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PROMOTING EXPORTS OF TROUT FROM LESOTHO WITHIN REGIONAL AND GLOBAL VALUE CHAINS:
MAINTAINING MARKET ACCESS AND INCREASING RESILIENCE AND PRODUCTIVITY IN SOUTHERN
AFRICA'S SALMONOID MARKET SYSTEM

[January 2023]

TFSA

BAP Certification Case Study Report



Certified



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1. INTRODUCTION

Voluntary standards are becoming increasingly common in the aquaculture sector. These standards aim to provide incentives for value chain actors to improve environmental and socioeconomic performance, while ensuring consumers that the product has been produced in an ethical and environmentally friendly way. Voluntary standards can be public or private (while mandatory standards are generally public), however, in global supply chains private voluntary standards have become increasingly common. This usually happens under the influence of lead firms in the supply chain that dictate what is being produced, and under what conditions, among others in a response to pressure by NGOs and consumer groups to improve sustainability. It has been argued that private standards are of such importance because the private sector is able to respond faster and more adequately to changing circumstances, due to incentives to avoid increased production costs and reputation damage as a result of sustainability issues. At the same time, the ability of governments to set and regulate standards has been constrained by increased globalization of trade and consolidation of the food retail industry.

Aquaculture certification programs differ widely in scope and focus. They can cover a wide range of criteria from organic to responsible aquaculture, representing the range in demand for different product qualities. Other differentiation in aquaculture certification exists between product or process certification, the target users (i.e. business or consumers), the degree of value chain coverage (hatcheries, Farms, processors, re-packing, feed mills), and the targeting of specific species. In aquaculture certification, private production units (Farms, firms or value chains) are usually the unit of certification (as opposed to fisheries and forestry that often take a zonal or sectoral approach), which means that it is usually less effective in covering the cumulative impacts of multiple enterprises in a particular location. Furthermore, whereas some certification schemes focus on a single issue, others target a broad range of criteria.

Global Aquaculture Alliance and BAP certification

The Global Seafood Alliance (GSA) is an international, non-profit organization that represents individuals, associations and businesses associated with aquaculture and seafood around the world. GAA's mission is "to promote responsible aquaculture practices through education, advocacy and demonstration" GSA initially developed certification standards, in response to threats posed to the shrimp sector by environmental advocacy campaigns. Since 2004, GSA has a third-party aquaculture certification program, 'Best Aquaculture Practices' (BAP), which aims to improve the environmental, social and economic performance of the aquaculture supply chain. BAP certification covers the entire supply chain, including Farms, processing plants, hatcheries and feed mills, of Farmed finfish, crustacean and mollusc species around the globe.

The volume of product originating from BAP-certified facilities has been steadily increasing, going from 1.45 million metric tons at the end of 2015 to 3 million metric tons at the end of 2022¹, and with 2928 facilities certified as of the 23rd of January 2023.² It is considered the largest third-party certifier for the aquaculture sector. The BAP program employs a tiered system, which uses stars to signify the integration levels of BAP certification along the aquaculture supply chain, with each additional star indicating an additional node in the supply chain certified, going upstream in the chain from the processing plant.³ There

¹ (Source GSA, Jan 2022)

² Kruijssen, F., Newton, J., Kuijpers, R., Bah, A., Rappoldt, A., Nichols, E., Kusumawati, R., Nga, D.N. 2021. Assessment of social impact of GAA's 'Best Aquaculture Practices' certification. KIT Royal Tropical Institute: Amsterdam.

³ 1 star: Product produced by a BAP-certified processing plant; 2 stars: Product produced by a BAP-certified processing plant that comes from a BAP-certified Farm; 3 stars: Product produced by a BAP-certified processing plant, BAP-certified Farm(s) only and BAP certified hatchery and/or feed mill only; and 4 stars: Product produced by a BAP-certified processing plant, BAP-certified Farm(s) only, BAP-certified hatchery only and BAP-certified feed mill only. <https://www.bapcertification.org/ProgramIntegrity>, accessed on 28 September 2022



are six sets of BAP standards covering 1) Finfish, Crustacean and Other Invertebrates Farms; 2) Mollusc Farms; 3) Salmon Farms; 4) Finfish, Crustacean & Mollusc Hatcheries & Nurseries; 5) Feed Mills; and 6) Seafood Processing & Repacking Plants.⁴

Best Aquaculture Practices Certification

The Best Aquaculture Practices (BAP) standards applicable to the two enterprises in this project apply to the Farming of finfish, crustaceans, and other aquatic invertebrates. They cover all production methods, including flow-through, partial exchange, and closed or recirculating aquaculture systems operated in ponds, cages, net pens, tanks, raceways, or closed-containment vessels.

The BAP standards are achievable, science-based and continuously improved global performance standards for the aquaculture supply chain that assure healthful foods produced through environmentally and socially responsible means. They are designed to assist program applicants in performing self-assessments of the environmental and social impacts, and food safety controls of their facilities. BAP Standards lead to certification of compliance after verification of the applicant's facilities by BAP approved third-party certification bodies.

BAP Structure

The BAP program has four pillars and an overarching set of Traceability Requirements. The pillars comprise the first four sections of the standard:

1. Food Safety
2. Social Accountability
3. Environmental Responsibility
4. Animal Health and Welfare

Overarching

5. Traceability

The fifth section defines the Traceability Requirements that are essential to preserve product identity and to verify the validity of any BAP claims.

BAP standards demand compliance with local regulations as the first step toward certification. However, not all regulations are equally rigorous. For this reason, BAP standards set out requirements for documentation and procedures that shall be in Farm management plans, whether they are prescribed by local regulations or not. By so doing, they seek, where possible, to impose consistency in performance among facilities in different producing regions and to engage the industry as a whole in a process of continuous improvement.

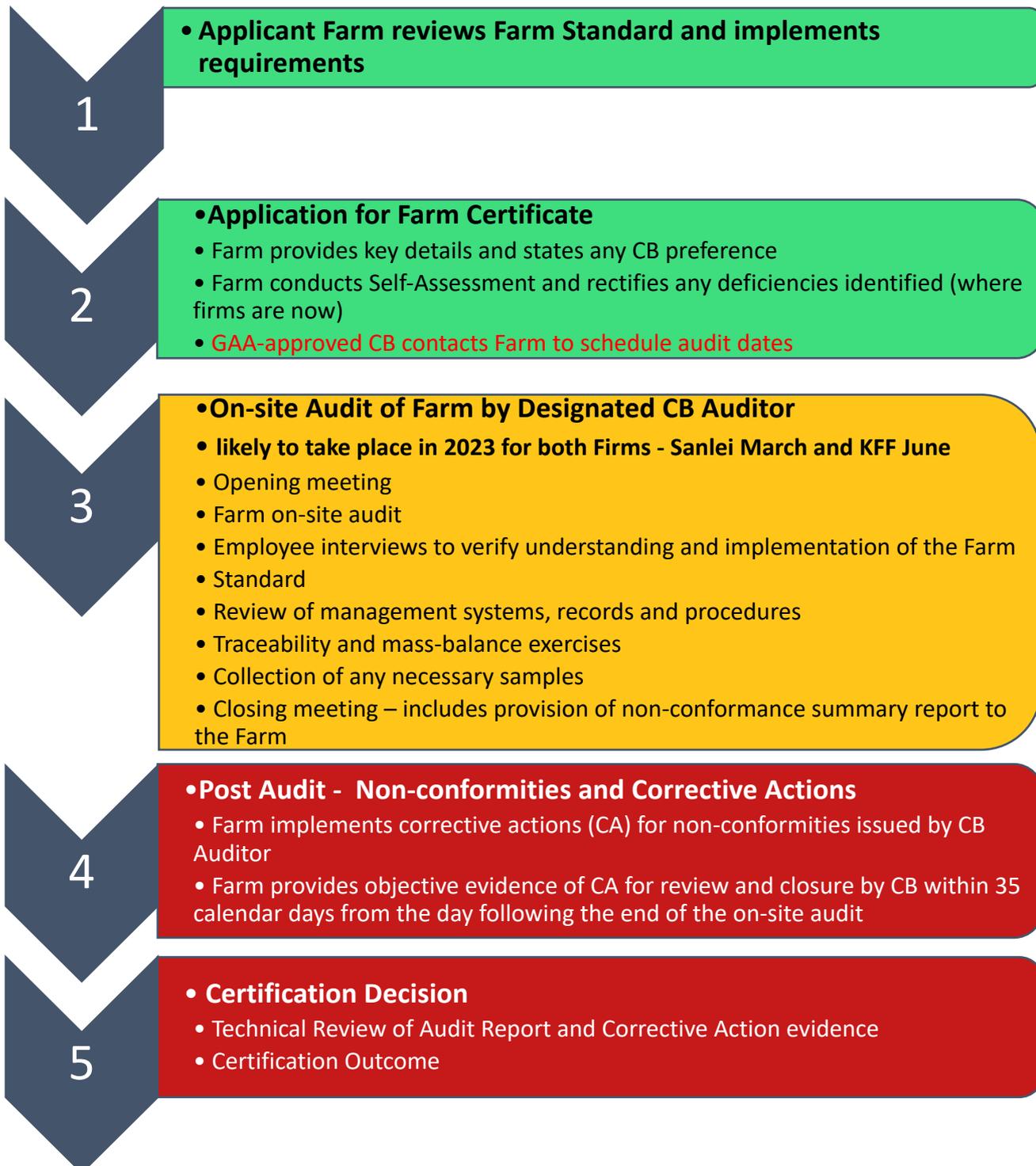
In common with ISO usage, these standards use the words “shall” to mean compliance is required or mandatory and “should” to mean compliance is recommended. Auditable points are “shall” statements listed at the beginning of each section.

