



HEALTH SECTOR FINANCING REFORM/HEALTH FINANCE AND GOVERNANCE (HSFR/HFG) PROJECT

ETHIOPIA HEALTH FACILITY GOVERNING BOARD STUDY

September 2017

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Submitted to: Eshete Yilma
Health Systems Team Leader
United States Agency for International Development/Ethiopia

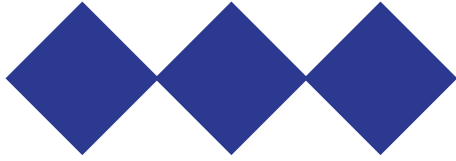
Scott Stewart, AOR
Office of Health Systems
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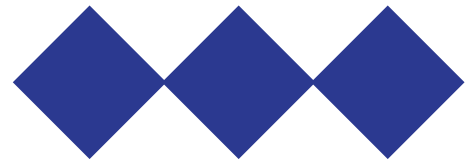
Abt Associates Inc. | 4550 Montgomery Avenue, Suite 800 North | Bethesda, Maryland 20814
T: 301.347.5000 | F: 301.652.3916 | www.abtassociates.com

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ACRONYMS

FMOH	Federal Ministry of Health
HCF	Health Care Financing
HFG	Health Finance and Governance
HMIS	Health Management Information System
RHB	Regional Health Bureau
SNNP	Southern Nation and Nationalities Peoples Region
WorHO	Woreda Health Office

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EXECUTIVE SUMMARY

Health facility governing boards were legally created in Ethiopia as part of a set of national health care financing (HCF) reforms implemented by the Ethiopian Federal Ministry of Health (FMOH). Established at both hospitals and health centers, governing boards are seen as a way to increase the autonomy and improve the governance of health facilities, including in implementing HCF reforms and making decision that can improve the quality of service delivery. Through qualitative informant interviews and review of secondary data collected in Amhara, Oromia, SNNP, and Tigray regions, this study sought to assess whether governing boards function in adherence to the legal and operational frameworks for implementing the governing board reform, and whether they contribute to better health facility responsiveness to community needs and improvements in service delivery.

Overall, the study found that health facility governing boards were providing oversight of HCF reforms; however, adherence to legal frameworks varied across regions. The frequency of holding board meetings was mixed. Generally, meetings were more regularly held by hospital than health center boards. The main constraint to convening regular meetings was the lack of availability of woreda/zone administrators to attend meetings. Boards also tended to be weak in meeting the minimum requirement of having two female members. Inconsistent remuneration to board members for attending meetings was also found. The most frequently discussed topics at board meetings were found to be budgeting and planning, followed by quality improvements to service delivery which was discussed in about half of all meetings. All respondents perceived that boards contributed positively to service delivery improvements. Recommendations for improving health facility governing boards include addressing board composition, compensation, and attendance, among others.

I. BACKGROUND

I.1 Country context

In 1991, Ethiopia entered into a new democratic process after 17 years of civil war and a military dictatorship. The Transitional Government, 1991-1994, declared Ethiopia a Federal Democratic Republic constituted of nine autonomous regions and two city administrations. The economy was liberalized and since then has been undergoing a process of economic restructuring and growth.

