

Conversations with Alem Abay and Greg Garrett, July 8-11, 2015

Participants

- Greg Garrett – Director, Large-Scale Food Fortification, The Global Alliance for Improved Nutrition (GAIN)
- Alem Abay – Country Manger, Ethiopia, GAIN
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Note: These notes were compiled by GiveWell and give an overview of the major points made by Mr. Garrett and Mr. Abay.

Summary

GiveWell spoke with GAIN as part of GiveWell's investigation of GAIN as a potential top charity. Conversation topics included GAIN's work on salt iodization in Ethiopia and around the world.

Salt Iodization in Ethiopia

Government regulation of salt iodization in Ethiopia

Quotas for salt producers

Federal and regional offices of trade assign quotas for how much salt producer associations and individual producers can produce. The formula for the quotas allows associations and producers that have more salt-producing land to produce more salt, but the formula is also designed to ensure that all producers can sell enough salt to make a living, including producers with little salt-producing land.

Salt producers in Afdera in the Afar region have a quota of about 300,000 tons per year in total, while producers in the rest of Ethiopia have a combined quota of 50,000 tons per year. Salt producers report that they produce about as much salt as they are allocated to produce by the quota system. Mr. Abay believes that these reports may be true as there is sometimes unreported production especially in remote areas like God-Usbo in the Somali Region and Dobi in Afar. There is also a tendency to overproduce to get the lion's share of the market, which leads to wasting of significant amounts of raw salt in Afar especially at Lake Afdera.

Enforcement of salt iodization

At a checkpoint in Semera in the Afar region, the Food, Medicine, and Health Care Administration and Control Authority of Ethiopia (FMHACA) checks salt trucks to ensure that the salt they are carrying is iodized. If the salt in a truck is found to be non-iodized, FMHACA returns the truck, and it may write a letter to the salt producer warning that FMHACA may take more stringent enforcement actions (such as issuing a fine) if the producer continues to produce non-iodized salt. Mr. Abay does not know of an instance in which FMHACA has taken a more severe action than returning salt trucks. FMHACA only wants to undertake more stringent enforcement

once salt producers have the capacity to iodize, but salt producers are not developing that capacity due to the lack of stringent enforcement. One reason that FMHACA may not want to enforce universal salt iodization (USI) too strictly is that it does not want to deny small salt producers their livelihood.

According to Mr. Abay, to ensure a high level of compliance to iodization standards, Ethiopia needs to separate production from industrial scale iodization, so that small producers continue to support their livelihood, while the public at large gets quality iodized salt. It would be possible to increase pressure on salt producers to improve iodization through such separation and to encourage salt producers and other investors to invest in industrial scale production of iodized salt. The large-scale industry of salt iodization requires a different level of investment and set of skills than salt production. Large scale industrial salt iodization is the only way Ethiopia can secure quality iodized salt for its over 80 million people.

When GAIN donated Davey iodization machines in Afdera, it brought two members of Ethiopia's parliament to observe salt production in the region. Based on what they learned on the visit, the Members of Parliament believe that more could be done to adequately iodize salt in the country, and they will likely put pressure on FMHACA to improve regulation and on salt producers to invest in iodization.

GAIN believes that FMHACA should make clear to the producers in Afdera that if they continue to iodize their salt inadequately, the government may take steps to ensure that Ethiopians have access to adequately iodized salt (AIS), such as:

- allowing the importation of AIS from Djibouti or Sudan
- allowing private investors to invest in industrial scale iodization

Enforcement at production sites

Ethiopian Conformity Assessment Enterprise (ECAE) is a parastatal company that certifies the quality of products such as bottled water. Mr. Abay has been impressed by ECAE in his interactions with them.

GAIN would like ECAE to start an office in Afdera to enforce iodization. ECAE could check salt before it is shipped out from the region to certify that it is adequately iodized. FMHCA would still check the salt at the checkpoint in Semera. However, it would be much cheaper for producers for ECAE to reject their salt in Afdera than for FMHACA to reject their salt in Semera because of the transportation cost of sending salt to Semera only to have it returned. ECAE could set a strict standard for AIS without incurring excessive transportation costs for producers.