In the case of this project, it is important to note that both Farms are primarily focusing their efforts on Farm grow out BAP certification. During the course of this case study, however, Farm 2, has gained momentum with the process and have decided to also try and get their hatchery BAP certified if the grow out Farm BAP audit is successful.. Farm 1 does intend on pursuing certification of these aspects of their value chain in time, but for now they are focusing their attention and resources on one aspect first and once this is achieved successfully they can turn their attention to the others in time when financing and seasonal lulls allow.

⁴ <https://www.bapcertification.org/Certification>, accessed on 28 September 2022



The Certification Application Process





2. BAP LITERATURE

There is not much literature on the BAP process, its exact cost and likely duration, and the key idiosyncratic or common issues that frustrate aquaculture businesses from attaining compliance. Most of the literature focuses on the what the impact of achieving compliance with BAP is for the company, community, and environment. It is within this literature that we found a very useful study, however, “Assessment of social impact of GAA’s ‘Best Aquaculture Practices’ Certification, 2021”.⁵ In this study the researchers determine the rate of non-compliance by country and clause category of BAP’s social standards in particular. Accordingly, this table is very helpful because it gives the industry and the reader a good idea of what the common pain points are for businesses when it comes to BAP compliance in the area of their social standards and where businesses are already complaint and do not struggle.

Figure 1: Rate of non-compliance by country and clause category (2017-2018) – Analysis of BAP audit data for finfish and crustacean

Clause category	Australia (15)	Bangladesh (5)	Brazil (4)	Brunei (3)	Chile (9)	China (128)	Colombia (9)	Costa_Rica (2)	Ecuador (21)	Guatemala (7)	Honduras (18)	India (304)	Indonesia (52)	Malaysia (5)	Mexico (8)	Netherlands (1)	New_Zealand (6)	Panama (3)	Peru (7)	Philippines (5)	Saudi_Arabia (6)	Thailand (279)	Turkey (3)	United_States (23)	Vietnam (69)
Property Rights and Regulatory Compliance (3)	0%	0%	0%	0%	0%	1%	0%	0%	0%	0%	0%	2%	2%	0%	0%	0%	0%	0%	0%	13%	0%	9%	0%	0%	3%
Community Relations (3)	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	5%	3%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	4%
Wages and benefits (5)	0%	6%	0%	0%	14%	2%	6%	0%	4%	3%	0%	2%	2%	4%	0%	0%	0%	0%	4%	5%	0%	3%	0%	1%	1%
Working hours (1)	0%	0%	0%	100%	0%	2%	0%	0%	0%	0%	12%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	3%
Staff facilities (3)	5%	0%	0%	11%	0%	3%	4%	0%	0%	0%	2%	17%	7%	7%	0%	0%	0%	0%	0%	0%	11%	1%	0%	0%	7%
Protective clothing (1)	20%	0%	0%	0%	11%	20%	0%	0%	0%	0%	0%	10%	19%	0%	13%	0%	0%	0%	14%	60%	0%	11%	0%	4%	4%
Medical care (1)	0%	0%	0%	0%	0%	9%	0%	0%	0%	29%	0%	18%	10%	0%	0%	0%	33%	0%	0%	60%	0%	4%	0%	17%	3%
Forced labour (4)	0%	5%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	1%
Child labour & young workers (3)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%
Worker health and safety (8)	29%	13%	19%	0%	5%	7%	11%	19%	19%	34%	4%	14%	10%	7%	11%	0%	12%	13%	14%	3%	5%	5%	4%	14%	10%
Hiring & terms of employment (3)	0%	0%	0%	0%	0%	2%	7%	0%	15%	27%	0%	17%	3%	0%	0%	0%	0%	0%	0%	23%	0%	3%	0%	0%	1%
Discrimination and abuse (2)	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Freedom of association and collective bargaining (2)	0%	10%	0%	0%	0%	3%	6%	25%	0%	7%	0%	10%	2%	0%	0%	50%	0%	17%	7%	0%	8%	2%	0%	18%	1%

Source: 2021 Kruijssen, F., Newton, J., Kuijpers, R., Bah, A., Rappoldt, A., Nichols, E., Kusumawati, R., Nga, D.N. 2021. Assessment of social impact of GAA’s ‘Best Aquaculture Practices’ certification. KIT Royal Tropical Institute: Amsterdam.

*number of firms surveyed is provided in brackets after the country included, and behind the clause category the number of clauses included per category is given.

The data shows that the common areas of non-compliance internationally are worker health and safety, hiring terms and employment, freedom of association, staff facilities, and protective clothing. This is important to know as we look at what the BAP requirements Farm 2 and Farm 1 are non-compliant with and why, and whether they are common areas of non-compliance or specific to the companies. As we will see in section 3 and 4, Farm 1 and Farm 2 had the highest baseline levels of non-compliance in the areas of worker health and safety and hiring terms and employment, although this was for very specific reasons and is because of a problem that is widespread within the Aquaculture sector in Southern Africa.

The same study had important findings around the usefulness and productivity and profitability enhancing nature of BAP standards. It found that perceptions on the usefulness of BAP social and labour standards are positive, especially for Farms, while opinions on the effect on profitability are positive for both Farms and plants. These results are supported by the qualitative data from the in-depth interviews the study conducted.⁶ Also, importantly the general perspective of the study was that compliance with BAP social

⁵ Kruijssen, F., Newton, J., Kuijpers, R., Bah, A., Rappoldt, A., Nichols, E., Kusumawati, R., Nga, D.N. 2021. Assessment of social impact of GAA’s ‘Best Aquaculture Practices’ certification. KIT Royal Tropical Institute: Amsterdam.

⁶ Kruijssen, F., Newton, J., Kuijpers, R., Bah, A., Rappoldt, A., Nichols, E., Kusumawati, R., Nga, D.N. 2021. Assessment of social impact of GAA’s ‘Best Aquaculture Practices’ certification. KIT Royal Tropical Institute: Amsterdam.



and labour standards aligns with compliance with national labour laws in most cases. Finally, the study found that there is little evidence of spill-over effects on non-certified actors. It is generally the more advanced and larger firms that apply for BAP certification, that already have some improved practices. The general perception of the smaller firms is that it is difficult for them to afford compliance with standards in general, and that maintaining certain practices would be too much of a burden. However, there are instances where larger processing plants offer some support for their supplying Farms to become BAP certified. Consistently, processing plants indicated that their application for BAP certification was motivated by requirements from buyers, both to maintain existing customers, and to access new ones. This in turn prompted Farms to apply for certification as processing plants aim to extend the certification of their products into the value chain (attaining additional stars in the BAP scheme).⁷

3. BAP BASELINE

3.1 OUR APPROACH

In collaboration with the two firms, we used the BAP self-assessment to generate a baseline of compliance for each firm. This was done by using the BAP self-assessment matrix to develop our own BAP Baseline and Progress Tracking Tool, which each company filled in and which is presented below to illustrate how the tool works.

Figure 2: Example of BAP Baseline and Progress Tracking Tool

Item Number	Description	Bap Audit Checklist Ref	Responsible	Action required	Due Date	Date Achieved	Key issues encountered/Comments	Estimated time cost	Estimated money cost	Status	Reviewer Comments
										Summary of Animal Health and Welfare	33%
											0%
										67%	
154	The farm shall have in place an operational Animal Health Management Plan or manual, reviewed and approved by an aquatic animal health specialist, that includes the listed elements in the Implementation Guidelines.	4.1								Green	
155	The farm shall have in place biosecurity controls that seek to prevent the introduction and spread of disease agents and disease on the farm or to neighboring farms and these controls shall be detailed in an operational Biosecurity Plan that includes the listed elements in the Implementation	4.2					In progress			Orange	
156	Farm staff shall be trained in biosecurity procedures and shall, along with all visitors, comply with them.	4.3					Dr Brandon Spolander will do the training beginning of November			Orange	
157	The farm shall obtain written assurance from the feed manufacturer that the feed does not contain aquatic feed protein from the same genus as the species being farmed. However, protein hydrolysates verified to <10,000 daltons, are permissible.	4.4								Green	
158	Farms located in an area with more than three aquaculture facilities (hatcheries, farms, processing plants) per 10 km2 sharing the same surface water body shall initiate or participate in an Area Management Plan to coordinate biosecurity measures with neighboring sites, irrespective of BAP certification status, unless a documented disease risk assessment determines that there is a low risk of disease transmission among facilities.	4.5								Green	

This tool will continue to be used by the firms to track their BAP progress until they are successfully certified. The firms have used it to assign responsible parties, determine due dates, define the required actions to be taken, and provide estimates of the time and cost necessary to become compliant with a specific clause. BAP audits are conformance audits, meaning that no Non-conformities may be left open, and corrective actions must be completed within the defined timeframes (28D + 7D). Non-conformities are not allowed to remain open.

