farms over the years has accumulated along kilometers of coastline, to the extent that it is knee deep in places. This point is even more dramatic given that the coastline is the main thoroughfare for the people of the community. For example, the children

walk along the coastline to get to school.

7. DISCUSSION

This section discusses the findings related to the social impact of globalization in aquaculture in terms of the propositions and counter-propositions posed above accompanied by policy recommendations. The themes of the propositions/counter-propositions may be summarized as: (1) the relationship of the aquaculture industry in Chiloé to wages and labor conditions; and (2) the relationship of the aquaculture industry to traditional sectors in Chiloé and Chilote culture. First, the worker interviews provide substantial evidence to accept the first proposition and reject the first counter-proposition. There is little doubt that surplus labor and the insufficiently enforced regulations concerning work, health, safety and contamination are conditioning factors in the foreign investment boom in salmon farming in Chiloé. Low wage levels, and poor or non-existent health and safety regulations shape the conditions of work on both the salmon farms and in the plants. Resistance to unionization is proof of the significance of this to high corporate profit rates. It is possible to say that low labor costs not only allow capital to offset location disadvantages faced in southern Chile vis-à-vis the global market, but they also give capital a significant added profit (see, Barrett, 2001). Another issue that resurfaces is the general lack of responsibility and respect on the part of the companies. This is witnessed towards the workers (salary, work conditions, and health and safety), towards the environment (contamination), and towards the communities (roads and garbage).

While the low wage levels are state-mandated, the size and scale of the firms involved, and the fact that they can function quite profitably in other jurisdictions (notably Norway) paying much higher wages, indicates that they have the ability to pay more, should they be forced to do so. Unions in Chile are generally weak, except in the mining sector. During the military dictatorship (1973-1989) union activity was particularly devastated and persecuted. Hence, a

strong union mentality does not exist in Chile, and less so in marginalized sectors. Workers in general are not aware of their rights, not how to form unions to protect them. Companies take advantage of this situation and lack of information/education on the part of workers, to attach a negative stigma to any type of union activities. It is the workers' fear for their jobs that prevents the union pressure that world help raise their wages. The national union confederations in Chile need to make serious efforts to provide education to workers in terms of their rights as workers. Also, these same confederations should address the system of pay based on production levels, which allows companies to pay below the legally mandated minimum wage and enforce high production levels per worker to bring the salary up to the minimum wage.

In terms of policy recommendations, international standards of responsibility for companies must be enforced so that companies are not permitted to operate in a vacuum. The states of developing countries, such as Chile, do not have the resources necessary to enforce their own regulations in opposition to large companies, particularly in isolated areas of the country, or choose not to enforce such regulations at the risk of loss of industry. With properly enforced international standards, these choices would not be so complicated for individual countries.

Second, we found very mixed evidence regarding the second proposition and would therefore accept the second counter-proposition. While independent fishers and aquaculturists provide plenty of evidence about resource conflicts with the salmon farms and the negative environmental impact of the farmers' operations, we did not encounter the type of overwhelming disintegration associated with traditional fishing and farming pursuits that Fundación Terram predicts. Rather artisan fishers and communities are seeking methods to adapt to their new circumstances, for example with their applications for self-management marine concessions.

Further, on the one hand, there is little or no evidence that fishers are leaving the traditional fishery due to the negative impact of salmon farming, nor that *campesinos* are selling off their land to join a rural wage labor force in the salmon industry. On the other hand, there is

significant evidence for the counter-proposition that globalization has had a noticeable modernization effect on communities and households through access to cash employment and the spin-off 'benefits' this offers them such as credit for consumer purchases. This view came out in discussions with fishers, aquaculturists, and particularly with community women. Modernity may bring comfort and convenience, but not necessarily at the cost of traditional lifestyle. Throughout Chiloé one continues to see evidence of traditions and culture, though perhaps related to the relative isolation and lack of education of a large percentage of the population. *Chilota* culture was witnessed in a visit to the extremely remote Isla Cailin when the community prepared a *curanto* (a traditional community meal prepared with shellfish, meat, potatoes and typical bread, all cooked in a fire in a hole dug out in the ground and covered with leaves) and passed the afternoon playing the guitar and singing folkloric songs within a stones throw of a large salmon farming site. The community continues to maintain its culture and traditions as a form of providing unity, which in turn is instrumental for successful community projects.