ECAE could also enforce the use of iodization machines by producers that have access to them. An ECAE office in Afdera could supervise producers more closely than FMHACA is able to from Semera.

ECAE could inspect salt for about 2-3 Ethiopian birr/quintal (a quintal is 1/10 of a metric ton), or about 3 million birr/year. If GAIN donated WYD iodine checkers and

covered the setup costs for the Afdera office, salt producers could pay for ECAE's costs going forward.

ECAE would be a better choice for testing and certification in Afdera than FMHACA because FMHACA is already overstretched, and it is better for FMHACA to remain as a high-level regulatory body rather than to expand to regular testing and inspection at production sites.

Scaling up GAIN's work in Ethiopia

GAIN's first team member working primarily on iodization in Ethiopia was a consultant who started in 2011. In 2013, GAIN opened an office in Ethiopia and hired full-time staff to work on salt iodization.

WYDs

GAIN has purchased 47 WYD iodine checkers for use by FMHACA and salt producers in Ethiopia at a cost of about \$700 each. GAIN would eventually like FMHACA to be able to use WYDs at all levels down to the district level. This might cost \$3 million over 3-4 years. GAIN would like to conduct a refresher training on WYDs in Afar, because about half of the technicians there who were trained to use WYDs have since left their jobs.

Surveys of iodization

Ethiopia's 2014 National Micronutrient Survey cost about \$1.8 million. GAIN contributed about \$100,000 for the measurement of indicators of iodine nutrition. The Ethiopian Public Health Institute conducted the survey after getting comments on its plan for the survey from all partners including GAIN.

The 2014 survey was heavily supported by the US Centers for Disease Control and Prevention. In the future, GAIN would like to help Ethiopia develop the capacity to undertake such surveys with less assistance.

Revolving fund for potassium iodate

GAIN's role in establishing the revolving fund

In July 2011, the Ethiopian government requested 24 tons of potassium iodate (KIO₃) from GAIN. GAIN had not planned or budgeted to donate this KIO₃. GAIN reached out to various donors to seek funding for the KIO₃, but it was not able to find much funding.

GAIN believed that it was important to set up a sustainable system for KIO₃ procurement rather than relying on one-off donations. Mr. Garrett and other staff met with Dr. Kesetebirhan Admasu, who at the time was the state Minister for Health and a key decision maker on KIO₃ procurement.

GAIN learned that some KIO₃ that had been donated had later expired. GAIN traveled throughout Ethiopia to collect 12 tons of expired KIO₃. GAIN negotiated with KIO₃ producers to send the expired stock back to them for reprocessing in

return for 6 tons of fresh KIO₃. GAIN and partners convinced the MoH and government agencies partnering on KIO₃ procurement that the KIO₃ had expired because salt producers were not required to pay for it and so were not motivated to use it.

Revolving fund assessment

GAIN decided to do an assessment of the possibility of establishing a revolving fund in order to convince other stakeholders of the need for the fund and to learn how much KIO₃ would be needed to seed the fund.

The Ministry of Health (MoH) believed that 24 metric tons of KIO₃ would be needed each year to iodize all of Ethiopia's salt.

In September 2012, the MoH, GAIN, UNICEF, the Micronutrient Initiative (MI), and the Bill & Melinda Gates Foundation (Gates Foundation) met to discuss food fortification. At this meeting, on the basis of GAIN's assessment, the partners decided to institute the revolving fund.

Deciding on procurement for the fund

GAIN originally proposed that procurement for the revolving fund could be handled either by the MoH's Pharmaceuticals Fund and Supply Agency (PFSA), GAIN's global premix facility, or the private sector. Since private businesses had not already procured KIO₃ at a large scale on their own initiative, the government was skeptical that they would be able to do so for the revolving fund. The government chose to run the tenders itself. PFSA was selected to host the fund. PFSA also procured and distributed essential medical drugs, so it was efficient to add KIO₃ procurement to PFSA's mandate.