This tool was designed to assist any firm contemplating pursuing BAP certification and it has assisted the firms in carrying out the BAP certification process, whilst simultaneously collecting interesting data we needed on their baseline and continually collecting data about the BAP process as it unfolds, which was necessary for us to develop this BAP Case Study report and the BAP Key Lessons Webinar. This tool will

⁷ Kruijssen, F., Newton, J., Kuijpers, R., Bah, A., Rappoldt, A., Nichols, E., Kusumawati, R., Nga, D.N. 2021. Assessment of social impact of GAA's 'Best Aquaculture Practices' certification. KIT Royal Tropical Institute: Amsterdam.



also be made freely available to any aquaculture firm in Southern Africa who is interested in pursuing BAP certification and will be run through during the webinar and sent to each participant.

At the time of writing, Farm 1 had made significant progress to date in closing off remaining issues, moving up to 90% closure on checklist items. Additionally, across both organisations, good progress has been made, and no new significant challenges have been identified for the process moving forward. Having said this, there was some concern expressed about the current water quality being poor which could return less than optimal visibility and nitrate results, and the main feedback about closing off paperwork and training related issues was simply the challenge of finding the time during what is normally a very busy time of year for these operations. It was later clarified by BAP that Nitrate testing is not a requirement for freshwater cage operations certification.

The BAP self-assessment progress over time for both organisations is shown below

Farm 1

	September 23 rd 2022	November 30 th 2022	January 15 th 2023
Farm 1's Overall BAP Score	8%	1%	0%
	23%	9%	6%
	69%	90%	94%

For Farm 1 full compliance is now sitting at 94%. These are items that should pass an audit when it happens. Items in progress have decreased to 8% from 23% as many items have been closed off successfully. All outstanding items marked as non-compliance in November have been closed off.

Farm 2

	September 23 rd 2022	November 30 th 2022	January 15 th 2023
Farm 2's Overall BAP Score	5%	3%	0%
	22%	16%	6%
	73%	84%	94%

Farm 2 have increased full compliance to 94% of all items that will pass audit currently. Work ongoing items have been reduced to 16% as items have been successfully closed off. Remaining noncompliance items have also been reduced to 3% from 5% of the total compulsory clauses. Furthermore, Farm 2 is currently conducting an internal audit against BAP Farm Standard Version 3.0 is scheduling their formal audit for between February and Mid-March and the third party auditor LRQA has confirmed their availability.



3.1.1 FARM 1'S BAP BASELINE AND PROGRESS OVER TIME

Pillar 1 Baseline

	September 22	November 22	January 23
Food Safety pillar	25%	10%	0%
	0%	0%	0%
	75%	90%	100%

There are 24 requirements in this BAP Pillar. An example of requirement that Farm 1 is already compliant with is, "Record shall be kept for every application of antimicrobial or therapeutic chemicals and must contain the date, compound used, reason(s) for use, drug sensitivity test results, dose, required withdrawal period and harvest date for batch in question."

An example of a requirement that Farm 1 needed to do additional work on to bring their practices in line with BAP standards was to develop a Farm level HACCP plan. At the baseline, Farm 1 did not have one, but it had SOPs that were combined and tweaked to constitute a holistic Farm level HACCP plan and as of 23/01/2023 Farm 1 has a finalised HACCP plan. Another example of a requirement that Farm 1 didn't meet at the baseline stage, but now have was, "Fry/Fingerlings provided by non-BAP certified sources must provide statements from the hatcheries and/or nurseries that no prohibited antimicrobial agents or other chemicals were applied to the seed." Farm 1 has received these statements and has them on file.

There are no requirements in this pillar that KKF has significant issues or obstacles to work through to become compliant and pass the audit.

By the end of November, overall Compliance in Pillar 1 had increased to 90%. Outstanding items in this pillar were items 1.1 to 1.4, concerning a Farm level HACCP plan, and 1.10, requiring a declaration from third party Ova suppliers. These items have now been closed off and compliance is sitting at 100% according to the farm's internal audit, not BAP's which is yet to take place.

Pillar 2 Baseline

	September 22	November 22	January 23
Social Accountability Pillar	18%	16%	15%
	16%	0%	0%
	66%	84%	85%

There are 62 requirements in this pillar. An example of a requirement that Farm 1 is already compliant with is, "The Farm shall demonstrate constructive interactions with the local community to avoid or resolve complaints or conflicts through meetings, committees, correspondence, service projects or other activities performed at least annually."



An example of a requirement that Farm 1 needs to do additional work on to bring their practices in line with BAP standards is, “The Farm shall have a written worker grievance process/procedure and make it available to all workers, that allows for the anonymous reporting of grievances to management without fear of retaliation.” Farm 1 does have a grievance procedure, but it needs to discuss its reporting plan for this clause and develop it further to be fully compliant with the clause.

There are quite a few requirements in this pillar that Farm 1 had significant issues or obstacles to work through to become compliant and pass the audit. An example of such a clause is, “Overtime shall not exceed 12 hours per week except as permitted by national law and agreed to between the facility and workers in a voluntary contractual agreement. The facility shall demonstrate any overtime that exceeded 12 hours per week only occurs under exceptional circumstances with due measures taken to ensure workers’ health and safety during overtime work.” Farm 1 noted that their staff are exceeding 12 hours of overtime per week, however, Farm 1 has voluntary contractual agreements in which the employee has agreed to a level of over time that exceptionally exceeds the 12 hours limit and this is deemed acceptable in theory by BAP and will be determined upon verification and the actual audit taking place. The one area Farm 1 is still working on with regards to this clause is their drivers who seem to be the only people exceeding 12 of over time a week as they come in early to collect the team from their different villages and drop the team off after work. Farm 1 are hiring extra drivers to split the shifts. This is a difficult clause to comply with for a number of Farms and is discussed in more detail in section 3 and 4.

While overall progress in Pillar 2 has been significant, there are currently 10 checklist items presently marked as work in progress. Three of these requirements, 2.29, 2.31 and 2.40, involve 3rd parties and so are timing dependant. Five requirements involved training, 2.42, 2.43, 2.50, 2.55 and 2.56, there should be no significant obstacles in closing these items off, just time.

Item 2.48 requires the appointment of a worker health, safety and training manager. A suitable candidate has already been identified and will likely be confirmed in the role by February 2023 before the formal BAP audit.

The only likely challenging requirement in this pillar is 2.47, involving the provisioning of sufficient toilet access. This can be challenging on the lake environment and is time and Capex limited. While this issue is unlikely to be resolved in this specific project timeline, there can be operational work-around options to prevent this being a hard barrier to compliance. As of the 23/01/2023 Farm 1 have constructed space for the toilets out on the lake and Capex has been approved and Farm 1 are currently finalising the supplier.

Pillar 3 Baseline

	September 22	November 22	January 23
Environmental Responsibility Pillar	28%	10%	7%
	7%	1%	0%
	65%	85%	93%

There are 71 requirements in this pillar. An example of a requirement that Farm 1 is already compliant with is, “In water bodies with a Secchi disk visibility less than 5 m, scum-forming or potentially toxic blue-green algae or other potentially harmful algae shall not comprise more than 60% of the phytoplankton biomass over consecutive sampling periods encompassing four months.”

Farm 1 have sourced a sediment expert who has committed to developing a sediment monitoring plan for and he is scheduled to visit the Farm in January 2023. Importantly in this Pillar, clauses 3.28-3.36 are only



applicable to marine net pens and coastal flow-through Farms, not to net pen operations in Fresh Lake water bodies. However, the services of such a consultant would be helpful to establish procedures for conducting sediment monitoring as is mentioned in clause 3.27, which is applicable to fresh water net pen operations. There is also a clause, 3.24, which will become applicable after the first year of certification that calls for a baseline study to detect significant increases (if any) in the water quality parameters. The consultant could be helpful with developing a program to establish those baselines.