Beyond the substantive propositions, this study allows a clearer conceptualization of the 'modernity' effect. The perspective represented here is that one should avoid a theory-driven polemic that forces one into 'taking sides' on an issue that is more than two dimensional. The Chinese character for crisis has a double meaning: it can refer to danger and hardship but it can also mean opportunity for change. Neither modernity, nor globalization, nor neoliberalism, are by definition either singularly destructive or beneficial. Rather, a more dialectical approach is needed. One has to examine the full array of circumstances within which these processes are played out in particular community contexts, i.e., the diverse range of interests at stake, the existing opportunities and threats, and the latitudes for agency.

This research captures some of these complexities in Chiloé. For example, while the work opportunities in the salmon industry have resulted in men and youth living at home all year, the long and physically challenging work hours characteristic of the industry have resulted in

workers having minimal time to participate in civic community activities. Our study provides preliminary evidence that this may in particular affect the state of civil society in the larger towns such as Castro and Quellón where the salmon processing firms have located their large plants. Contrary to this experience in the rural villages there is a vibrant and diversified level of civic participation. A number of factors explain this difference between larger, urban towns and small, rural villages. First, the population of the larger towns is partially made up of individuals who have re-located to find work, whereas the population of the small villages tends to be families who have lived for generations in the same area. Hence the latter is more pre-disposed to community activities due to the level of familiarity. Second, the necessities of community organizations are different in the larger towns from the smaller villages. In the case of the latter, the necessities tend to be very basic, i.e. running water, electricity, and paved roads, issues which more easily lend themselves to the community's cooperation, and in fact to programs that exist in the municipality, hence more likely for positive outcomes. Whereas in the larger towns, necessities tend to become more individualized, and difficult or impossible for the municipalities to address, hence the idea of social/community cooperation is diminishing**.**

Independent unions of artisan fishers and some salmon aquaculture companies have begun to organize over the last few years. The artisan fishers' unions are instrumental in the fight for community concessions. One particular salmon company union has been successful in terms of negotiating a slight increase in wages. However, as previously discussed this example provides the exception to the rule, where fear and lack of education impede union activities in the companies. These efforts have been the result of remarkable leadership and initiative from the grass-roots. Yet, when one looks closely it is a core group of individuals who oversee community participation and organization, and if it were not for these individuals perhaps civil society would not be as vibrant. A policy recommendation is the need to provide avenues for community participation and replicate successful leadership and community experiences. This could be

carried out through support for workshops and training programs that focus solely on how to participate and how to lead a community.

Finally, what does the *Chilota* experience of globalization allow us to say about the social sustainability approach? Social sustainability is typically employed in a static way. It tends to be operationalized through structural indicators with a clear focus on outcomes or impacts. People and communities are treated as passive recipients or victims rather than agents with substantial collective power. This perspective sees development as an structural process associated with the state, capitalism, and globalization. Case study material, particularly in the commodity chain approach (see, Gereffi and Korzeniewicz,1994; Phyne and Mansilla, 2001), employs the term sustainability in a particular industrial setting such as the agro-food sector, or the forestry industry to isolate the social impact of change within that sector only upon the people affected by it, i.e. farm workers, forestry workers, etc. This study argues that this as a second bias of the social sustainability perspective, it offers a fragmented view of social reality.

These two criticisms are important because they highlight two frequently missed social realities. First, people are not always victims, they are active players in the world around them and often take collective action to change it. Therefore, the types of questions that must be posed are: (1) How does this happen? (2) What are the social indicators of this kind of potential? and (3) Why do some communities resist and transform the world around them but others do not? Second, people carry out their lives in families, households and communities. Even if they are salmon farm workers, they are members of wider social groups. These memberships push and pull them in ways that a fragmented focus as individual workers fails to capture. A community-based perspective is highly relevant, particularly in rural settings because it is communities that mediate global processes. This perspective is relevant because the interests of agro-food or salmon workers are embedded within wider family and community interests and identities (see, Barrett, 2000). To understand how they are affected by a global structure we need to see how it is

refracted in a community context. Communities are also not passive and offer the individuals within them options, ways to cope, opportunities and avenues for action. A consideration of social capital (collective community action) brings us back to the point made above that an agency-sensitive approach needs to see the impact of modernity or globalization as an interface between community and structure and not deterministically.

We therefore argue for a 'community sustainability' approach that incorporates a detailed consideration of issues such as interest, collective identity, social capital (see, Barrett, 2001; Bridger and Luloff, 2001; Flora, 1998) and communicative spaces (see, VanderPlaat, 1998). Moreover, the community sustainability approach should not be just an analysis of outcomes. At a policy level it should be a diagnostic tool that can predict the likelihood that communities will have the resilience to cope with a particular kind of intrusion. It should be a policy tool that promotes community development of agency and civil society to build a sustainable capacity to meet the challenges of modernity and globalization.

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