In other countries, GAIN has had mixed success helping to establish private companies or initiatives to procure and distribute KIO₃. One such company continues to function in Ghana, but a distribution hub serving Kenya and surrounding countries did not operate in a sustainable way and has been closed. GAIN has learned that KIO₃ procurement and distribution requires a large amount of capital, and that it is most efficient when combined with procurement of other products.

GAIN's ongoing support of the revolving fund

PFSA has run the revolving fund smoothly without needing much support from aid agencies since the agencies made their initial donations of KIO₃ to seed the fund. At one point in the initial stages of KIO₃ procurement, before procurement was institutionalized with PFSA taking the lead, supplies of KIO₃ ran low and GAIN helped airlift one ton of KIO₃ to keep the system running.

Distribution of KIO₃

Salt producer associations pay for KIO₃ and are then given an issue letter from the MoH, which they use to get the KIO₃ from PFSA. To give an example of how

associations distribute KIO₃ to producers, Afdera Salt Producers Mutual Support Association holds the KIO₃ in its office. When a salt producer comes into the office to learn how much salt it is allowed to produce according to its quota, the association gives the producer the exact amount of KIO₃ that the producer needs to iodize the amount of salt they are allowed to produce. GAIN suggested that KIO₃ be distributed to salt producers in this way instead of in larger quantities to encourage salt producers to use the KIO₃ to iodize their allotted salt rather than hoarding or reselling it. GAIN believes that in general, producers use the KIO₃ they receive from associations to iodize their salt.

Expanded access to KIO₃

The revolving fund provides salt producers easy access to KIO₃. It is likely that at least some of these producers had difficulty accessing KIO₃ before the revolving fund, when KIO₃ was distributed to salt producers on an ad hoc basis. For example, when GAIN travelled around the country to recover expired KIO₃, it did not find any KIO₃ in the Somali Region. This may indicate that salt producers in the Somali Region did not have access to KIO₃ before the revolving fund.

Plans for the revolving fund

Shifting to the private sector

GAIN believes that the private sector should eventually take over KIO₃ procurement in Ethiopia. Salt producers could work together to procure KIO₃, or a procurement business could buy KIO₃ and sell it on to salt producers. KIO₃ is not registered as an essential drug, so private companies importing it would have to pay import duties. GAIN and other partners have asked the government to classify KIO₃ as an essential drug to eliminate those duties.

Expanding access

Currently the revolving fund only sells each salt producer association enough KIO₃ to iodize the amount of salt that its quota allows it to produce. Some of the associations in Afar have found that this is not enough KIO₃ to meet their needs.

In addition, KIO₃ from the revolving fund is available only in small quantities to salt repackers such as Shewit. GAIN recommends that if the quota system for salt production is changed, access to KIO₃ should be on a demand basis, and the market will eventually stabilize.

KIO₃ procurement

GAIN's premix facility produces a list of suppliers that it has verified produce high quality KIO₃. Some governments use this list when procuring KIO₃ to ensure its quality. PFSA currently does not make use of this list and, as per the system it has put in place to procure and distribute all essential drugs and medical supplies, it puts out an open tender for KIO₃.

Machinery

GAIN has donated 6 Davey iodization machines and the equipment needed to run them as well as spare parts for the Glotra machines that were donated in the past by MI and UNICEF. GAIN donated 1 Davey machine each to the Shewit Salt Supplier Private Limited Company and salt producers in the Somali Region, and 4 to the Kadaba Salt Supplier Share Company.

Installation of the machines at the Kadaba Salt Supplier Share Company

GAIN asked Kadaba to identify areas where there were high concentrations of salt piles awaiting iodization and sale. The Afdera region is divided into 4 zones. GAIN and the producers decided to install two machines in each of Zones 2 and 3. The machines arrived in February 2015 in Afdera.

Utilization of the donated machines

On July 8, Mr. Abay and GiveWell traveled to Afdera's Zone 2 to visit the Davey machine GAIN had donated there that is closest to the main road. On the way to visit the machine, Mr. Abay told GiveWell that the machine was most likely no longer being used. When Mr. Abay and GiveWell arrived at the machine, it did not seem to have been used recently and the generator needed to power the machine was not present. Mr. Abay explained that the generator had been put into storage to protect it from the harsh conditions in Afdera until the machine was to be used. Mr. Abay believes that after the machine's installation in February, it was used to iodize the two piles of salt closest to itself, and then no longer used.