There are only a few requirements in this pillar that Farm 1 has significant issues or obstacles to work through to become compliant and pass the audit. An example of a few linked clauses is:

- “The Farm shall have a written Wildlife Interaction Plan (WIP) and demonstrate compliance with the procedural, performance and reporting requirements of the plan”;
- “Farm managers and workers shall be familiar with the provisions of the Wildlife Interaction Plan (WIP) and be trained in its implementation.”;
- “Where applicable, government permits for predator control shall be made available for review.”

Farm 1 did not have a WIP before the BAP process began and so its development only begun recently, however, the plan is now complete and is awaiting review. Only once it has been reviewed will Farm managers and workers be able to be made familiar with it and implement it. Additionally, Farm 1 are currently unclear as to whether there any government permits related to predator control or not.

Farm 1 does limited predator control on their Farm as predator control is not allowed by LHDA. The only predators are birds, and they have bird netting that prevents the eagles from entering the cages.

Currently, Farm 1 are experiencing seasonal changes in water quality which is affecting their Secchi disk readings due to seasonal rainfall that washes sediment down into the lake. They have also recently picked up an increase in nitrates and pH readings which could also negatively affect results. The source of these increases is being investigated and water samples are being sent to an external laboratory for testing.

The sediment expert who has committed to developing a sediment monitoring plan for Farm 1 has a confirmed visit in January 2023.

The single non-compliance item in this pillar was initially clause 3.69 regarding a fuel spill containment area, however, this was soon met by Farm 1 when they understood what the standard actually required and that they were already compliant with this. This requires construction and so is a budgetary and timing issue. There are many ways to comply with the secondary fuel containment requirement. It is a precaution to avoid fuel spills causing environmental contamination. The requirement is for a containment equivalent to 110% of the fuel storage container volume, underneath the stored fuel. Double-walled tanks are also an accepted option.

The other significant item in this pillar is around the use of AquoS and its handling during and after harvest. This is currently in progress; trace concentration testing samples have been taken and sent for analysis and the results revealed there were no traces eugenol detectable in the reservoir water.



Pillar 4 Baseline

	September 22	November 22	January 23
Animal Health and Welfare Pillar	33%	17%	0%
	0%	0%	0%
	67%	83%	100%

There are 71 requirements in this pillar. An example of a requirement that Farm 1 is already compliant with is, “The Farm shall have in place an operational Animal Health Management Plan or manual, reviewed and approved by an aquatic animal health specialist, that includes the listed elements in the Implementation Guidelines.”

An example of a requirement that Farm 1 needed to do additional work on to bring their practices in line with BAP standards were:

- “The Farm shall have in place biosecurity controls that seek to prevent the introduction and spread of disease agents and disease on the Farm or to neighbouring Farms and these controls shall be detailed in an operational Biosecurity Plan that includes the listed elements in the Implementation Guidelines.”
- “Farm staff shall be trained in biosecurity procedures and shall, along with all visitors, comply with them.”

These clauses are now complete and the biosecurity training sponsored by this project and TFSA is what is enabling the Farm to ensure these biosecurity controls remain in place and are implemented correctly.

There are no requirements in this pillar that KKF has significant issues or obstacles to work through to become compliant and pass the audit and compliance is sitting at 100% for this pillar.

Pillar 5 Baseline

	September 22	November 22	January 23
Traceability Baseline	13%	0%	0%
	0%	0%	0%
	87%	100%	100%

There are 15 requirements in this pillar. An example of a requirement that Farm 1 is already compliant with is, “The Farm shall keep complete and accurate records for each culture unit and production cycle, including the culture unit identification number, unit area and volume.”

There are no requirements in this pillar that KKF has significant issues or obstacles to work through to become compliant and pass the audit.

Farm 1 have made significant progress in this pillar, as reported in September there were no requirements in this pillar that KKF has significant issues or obstacles to work through and compliance is at 100%



3.1.2 FARM 2'S BAP BASELINE AND PROGRESS OVER TIME

Summary Baseline

Overall baseline compliance at Farm 2 was relatively high at 73% with 5% of requirements falling short of compliance. The majority of non-compliance items were related to training and training-related material. The majority of the work in progress throughout the pillars revolves around verification of available policies and their implementation and records. One significant issue identified in the baseline survey was the presence of Chlorophyll testing records. Proper testing has begun, and so ongoing records are now being created in order to comply with BAP standards. This baseline and ongoing longitudinal data is required in the second audit that is done in year two after compliance is achieved and the out grow Farm is then run for year according to BAP Farm 3.0 standards.

Pillar 1 Baseline

	September 22	November 22	January 23
Food Safety Pillar	45%	10%	10%
	5%	5%	0%
	50%	85%	90%

Pillar 1 had the highest number of

requirements noted as works in progress when Farm 2 began their BAP certification process. The majority of these requirements in progress involved finalizing documentation or awaiting documentation from third party feed suppliers. The only initial noncompliance in this pillar was the availability of food safety training records.

Significant progress was made in Pillar 1, with large numbers of in-progress items being closed off. Current outstanding items in progress are points 1.13 and 1.22, both involving the review and update of existing documentation.

Requirement 1.23 concerns training of staff in personal hygiene. This will be incorporated into future trainings.

No significant obstacles are expected in closing off remaining items.

Pillar 2 Baseline

	September 22	November 22	January 23
Social Accountability Pillar	22%	20%	7%
	5%	0%	0%
	73%	80%	93%

Baseline compliance for Pillar 2 was generally good. Works in progress included external communication with LHDA and the verification and updating of existing policies. Necessary steps were already being taken to address these. Non-compliance in this pillar included a complaints documentation and handling system,



helpline information sharing, and a health and safety policy document. These were all policy and documentation related issues and a number of them remain works in progress.

Twelve requirements under pillar 2 are currently marked as in progress. Of these, 6 involve the review and update of existing documents and records, and two, 2.55 and 2.56 require training to be undertaken. Item 2.54 requires the appointment of an electrician and so is constrained by budget and availability of suitable candidates.

Items 2.49 and 2.50 require the development of new policy/plan documents concerning incident and accident investigations and an emergency response plan. Work on these is currently ongoing.

Pillar 3 Baseline

		September 22	November 22	January 23
Environmental Responsibility Pillar		19%	12%	10%
		3%	3%	0%
		78%	84%	90%

Farm 2 had a good baseline level of compliance for Pillar 3. Key works in progress for this pillar mostly involved the verification of existing records and implementation of existing SOP's, so were reasonably achievable. The major non-compliances in Pillar 3 at Farm 2 involved outstanding trainings that needed to happen and having records/proof of those trainings

Pillar 3 shows 8 outstanding items needing to be closed off. Of these, 2 are marked as non-compliant, items 3.55 and 3.61, both requiring training to be compliant. A new Health and Safety manager has been hired and so training-related issues will be dealt with.

The six remaining issues are marked as work in progress. Four of these involve the review and follow up on existing documentation and so are achievable.

The final two items, 3.69 and 3.70 relate to the mechanisms to capture fuel spillage. The basic infrastructure seems to be in place already, however, actual capacity still needs to be verified.

One significant issue identified in the baseline survey was the presence of Chlorophyll testing records. Proper testing has begun, and so ongoing records are now being created and kept by Farm 2.

Pillar 4 Baseline

		September 22	November 22	January 23
Animal Health and Welfare Pillar		25%	17%	8%
		8%	0%	0%
		67%	83%	92%

In pillar 4, Farm 2's main non-compliance was training records. Works in progress included the verification of records and SOP's. Again, these requirements should be relatively straightforward to close and corrective actions taken if needed. Overall baseline compliance for this pillar was good for Farm 2



considering the lower number of requirements in Pillar 4. At the date of writing only two items were marked as still in progress. Both involve the review of existing documents and policies and so don't pose a serious threat to delaying certification and failing the audit.

Pillar 5 Baseline

	September 22	November 22	January 23
Traceability Pillar	21%	14%	0%
	7%	7%	0%
	72%	79%	100%

Farm 2's traceability baseline compliance was good, with good systems already in place. Primary non-compliance for this pillar is in the trace-back exercises for product recall. An exercise has been scheduled and a trace back protocol has also been developed. Works in progress include the verification of existing records. The primary non-compliance in this pillar is the availability of trace-back exercise records, item T15. The first of these exercises will be conducted shortly in January 2023. Works in progress are items T2 and T13 which require the consolidation and review of existing data, with no significant issues expected in completing these before the formal audit.



4. KEY ISSUES AND LESSONS LEARNT

This section is comprised of the results of our analysis of the two firms BAP baselines and our findings from the interviews we conducted with the firm's compliance officers, BAP consultants, production managers, heads of HR, and CEOs. It lays out the key issues that each firm experienced in each pillar, which of the five BAP pillar was the most troublesome, and what major issues the firms experienced with the BAP process in general. In addition to this we provide examples in each pillar to illustrate the particular issue the companies had and most importantly we provide the reader and broader industry with key lessons learnt. These lessons are chosen and articulated in way that maximises their usefulness and relevance to any aquaculture firm thinking of applying for BAP certification or currently in the early stages of the certification process.