When they visited Shewit, GiveWell and Mr. Abay saw the machine there in use. Based on that visit to Shewit, and on information GAIN receives from Shewit and from the Mek'ele branch of FMHACA, Mr. Abay believes that the machine there is being used consistently. Based on reports from others' visits to the Somali region, he believes that the machine there is being used consistently as well. At one point, the Shewit machine broke down, and Lorenzo Locatelli-Rossi, GAIN's Senior Technical Specialist for Salt Iodization at the time, fixed the machine.

Future outlook

If they were fully utilized, existing iodization machines in Ethiopia could iodize about 60% of the country's salt.

After the CIF is established, existing machines could be used as backup when there is not enough power available to run the large-scale machines in the CIF and when the large-scale machines are being serviced.

Improving utilization of Kadaba's machines

GAIN believes that key reasons that Kadaba is not using its machines are that it is too hard to transport salt to the machines and that there is a tendency to minimize costs of production. GAIN has agreed with Kadaba that GAIN will donate a tractor and Kadaba will buy a matching tractor, both of which will be used to transport salt to the machines to be iodized. Once the cooler season begins in Afar in October,

GAIN will follow up with Kadaba to make sure that it starts to use the machines again.

CIF

A CIF will hopefully be built within the next several years to iodize the majority of Ethiopia's salt. There is a large sugar factory in Afar, which shows that it is possible to build a large factory such as a CIF in the region.

MI feasibility study

MI completed a draft report on the technical feasibility of creating a CIF roughly three years ago, before GAIN opened its Ethiopia office. The report identified an ideal location for the CIF and concluded that a large factory should be built there to iodize the vast majority of Ethiopia's salt in one place.

GAIN's review of the study

When it reviewed MI's study, GAIN commented that there were many possible locations for a CIF to be considered, and that it might be best to have different alternatives ranging from medium to large scale to accommodate the diverse sources of raw salt in Ethiopia. Small producers in remote areas such as God-Usbo could continue to iodize their salt locally with medium to small-scale machines if they strictly complied with the iodization standard.

GAIN's plans for working on the CIF

GAIN would like to develop a business plan for the CIF to explore different options for the scale of the CIF as well as potential owners and investors. The investors for the CIF could be salt producers, parastatal companies, or private investors. If salt producers were to invest in the CIF, they could do so using loans guaranteed by the government. The government would then be able to compel them to repay the loans. In the past, salt producers have been somewhat hesitant to seek outside investment.

GAIN would also like to help ensure that high standards for quality assurance/quality control (QA/QC) are followed at the CIF, including using WYDs or titration to test the iodine content of the salt produced there.

Shewit Salt Supplier Private Limited Company

The Shewit Salt Supplier Private Limited Company is a salt repacking company in Mek'ele.

Quotas

Shewit has a small salt production quota, and the company receives KIO_3 from the revolving fund to match this quota.

Shewit buys additional KIO_3 from small private importers to supplement the KIO_3 it receives from the revolving fund. The importers likely charge slightly more for KIO_3 than does the revolving fund. GAIN has found it challenging to procure KIO_3 from

these importers. At one point when GAIN needed iodine solution to use as a reagent in WYD testing, it had to purchase potassium iodide instead of KIO_3 because no KIO_3 was available on the market.

Currently, Shewit is limited by its production capacity, including insufficient and unreliable electric power, rather than by quotas. Shewit is constructing a new factory that will allow it to expand its operations.

Pricing

Shewit produces higher quality salt than most other companies in Ethiopia in terms of the salt's level of purity, adequacy of iodization, and quality of packaging. Shewit sells its salt for 500 birr/quintal to compensate for its value additions, as opposed to the 200 birr/quintal rate set for salt producers. Shewit salt is sold at supermarkets at about the same price as salt from the US or Turkey, which is higher than the price for most other Ethiopian salt.