4.1 PILLAR 1: FOOD SAFETY

Farm 2

In the case of Farm 2 and BAP's food safety pillar they had few major concerns or key issues because of their FSSC 2200 version 5.1 compliance due to supplying foreign markets with fish. Because this is a food safety specific standard with higher standards than BAP. This being said, Farm 2 noted that the required BAP processes are already followed in principle, but they are not documented as of yet. This is a very common issue with facilities seeking any sort of certification for the first time. Facilities might be used to doing things the right way, but they aren't used to documenting it in a way that someone coming in from the outside can review records and confirm that practices conform to a specific standard. Accordingly, these processes needed to be documented and recorded, which is a fairly time-consuming exercise. Therefore, Farm 2's major issue was the time that it took for its staff to document all these processes and keep records of these processes thereafter. This is time that staff could have been spending elsewhere. In line with this issue, Farm 2 hired a consultant to manage and facilitate the BAP certification process and they recommend that other firms pursuing BAP certification do the same if company finances allow.

Lesson learnt – BAP certification is a time-consuming process that will most likely require a firm to have extra unassigned human resource to allocate to the process or require the firm to hire a certification consultant to facilitate and manage the process. This is especially the case for firms who are pursuing BAP certification for both their Farms and their processing plants.

Farm 1

Remembering that Farm 1 is only seeking certification of its grow out Farm is important because it means that pillar one will not require as much time for Farm 1 as it did for Farm 2 who are certifying the processing plant as well, and therefore there will be a lot more to do in this pillar with regards to food safety work. Farm 1 had few major issues in this pillar as a result, however, one of the key issues is BAP's requirement that Farm 1 have a Farm level HACCP plan. Farm 1 did not have this in place initially and so developed one during the last four months. This is a common area of non-compliance amongst BAP certifications and relatively easily resolved.⁸ For the most part the other clauses in this pillar, had already been put in place by Farm 1, which makes it one of the pillars where they were most compliant from the outset.

Lesson Learnt - for firms pursuing BAP certification of only their Farms, pillar one usually has low-levels of baseline non-compliance. This is usually because of the national or buyer food safety standards that the Farm must be compliant with to operate or ensure a reliable market.

⁸ Kruijssen, F., Newton, J., Kuijpers, R., Bah, A., Rappoldt, A., Nichols, E., Kusumawati, R., Nga, D.N. 2021. Assessment of social impact of GAA's 'Best Aquaculture Practices' certification. KIT Royal Tropical Institute: Amsterdam.



4.2 PILLAR 2: SOCIAL ACCOUNTABILITY

Farm 2

Farm 2 expressed that the major issue they had with pillar two was the difficulty to prove that Farm 2 is compliant with the BAP requirements. For example, this pillar required that Farm 2 prove/show that they don't have inappropriate access to their worker's bank accounts. BAP clause 2.12 states, "The Farm shall not have inappropriate access to the worker's bank account. Payment of wages shall not be made to someone other than the worker or into an account not controlled by the worker, unless otherwise required by law." In these cases, BAP and the firm often have to communicate and discuss what constitutes proof in BAP's eyes and this takes time and potentially delays the process, when it could be avoided by BAP listing what constitutes proof of this under the clause requiring it. Alternatively, these and similar clauses in pillar 2 can only be verified when the certified BAP auditor visits the Farm. Although this may be easier for BAP, it increases the risk that the firm is found to be non-compliant and if this is the case then the firm only has 30 days to take corrective action, or else it will fail the audit.

Farm 2 conveyed that the most difficult area to attain compliance with in this pillar were the occupational health and safety requirements. Such as ensuring a safe working environment and that there are policies and SOPs that prove this is the case at all times, i.e. clause 2.8, and other related clauses in pillar two.

Lesson Learnt – Firms should engage BAP personnel early on in the certification process regarding the particular clauses in pillar two and what constitutes proof of compliance with these clauses. This is so that firms can manage their risk proactively and have more accurate assessments of whether they are ready for the BAP audit or not. The particular clauses that we and the companies noted are difficult to prove are: 2.4/ 2.7/ 2.12/ 2.17/ 2.19/ 2.22/ 2.38. Furthermore, facilities interested in certification are invited to participate as observers in auditor courses and there are some approved "TCE" (Trainers, Consultants, Experts)" who BAP can recommend to provide such detailed assistance to facilities preparing for certification. See this [link](#):

Farm 1

In general, Farm 1 noted that Pillar 2 was a lengthy pillar with 62 clauses in total and that even though they had a dedicated compliance officer it takes significant care to ensure that no clauses are overlooked. Accordingly, Farm 1 involved their HR department to ensure this didn't happen, but also because most of the clauses are related to HR and HR policies, and their involvement would help the firm identify specific clauses they would need to focus on. Additionally, because this pillar's clauses frequently refer to national or local laws and standards, "The Farm shall provide benefits that, at a minimum, are required by **local or national law** (such as paid holidays, maternity leave, health insurance, paid sick time, etc. as applicable)", for example. Farm 1 are familiar with all of the above laws and regulations and comply with them but to be thorough they need to verify any additional relevant Lesotho regulations and check whether they have changed or not and whether Lesotho even has certain regulations in place or not in the areas the clauses are concerned with.

More specifically, there were three key issues for Farm 1 in this pillar.

Key issue 1: According to clause 2.14: "The Farm shall abide by the mandatory national work week, and where that is absent, an average work week of no more than 48 hours. The specific timing and organization of the working day may be agreed in a voluntary agreement between Farm owners/management and workers." This was an issue for Farm 1 because their work week exceeded 48 hours a week when staff work 6 days per week. Additionally, it appeared that Lesotho's mandatory national work week is 45 hours, this has since been resolved by Farm 1, and the [ILO dialogue](#) on the matter was useful in clarifying the requirements the Farm needed to comply with. In response to this issue Farm 1 ended up hiring additional



staff in certain areas to ensure compliance with BAP standards and this is worth noting may be something other facilities pursuing BAP certification will need to do.

Key issue 2: According to clause 2.15: “Overtime shall not exceed 12 hours per week except as permitted by national law and agreed to between the facility and workers in a voluntary contractual agreement. The facility shall demonstrate any overtime that exceeded 12 hours per week only occurs under exceptional circumstances with due measures taken to ensure workers’ health and safety during overtime work.” Currently, Farm 1 staff are exceeding 12 hours of overtime per week. Given this, Farm 1 would also be non-compliant with this clause. Accordingly, they have had several management meetings to date to decide what they will be doing in both the cases of clauses 2.14 and 2.15 to change their practices in order to attain BAP compliance.

Key issue 3: According to clause 2.17: “Farms shall comply, at a minimum, with national laws regarding meal and rest breaks during work shifts. Farms shall respect the right to a rest day after six consecutive days worked.” During harvests, which take place on a harvest platform in the middle of the reservoir, it is difficult for their workers to go to the shore/slipway for lunch, as it takes quite a bit of time to reach the slipway. Additionally, because Farm 1 are also dealing with the wellbeing of the fish being harvested one would like to finish the harvesting as soon as possible to ensure that the welfare of the fish are looked after, whilst also prioritising the quality of the harvested product. Accordingly, Farm 1 do ensure the workers have a 30-minute break on the harvest platform to eat and hydrate. However, they were concerned that this might not be sufficient to meet BAP standards.

Due to the round-the clock nature of the work and the logistical realities of the distance from shore, scheduling and access to ablution facilities is often an issue for a number of fish Farms. Providing for adequate break and lunch times are a management and scheduling issue, and so can be solved, however, ablution facilities and the logistics around these issues can bear quite heavy financial cost to resolve adequately.

Farm 1 have now amended harvests to ensure there is a 30 min break after 3 hours work and another 30 min break during lunch. Accordingly, it is no longer a clause they are worried about non-compliance in. Additionally, Farm 1’s harvest team is paid daily and prefer to finish as quickly as possible, so more for Farm 1 it is more of a case where they have to time check and make sure the staff take the break because the staff usually just want to eat quickly and then get the job done.

The three key issues above were the most pressing issues for Farm 1 in this pillar. There are other particular issues with some of the other clauses, but these issues just involved updating already existing policies or translating them into the local language, for the most part.

Lesson Learnt – when firms approach the self-assessment on pillar two, they should ensure their compliance officer as well as their HR manager are involved and assigned responsibilities in making the required changes for compliance. This is because: the pillar has 62 clauses and needs more human resource to respond to it than other pillars; is mainly concerned with HR related matters and policies, and it’s likely the pillar with the highest levels of non-compliance in a number of Southern African aquaculture operations. This was the case for Farm 2 and Farm 1 and as already discussed is also the pillar with highest level of non-compliance globally.⁹

Lesson learnt – it is important for companies to understand the administrative burden of the BAP process in terms of documenting and standardising all of a firm’s practices, through policies and procedures etc. In line with this, every policy and procedure that involves local staff who only speak the local language fluently, needs to be translated into that language, as it is a requirement of BAP. This is an exercise that

⁹ Kruijssen, F., Newton, J., Kuijpers, R., Bah, A., Rappoldt, A., Nichols, E., Kusumawati, R., Nga, D.N. 2021. Assessment of social impact of GAA’s ‘Best Aquaculture Practices’ certification. KIT Royal Tropical Institute: Amsterdam.



will likely be costly if its not possible for an existing staff member to translate all these policies and procedures and should be planned and budgeted for.

4.3 PILLAR 3: ENVIRONMENTAL RESPONSIBILITY

Farm 2

Farm 2 felt comfortable with their baseline compliance in pillar three from the outset. They had environmental baselines in place, along with good systems to ensure continual and accurate data collection. Additionally, they have good waste management systems in place, and they have already attained from Skretting the ratio of fish meal and fish oil used in Skretting's feed and its compliant with BAP's standards. Furthermore, Farm 2 credit their low levels of non-compliance in this pillar with their compliance with national environmental responsibility laws and regulations.

There was one particular issue where Farm 2 were not complaint. The phosphate baseline in Farm 2's water body was higher than permitted. Farm 2 therefore requested assistance from BAP to better understand the clause and BAP clarified that the Farm needed to meet two of the three limits not all three. Accordingly, the Farm tested for *Chlorophyll a* and this fell within the limits. See footnote for clause and additional clarity.¹⁰

The clause in question is clause 3.23 and reads as follows, "Water quality in the surface mixed layer of water bodies used for cage culture shall conform to at least two out of three of the following: not more than 40 µg/L for total phosphorus, not more than 15 µg/L for chlorophyll a, not less than 3 m for Secchi disk visibility as an average of sample collections encompassing four consecutive months. In addition, average daily dissolved oxygen concentration at 50 cm depth shall not be less than 4 mg/L for more than four consecutive months."

Due to significant nutrient inflow associated with the rainy season and changes in water levels, the required levels of total phosphorous and *chlorophyll a* might not adequately reflect the baseline situation at Katse Dam and as a result the Farms might not be compliant for periods of the year. As more baseline data becomes available, this issue might need to be addressed in a more long-term way and BAP agreed that this course of action was wise.

Lesson learnt – firms should be sure to communicate with BAP and explain why one of three parameters required by BAP is not appropriate or applicable to a firm, as was the case with the phosphorous levels in Katse. Equally they should be ready to do whatever they can or need to, to demonstrate compliance with this standard via other means or using other indicators, like Farm 2 did by testing for *Chlorophyll a* to meet the requirement of meeting two out of the three limits. *If a company is sharing a water body with another fish Farm then some form of consolidation and communication between the different companies would benefit the companies.*

Lesson Learnt – firms in jurisdictions with especially stringent and comprehensive environmental responsibility laws and regulations will more than likely have low levels of non-compliance in this pillar. Additionally, even if the jurisdictions laws and regulations are not stringent or comprehensive, most firms' mandatory national environmental laws and regulations are equivalent to BAP's or perhaps only slightly lower.

Lesson learnt – The issue of seasonal fluctuations in water quality requiring more long term monitoring to get more accurate averages was understood and appreciated by BAP and the Farms were told they

¹⁰ "shall conform to at least two out of three of the following: not more than 40 µg/L for total phosphorus, not more than 15 µg/L for chlorophyll a, not less than 3 m for Secchi disk visibility as an average of sample collections encompassing four consecutive month"



should delay their audits by a few months in order to accumulate the necessary 4 months of data prior to the audit. The applicable lesson here is that facilities need to be realistic about the time they will need to accumulate the necessary records required to meet BAP standards and schedule their audits accordingly.

Farm 1

Farm 1 had some of the same issues as Farm 2, from the outset, given that they share a water body. Like Farm 2, Farm 1 had issues with the phosphorous levels in the dam and so BAP also suggested that they test *chlorophyll a* instead to ensure that they met the requirement of having two of the three tests required within the limits. Another particular issue faced by Farm 1, was that they did not have a containment plan in place as required by clause 3.54. This containment plan has been completed and training on it was carried out in November 2022. The same applied for the wildlife interaction plan (WIP), which is required by clause 3.60.

Furthermore, Farm 1 and Farm 2 received all the details they need from Skretting regarding the BAP requirement that firms have Fish-in Fish-out (FIFO) and Forage Fish Dependency Ratio (FFDR) calculations. Many Skretting facilities globally are BAP certified and understand very well what information needs to be supplied, and they are under obligation as a condition of their BAP certification to supply the details. If other feed suppliers to the facilities do not understand the requirements, they can either write to BAP for clarification, or the facilities can change to suppliers who will make the effort to comply on the few points that are required.

Lesson Learnt – given the difficulties and delays firms can experience in receiving requested information and certificates from outside organisations/suppliers – firms should separate out all the various clauses where this is required and prioritise engaging these players early on and explain upfront why they need information from them to ensure timely delivery of the information or certificate required.

Lesson learnt – **In the case of water quality data, a four month running average is required, necessitating consistent data collection over time.** Firms should be proactive in engaging with BAP personnel to seek guidance on meeting the testing requirements like the case of the *chlorophyll a* test. Furthermore, facilities tempted to shift their audit date to a period when water quality is considered to be more optimal is not in the long term a viable strategy since an auditor is going to be looking at a full year's worth of data.

Lesson Learnt – Both Companies could benefit from consolidating information training and policies with regards to water quality monitoring through engaging the same experts, a good example being John Beijer, who has done much of this work for some of the largest aquaculture producers in the world and Sub-Saharan Africa.

Lesson Learnt – because many of the BAP clauses in this pillar, but also in other pillars, refer to complying with local or national laws and regulations it is important for a firm to understand that where there are these laws and regulations compliance with them can be enough to satisfy BAP requirements. However, where these are absent the BAP requirements are applicable. Furthermore, firms may encounter situations as Farm 1 has, where they are not sure if there are any government permits for predator control published or required by their national government. In such cases, it is important for a firm to know how or know a consultant who knows how to find if there are applicable local or national laws or regulations.



4.4 PILLAR 4: ANIMAL HEALTH

FARM 2

Again, Farm 2 were comfortable with their levels of baseline compliance in this pillar, mostly due to their buyers in Japan and the US having strict animal health and welfare requirements that they have already drafted policies for and put in place, such as the FDA's requirements and the FSCC 22000 version 5.1 standards. Where Farm 2 did note that there could have been an issue was with clause 4.5 which requires, "Farms located in an area with more than three aquaculture facilities (hatcheries, Farms, processing plants) per 10 km² sharing the same surface water body shall initiate or participate in an Area Management Plan to coordinate biosecurity measures with neighbouring sites, irrespective of BAP certification status, unless a documented disease risk assessment determines that there is a low risk of disease transmission among facilities." In this case, there is another Farm, but it is Farm 1, and they are going through the same process. Accordingly, this clause will require additional collaboration between the two Farms, but will be significantly easier than trying to comply with this clause if the other Farms were not interested in BAP certification or unwilling, as might be the case for other firms in Southern Africa.

Lesson Learnt – if a firm shares the same surface area with another firm within an area of 10 km², then the first thing it must do is engage that firm to gauge whether they will be willing to cooperate with it to develop an Area Management Plan. This should be done before any resource or effort is spent on the self-assessment of certification process.

FARM 1

Farm 1, were similarly comfortable with their levels of baseline compliance in this pillar for the same reasons as Farm 2, although it was the fact that their largest buyer is Woolworths that meant Farm 1 already had the policies written up and enforced on their Farm. One of the issues they did face was that they didn't originally have a written biosecurity plan, which is a requirement as per clause 4.2, "The Farm shall have in place biosecurity controls that seek to prevent the introduction and spread of disease agents and disease on the Farm or to neighbouring Farms and these controls shall be detailed in an operational Biosecurity Plan that includes the listed elements in the Implementation Guidelines." Farm 1 did not see this as a major issue as it could be resolved fairly easily, inexpensively, and timeously. Consequently, Dr Brandon Spolander was contracted to develop this plan and train the requisite staff on how to implement and monitor it and Farm 1 now see no issues in this area. Additionally, Farm 1 will need to make a slight adjustment to the winter period water quality procedure to make it the same as the summer period, where water quality is taken from each production unit.

Lesson learnt – often firms already practice most of the requirements requested in this pillar due to their importance for the firm's product quality, gross margins etc. Essentially the practices that pillar four requirements speak to play an influential role in ensuring the firm's commercial viability. Accordingly, firms usually won't need to implement any new practices or procedures to achieve compliance in this pillar. Rather the burden will be an administrative one and involve documenting the practices and procedures in the form of formalised SOPs, of which BAP requires a significant number.