GAIN's QA/QC work with Shewit

GAIN contracted the Iodine Global Network (IGN) to develop a QA/QC manual for Ethiopian salt producers and repackers. IGN subcontracted 3 consultants from Emory University to prepare the manual. The Emory consultants developed a generic manual, as well as standard operating procedures (SOPs) specifically designed for the current state of salt production and iodization in Ethiopia.

One of the SOPs requires that processed salt not be stored directly on the ground to prevent the salt from becoming moist and losing iodine content. When GAIN staff first visited Shewit, they noticed that its bags of processed salt were sitting on the ground. GAIN recommended that Shewit store its processed salt on pallets, which minimizes loss of iodine content due to moisture. Shewit took the recommendation and began storing its processed salt on pallets.

Shewit previously employed one chemist who both managed salt production and tested the salt. The SOPs advise greater specialization, and in early 2015 GAIN suggested to Shewit that it hire more staff and diversify their roles. Shewit now employs both a production manager and a salt tester. When GAIN and GiveWell visited Shewit, the salt tester correctly demonstrated the steps required to check the iodine content of salt using a WYD.

Generally speaking, GAIN's comparative advantage is that it is better equipped to work with private businesses (small and large) and it engages both the public sector and businesses.

GAIN's priorities in Ethiopia

In addition to continuing its current initiatives and to carrying out its plans mentioned above, GAIN's plans for new initiatives to improve salt iodization in Ethiopia (if it had sufficient funding) include:

- Strengthening inspection, testing, certification and enforcement by working with CIFs, ECAE, and FMHACA. This will require:
 - putting in place internal QA/QC.
 - strengthening FMHACA’s and ECAE’s inspection and testing capabilities and bringing inspection and testing closer to the production site.
 - improving packaging design and branding and creating community-based enforcement systems through the Health Development Army to create demand, which is as low as 10% currently. This would cost around \$1.5 million for 2 years.
- Integrating iodine and micronutrient nutrition into work on Scaling Up Nutrition and, by creating joint national forums, continuing advocacy work for a CIF to be created.
- Creating more demand for iodized salt. A recent survey indicated that only about 10% of mothers in rural areas know about the link between inadequate iodine intake and goiter.
- Conducting an evaluation of Ethiopia’s iodization infrastructure. GAIN could hire a consultant to look into utilization of the Davey machines that GAIN donated and to talk to salt producers about potential business plans for a CIF. It might cost about \$40,000 to hire a consultant for a few months to do the evaluation, write a report, and then hold a workshop to share the findings. If GAIN explained in such a workshop that Shewit and the producers in the Somali Region are using their Davey machines but that Kadaba is not, this could help convince Kadaba to use the machines.

GAIN’s comments on “GAIN data on production and distribution of iodized salt 2011-2015,” a document GAIN shared with GiveWell

This document is GAIN’s summary of data that the MoH has sent to GAIN each month from 2011 to 2015. Salt producer associations send the data to the MoH. The report that each association sends to the MoH only contains aggregate production and distribution numbers for the association, not figures for individual salt producers within the association.

In 2011, when the MoH began sending this data to GAIN and other partners, it simply included the data in the text of emails. GAIN then suggested a spreadsheet format to the MoH to record monthly salt production and distribution data, which the MoH adopted. The document that GAIN shared with GiveWell includes figures that GAIN summarized both from the emails and from the spreadsheets. While discussing the spreadsheet with GiveWell, Mr. Abay spot-checked some of the figures he had inputted into the spreadsheet from MoH emails against the original emails, and the figures matched.

Variations over time in iodized salt production

Before 2012, two middlemen, Temesgen and Tofic, bought and distributed salt from the Afdera Salt Producers Mutual Support Association (ASPMSA). In early 2012, the government and the ASPMSA asked the two middlemen to transition out of the

market to prevent hoarding of salt. The middlemen sold off their remaining stock of salt, leading to unusually high salt sales early in the year. In the spreadsheet, the larger of the two numbers in each of F20 and F21 refers to the amount of salt stock sold off by the middlemen.