4.5 PILLAR 5: TRACEABILITY

Farm 2

Farm 2 again felt comfortable with their levels of baseline compliance in this pillar, mostly because they use Aqua Manager, which is traceability software designed for the aquaculture sector. Aqua Manager describes itself as an "Integrated solution for Production Planning, Management, Cost Analysis & Financial Forecast". According to Farm 2 their use of this software means they will easily comply with all the traceability requirements of BAP. However, they are yet to do a dummy product recall to test whether their



actual practices and procedures are interfacing with their software in right way to produce the BAP required traceability. They plan do this throughout the rest of January 2023 and don't envision there to be any problems. Other than this, Farm 2 reiterated that this pillar and the whole process is considerably time consuming.

Lesson Learnt – Aquaculture software is powerful and a great tool for firms in the traceability pillar of BAP, however, often the goals of the different users of the software for production purposes are not aligned with the needs of the certification and compliance-oriented users. Emphasis needs to be placed on training and how well it is being used by the firm's staff as well as what underlying practices and procedures are in place that allow it to regularly and accurately record the data it needs to.

Farm 1

In general, Farm 1 has been able to keep records and to comply with most of the traceability pillar's requirements. The key issue and probably the only one of some concern for Farm 1 would be to ensure that the database of paper records, documents, forms, notebooks, files, and all other records are up to date and would be available for verification during an audit. This will probably take a while to do and would need to be validated through an in-house verification process before Farm 1 felt comfortable scheduling a BAP audit.

Lesson Learnt – the prudence of in-house verifications, dry audits, or mock product recalls should not be overlooked by firms when going through the BAP process. It is recommended that a firm do a mock audit of all BAP clauses before scheduling a BAP certified auditor to come and do the real audit, wherever possible, This decreases the risk of a failed BAP audit and a firm only having 30 days to take corrective action on these non-compliant clauses, as per BAP certification process guidelines.

4.6 THE PILLAR WITH THE MOST ISSUES

Farm 2's pillar with the most issues by number and difficulty, was pillar two. We have already discussed the particular issues that make it such and highlighted that this is the pillar that has the highest levels of non-compliance globally when looking at the audit data from BAP on their Finfish and Crustaceans Standard.

It was noted that a common theme through most of Farm 2's pillars was training and training record keeping related. Fortunately, this was a key area of assistance of the project Farm 2 was taking part in and so it was funded by UKAid, however, other firms should take heed of this learning as they will need to finance all the applicable trainings themselves.

Farm 1 also had 3 significant issues with pillar two that are difficult to resolve, however, from their perspective the most troublesome pillar was pillar three. The reasons for this was that there are a significant number of requirements, they have to fulfil to be compliant, 71 in total, making it the pillar with the most compulsory clauses. Many of the clauses are not negotiable, and thus the firm must set up plans to fulfil each clause. This is made more complicated and difficult by the fact that the underlying compliance or non-compliance conditions (the proof required to show compliance) are not explicitly articulated and seem to get lost in all of the information provided in this pillar. Additionally, pillar three has also been the pillar in which Farm 1 had to rely heavily on supporting documents from other service providers and companies supplying feed and seed. Accordingly, this has caused delays in the BAP process as these suppliers or service providers have often not understand why Farm 1 need certain documents, certificates, or ingredient data from them and have either not responded at all or have been slow in responding. This is not an uncommon issue in the certification process, as third parties are not under the same time pressure as operators to generate the required paperwork. Constant, multiple follow ups are often required, which places further pressure on an already-busy management team.



4.7 MAJOR ISSUES

Farm 2's major issue with the BAP certification process was of a general nature. It was how time consuming the process has been in general and the fact that it decreased the amount of time Farm 2's employees had to do their general work, especially Farm 2's managers. As such, Farm 2 hired the services of a consultant with certification and audit experience to manage and facilitate the BAP certification process until the official BAP audit is complete. The consultant's appraisal has highlighted that the major issue for Farm 2 in that they didn't have the SOPs it needs in place. Rather it is what currently, the department heads have their own SOP layout, document control procedures etc., whereas in order to be compliant with BAP, Farm 2's document process needs to be significantly more streamlined. Although Farm 2 understood this and agreed that it made complete sense, their issue was that it adds yet another time layer to the process.

Finally, the Farm 2 CEO shared that his main learning point from the BAP process thus far was that the whole process was very time consuming and that he strongly encourages that firms be seriously committed to starting the application process and finishing it, because if they aren't then it is unlikely the firms will assign enough resource and time to it, and thus won't complete it or achieve a clean compliance audit.

Farm 1 had three major issues initially. The first was their current non-compliance with the BAP mandated working hours per week (48 hours), the limit of 12 hours of overtime per month, and their concern that the half an hour break provided to their workers during harvesting season out on the platform may not qualify according to BAP standards. However, now with new approach to harvesting mentioned already staff are guaranteed a one hour break in an 8 hour work day. Issues relating to work hours, scheduling, and overtime are chronic issues present in aquaculture in Sub-Saharan Africa, however. This is primarily due to the difficult and 24-hour nature of livestock rearing, and is often exacerbated by the remote nature of many Farms. Dealing with living organisms, often requires work outside of what would be considered normal working hours like for example in harvesting/processing a company cannot stop until the consignment is finished. Logistical/operational challenges like a truck or boat arriving late can result in unplanned extra work requirements and these can be difficult to plan/ manage around.

Their second major issue has been accommodating BAPs requirements around how Farm 1 use the anaesthetic AQUI-S and particularly how they dispose of the water treated with AQUI-S once it has been used to anaesthetise the trout. BAP does not have a specific issue connected with residues from use of isoeugenol (AQUI-S), as long as its use complies with regulations in the country of production and the country where the product is being sold. This requirement was shared by Farm 1 and they take every measure to ensure the fish are not tainted. However, once this was resolved BAP found issue with the fact that Farm 1 drain the water they use in the AQUI-S bins back into the dam without being treated. The two companies utilize slightly different harvesting methods, Farm 2 harvest at the lake edge, while Farm 1 harvest out at the cages, this is the reason that Farm 2 don't have the same issue with the treatment and or disposal of AQUI-S after harvest.

Having consulted multiple aquaculture operations in Southern Africa, this is standard practice, and not seen as harmful as the active ingredient in AQUI-S is, eugenol which is organic. Farm 1 have done tests to show that draining the water is not materially or negatively affecting the water quality of the dam in any way. In line with BAP guidance, they are now discharging the treated water back into the reservoir in batches rather than discharging all the water simultaneously.

Their third major issue was timeously finding labs that do the testing that the BAP standards require and do these tests at the right sensitivity levels, more so the latter than the former. This can be exacerbated by the remote locations of both operations, increasing the logistical and timing challenges and access to labs, not to mention costs. Both Farms noted a concern with the *chlorophyll-a* levels, from a testing perspective, but this issue is not as significant as the other two, they have now found a lab that does the test required by BAP.



4.8 RELEVANT BAP CERTIFICATION INFORMATION

4.8.1 INDICATIVE COSTS PER PILLAR

BAP certification can carry costs, both initially in getting up to compliance, and ongoing operational costs for maintaining processes.

Costs of compliance vary widely depending on the status of on-Farm processes and the level of compliance with local and national accreditation bodies. Having to redesign a process or facility in order to comply with BAP can be costly.

A summary of the costs related to the BAP certification process for one grow out Farm i.e. registration, audit costs, yearly fees etc is given below in South African rands. Costs to prepare for any form of certification will vary depending upon existing facility practices and a standard's particular requirements.

Application Fee	Audit Fees	Annual Programme Fees	Training	Audit Travel Costs *Can vary considerably ¹¹
\$275	\$3600 + any travel fees	Program fee is \$1.25/R21.50 per mt of prior year's total harvest certifiable against the BAP standard, to a min of \$500/R8575 and max of \$5,000/R85750 a year	\$3500 or R60 000	\$4140 or R70 700

The table below aims to provide indicative costs to compliance for each pillar and to also indicate the primary drivers behind those costs.

PILLAR	INDICATIVE Cost range (ZAR)	COSTS Range for TO TRAINING (ZAR)	MAIN COST CENTRES
1 Food Safety	Up to R 120 000	R94 500	Training Installation of water dosage systems
2 Social Accountability	R 20 000 to R180 000	R 60 000	Leave/Overtime liabilities Training
3 Environmental Safety	Up to R 430 000	R 100 000	Capital expenditure on safety equipment Water quality analysis Training

¹¹ * Can vary considerably depending on where the auditing firm is based, Farm 2's auditor had to travel from Greece as the third party auditor BAP usually uses in Southern Africa which is based in Johannesburg had not availability for 6 months.



4 Animal health and welfare	Up to R 50 000	R98 000	Training Dedicated Man hours
5 Traceability	Up to R 150 000	Original R92 700 Bulk Discount R46 906	Training Dedicated man hours assigned

4.8.2 USEFUL SERVICE PROVIDERS FOR TRAINING

Pillar	Skills	Course	Contractor	Contact Details
Pillar 1	Biosecurity	Basic Biosecurity	AquaVet Africa	santi@aquavetafrica.com
Pillar 1	Food Safety	FSSC 22000 version 5.1 training	Entecom	+27 41 366 1980 info@entecom.co.za
Pillar 1	Food Safety	Advanced Food Safety training	Entecom	+27 41 366 1980 info@entecom.co.za
Pillar 1	Food Safety	Maintenance for Food Safety training	Entecom	+27 41 366 1980 info@entecom.co.za
Pillar 1	Food Safety	Food safety culture training	Entecom	+27 41 366 1980 info@entecom.co.za
Pillar 3	Preventative maintenance	Outboard Engine Mechanics & Diagnostics	Stingray Marine	info@stingraymarine.com +27 21 987 1190
Pillar 3	Preventative maintenance	Basic Electrical	Stingray Marine	info@stingraymarine.com +27 21 987 1190
Pillar 3	Preventative maintenance	Basic Electrical part 2	Stingray Marine	info@stingraymarine.com +27 21 987 1190
Pillar 3	Preventative maintenance	Hand Tools	Stingray Marine	info@stingraymarine.com +27 21 987 1190
Pillar 4	Harvest Techniques Training	Rainbow Trout Harvest Techniques	AquaVet Africa	santi@aquavetafrica.com
Pillar 4	Veterinary Health	Health Basics	AquaVet Africa	santi@aquavetafrica.com



Pillar 5	Supervisory skills/Project Management	Introduction to Time Management and Work Procedures	Entecom & Imsimbi	+27 41 366 1980 info@entecom.co.za
Traceability	Internal Auditing	Risk Management	Entecom/Annelie Coetzee	+27 41 366 1980 info@entecom.co.za
Traceability	Internal Auditing	Internal auditing principles and methodology workshop (2 days)	Entecom	+27 41 366 1980 info@entecom.co.za



5. KEY BAP CERTIFICATION PROCESS FINDINGS FOR THE AQUACULTURE SECTOR

Pillar I Key Lessons Learnt

- BAP certification is a time consuming process that will most likely require a firm to have extra unassigned human resource to allocate to the process or require the firm to hire a certification consultant to facilitate and manage the process. This is especially the case for firms who are pursuing BAP certification for both their farms and their processing plants.
- For firms pursuing BAP certification of only their farms, pillar one usually has low-levels of baseline non-compliance. This is usually because of the national or buyer food safety standards that the farm must be compliant with to operate or ensure a reliable market.

Pillar II Key Lessons Learnt

- Firms should engage BAP personnel early on in the certification process regarding the particular clauses in pillar two and what constitutes proof of compliance with these clauses. This is so that firms can manage their risk proactively and have more accurate assessments of whether they are ready for the BAP audit or not.
- When firms approach the self-assessment on pillar two, they should ensure their compliance officer as well as their HR manager are involved and assigned responsibilities in making the required changes for compliance. This is because: the pillar has 62 clauses and needs more resource to respond to it; is mainly concerned with HR related matters and policies, and it's likely the pillar with the highest levels of non-compliance.
- It is important for companies to understand the administrative burden of the BAP process in terms of documenting and standardising all of a firm's practices, through policies and procedures etc. Every policy and procedure that involves local staff needs to be translated into that language, as a requirement of BAP and should be planned and budgeted for.



Pillar III Key Lessons Learnt

- Firms should be sure to communicate with BAP and seek guidance on whether any parameters required by BAP are not appropriate or applicable to a firm. Equally they should be ready to do whatever they can or need to, to demonstrate compliance with this standard via other means or using other indicators. If a company is sharing a water body with another farm then consolidation and communication between the different companies would benefit the companies.
- Firms in jurisdictions with especially stringent and comprehensive environmental responsibility laws and regulations will more than likely have low levels of non-compliance in this pillar.
- Facilities need to be realistic about the time they will need to accumulate the necessary records required to meet BAP standards and schedule their audits accordingly.
- Given the difficulties and delays firms can experience in receiving requested information and certificates from outside organisations/suppliers – firms should prioritise engaging third parties early on to ensure timely delivery of the information or certificate required.
- In the case of water quality data, a four month running average is required, necessitating consistent data collection over time. Firms should be proactive in engaging with BAP personnel to seek guidance on meeting the testing requirements.
- Companies could benefit from consolidating information training and policies with regards to water quality monitoring through engaging the same experts
- Because many of the BAP clauses in this pillar, but also in other pillars, refer to complying with local or national laws and regulations it is important for a firm to understand that where there are these laws and regulations compliance with them can be enough to satisfy BAP requirements. It is important for a firm to know how or know a consultant who knows how to find if there are applicable local or national laws or regulations.



Pillar IV Key Lessons Learnt

- If a firm shares the same surface area with another firm within an area of 10 km², then the first thing it must do is engage that firm to gauge whether they will be willing to cooperate with it to develop an Area Management Plan. This should be done before any resource or effort is spent on the self-assessment of certification process
- Often firms already practice most of the requirements requested in this pillar due to their importance for the firm's product quality, gross margins etc. Essentially the practices that pillar four requirements speak to play an influential role in ensuring the firm's commercial viability. Accordingly, firms usually won't need to implement any new practices or procedures to achieve compliance in this pillar. Rather the burden will be an administrative one and involve documenting the practices and procedures in the form of formalised SOPs, of which BAP requires a significant number.

Pillar V Key Lessons Learnt

- Aquaculture software is powerful and a great tool for firms in the traceability pillar of BAP, however, often the goals of the different users of the software for production purposes are not aligned with the needs of the certification and compliance-oriented users. Emphasis needs to be placed on training and how well it is being used by the firm's staff as well as what underlying practices and procedures are in place that allow it to regularly and accurately record the data it needs to.
- The prudence of in-house verifications, dry audits, or mock product recalls should not be overlooked by firms when going through the BAP process. It is recommended that a firm do a mock audit of all BAP clauses before scheduling a BAP certified auditor to come and do the real audit, wherever possible, This decreases the risk of a failed BAP audit and a firm only having 30 days to take corrective action on these non-compliant clauses, as per BAP certification process guidelines.



6. BIBLIOGRAPHY

- Blackman, Allen, and Jorge E. Rivera. "The evidence base for environmental and socioeconomic impacts of 'sustainable' certification." Available at SSRN 1579083 (2010).
- Boyd, Claude E., and Aaron A. McNevin. "An early assessment of the effectiveness of aquaculture certification and standards." *The Roles and Limitations of Certification* (2012): 35.
- Bray, Paolo. "Sustainable aquaculture: a review of existing certification programs." *World Aquac* 23 (2018).
- Bush, Simon R., Ben Belton, Derek Hall, Peter Vandergeest, Francis J. Murray, Stefano Ponte, Peter Oosterveer et al. "Certify sustainable aquaculture?." *Science* 341, no. 6150 (2013): 1067-1068.
- Kruijssen, F., Newton, J., Kuijpers, R., Bah, A., Rappoldt, A., Nichols, E., Kusumawati, R., Nga, D.N. 2021. Assessment of social impact of GAA's 'Best Aquaculture Practices' certification. KIT Royal Tropical Institute: Amsterdam.
- Marschke, Melissa, and Ann Wilkings. "Is certification a viable option for small producer fishers in the global south? Insights from Vietnam." *Marine Policy* 50 (2014): 197-206.
- Ponte, S., F. Corsin, N. Warring, K. S. Jespersen & J. Young. 2011. Review of aquaculture certification schemes. Sustaining Ethical Aquaculture Trade project.
- Saha, Choyon Kumar. "Emergence and evolution of aquaculture sustainability certification schemes." *Marine Policy* 143 (2022): 105196. Available at: <https://www.sciencedirect.com/science/article/abs/pii/S0308597X22002433>
- Samerwong, Phatra, Hilde M. Toonen, Peter Oosterveer, and Simon R. Bush. "A capability approach to assess aquaculture sustainability standard compliance." *PloS one* 15, no. 1 (2020): e0227812.
- Thlusty, Michael F., and Heather Tausig. "Reviewing GAA-BAP shrimp Farm data to determine whether certification lessens environmental impacts." *Reviews in Aquaculture* 7, no. 2 (2015): 107-116. Available at: <https://onlinelibrary.wiley.com/doi/epdf/10.1111/raq.12056>
- Yamamoto, Koji. "Small-scale aquaculture in Thailand: Farmer groups and aquaculture certification." *Enhancing the contribution of small-scale aquaculture to food security, poverty alleviation and socio-economic development*. (2013): 113.
- WWF. 2007. Benchmarking Study: Certification Programmes for Aquaculture. Environmental Impacts, Social Issues and Animal Welfare.