Production and distribution of iodized salt was slightly lower in 2013 and 2014 than in 2012. A number of factors contributed to this, including:

- stricter enforcement of adequate salt iodization that caused some salt trucks to be sent back from checkpoints.
- flooding in Dobi in 2014 that reduced production there.
- missing reports.

GAIN's work around the world

Comparing iodization progress in Ethiopia to other countries

In addition to Ethiopia, GAIN has worked in a number of other countries as part of the GAIN-UNICEF Universal Salt Iodization Partnership Project funded by the Gates Foundation. Ethiopia has seen the largest gain in the proportion of salt that is iodized of any country that GAIN has worked in. This is partially because iodization in Ethiopia started from a low baseline. Also, the MoH, GAIN, MI, and UNICEF have a strong partnership around iodine nutrition in Ethiopia.

Many other countries where GAIN has worked have also made significant progress in salt iodization, including India, Pakistan, Bangladesh, and China. The increase in the proportion of salt iodized in India was smaller than in Ethiopia, but due to India's large population, GAIN's biggest total impact in any country was in India. GAIN could prepare a report on its salt iodization work in India similar to the report it sent GiveWell about Ethiopia. China moved from about 80% AIS to about 90% while GAIN worked there, largely due to strong government support.

The Philippines and Niger have seen little progress on salt iodization. Niger imports salt from many neighboring countries and lacks the border controls to ensure that this salt is iodized. As a result, much of the imported salt is non-iodized industrial salt. Since it is difficult to make progress on USI in Niger, GAIN would not prioritize working there in the future if it had limited funds.

It is likely that Ghana's salt iodization coverage has declined over the last few years, including since GAIN began working there. There are thousands of small salt farmers along Ghana's coast, so it is hard to reach out to all of them to help them iodize. In addition, Ghana's government has not prioritized USI and enforcement as highly as Ethiopia's. Nevertheless, Ghanaians' mean urinary iodine content (UIC) is fairly high. This is likely because iodine occurs naturally in much of Ghana's drinking water and because Ghanaians consume large quantities of bouillon cubes made with iodized salt.

In Ghana and some other countries, the partnership with UNICEF has not always produced as strong results as in Ethiopia. However, GAIN and UNICEF have granted each other funds when one or the other has particular expertise on an issue.

In Tajikistan, GAIN helped salt producers aggregate their demand for KIO₃, and the producers saved 60%.

Many other countries have similar difficulties to Ethiopia in enforcing the quality of salt iodization. Some countries such as China and Senegal fine producers whose salt is not adequately iodized, which encourages producers to iodize better.

Plans for countries to work in

GAIN recently began working on iodization in Nigeria on a small scale because AIS coverage there declined. GAIN is spending about \$150,000 on salt iodization there.

GAIN would like to keep working on iodization in Ethiopia, India, Bangladesh, and Pakistan at a minimum. These countries have large populations and significant iodization programs. Indonesia would be next on GAIN's list. Indonesia has low iodized salt coverage but a relatively high national average UIC. GAIN's endline survey for the Partnership Project will show which islands in Indonesia have low average UICs. GAIN's next USI priority below Indonesia would be the Philippines.

Processed foods

GAIN mapped iodine legislation in many countries and found that some countries had legal loopholes allowing the use of non-iodized salt in processed foods. GAIN has worked to close those loopholes.

GAIN has also worked with food producers to encourage them to use iodized salt in their food. It convinced Kraft Foods in Egypt and Knorr in Nigeria to use iodized salt in their packaged foods by pointing out that this would allow the companies to promote the health benefits of their products.

GAIN successfully improved the iodine content of processed foods in Ukraine. It was not successful in Russia, where lawmakers did not pass a law requiring iodized salt to be used in processed foods.

(In Ethiopia, the USI law already makes clear that only iodized salt should be used in processed foods.)

Changes to GAIN's USI team

At both the central level and in countries, many GAIN staff working on USI have either left GAIN, reduced their hours, or reduced the proportion of their time that they spend on USI over the course of 2015. This is due to decreasing resources for USI and for GAIN's involvement in implementing programs that improve iodine nutrition.

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