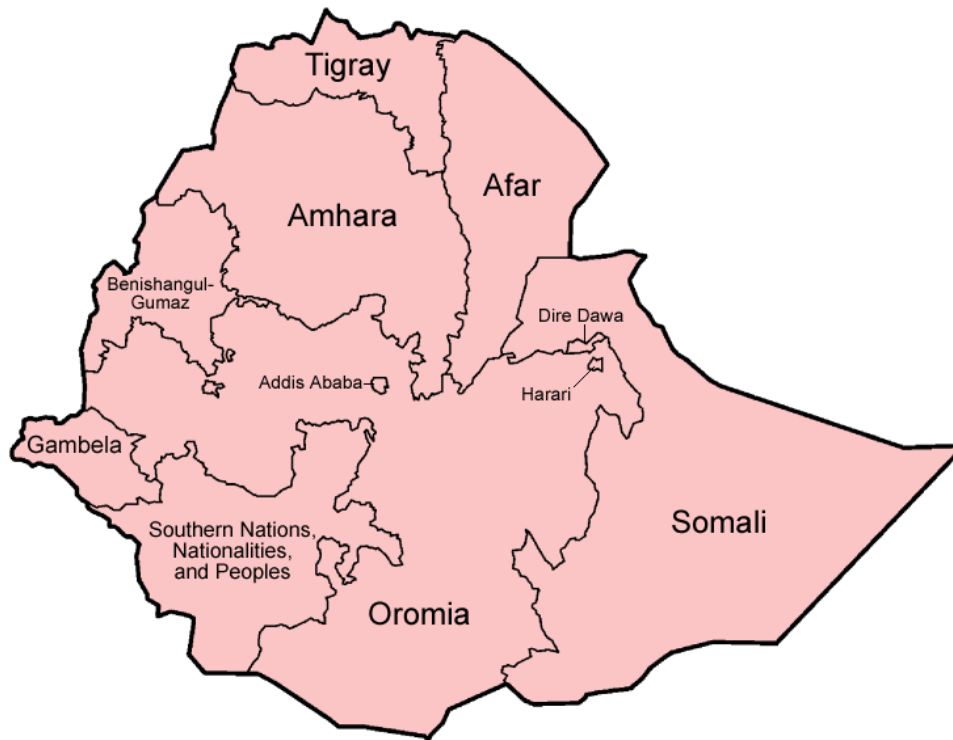
Ethiopia is a fast-growing nation with a population currently estimated at almost 102 million. The per capita income of US\$660 is much lower than the sub-Saharan African average of US\$1,505 in 2016 (World Bank 2017). In terms of maternal and child health indicators, in 2016, the under-five child and infant mortality rates were 67 and 48 per 1,000 live births, respectively, the maternal mortality rate was 412, and the fertility rate was 4.6 children per woman (Central Statistical Agency and ICF 2016). While coverage of basic services remains relatively poor, substantial progress has been made in recent years: women receiving at least one antenatal care visit increased from 27 percent in 2000 to 41 percent in 2014; skilled attendance at birth increased from 6 percent in 2000 to 16 percent in 2014; children sick with diarrhea being treated with oral rehydration salts increased from 13 percent in 2000 to 26 percent in 2011; children with symptoms of pneumonia taken to an appropriate provider increased from 16 percent in 2000 to 27 percent in 2011; and children sleeping under an insecticide-treated bed net increased from 2 percent in 2005 to 30 percent in 2011 (UNICEF 2008).

I.2 Government health policy and health care services

In the early 1990s, Ethiopia was recovering from a prolonged civil war. Physical access to health service providers was beyond the reach of the majority of the Ethiopian population, and even more difficult for the poorest segments of the population. The overall country budget was limited, resulting in inadequate financing of health care. For instance, in the 1995/96 fiscal year, annual per capita spending on health in Ethiopia was only US\$4.09 – too small an amount to buy good, basic health services (FMOH 2001). In addition, health service delivery was inefficient and inequitable, and quality of health care was generally poor.

In 1993, the government introduced a health policy that focused on disease prevention and promotion (Transitional Government of Ethiopia 1993), on which basis the 20-year Health Sector Development Program (FMOH 1997) was developed. In 2003, the Health Extension Program, a community- and household-level health program was introduced with a focus on rural communities (Banteyerga 2011). Through these programs, 16 health packages in the areas of disease prevention, family health, environmental hygiene and sanitation, and health education are intended to mitigate preventable diseases and improve maternal and child health.

Figure 1: Map of Ethiopia showing regions and city administrations



Ethiopia has nine regional states (Afar, Amhara, Benishangul-Gumuz, Gambella, Harari, Oromia, Somali, Tigray, and SNNP) and two city administrations (Addis Ababa and Dire Dawa). Within each region, the administrative hierarchy is divided into zones, woredas (districts), and kebeles (sub-districts). Health service delivery is decentralized and follows the country's administrative structure, which includes federal and regional governments. The FMOH is in charge of national policies, strategies, and developing standards. Regional health bureaus (RHBs) provide oversight and management of public health service delivery (FMOH 2015).

The Ethiopian health system operates in three tiers – primary, secondary, and tertiary level of care (FMOH 2015). The primary level includes the primary hospital, health center, and health post. The primary health care unit comprises a health center and five satellite health posts, which together serve approximately 25,000 people. Health centers provide preventive and curative services and serve as referral centers for health extension workers. The nearest health facility to rural kebele residents is the health post. There are two female health extension workers per health post, and they are supported by the Health Development Army¹ and appropriate government and community structures, with variations accommodating urban, rural, and pastoralist settings. Primary hospitals deliver inpatient and ambulatory services, including emergency surgical services, for a population of 100,000, and serve as the referral hospital for health centers in its catchment area. General hospitals deliver inpatient and ambulatory services to an average of 1 million people, and are the referral center for primary hospitals.

¹ The Health Development Army is comprised primarily of women's groups/networks that work to identify local health problems and solutions to address bottlenecks, scale up the dissemination of knowledge and best practices of the Health Extension Program deeper into communities, and increase uptake of critical services among community members through social networks and support (FMOH 2015).

Specialized/referral hospitals provide specialized and higher level curative services to a population of 5 million. At the time of the study, there were 3,335 health centers and 156 hospitals across Ethiopia (FMOH 2014).

Although the number of health facilities has been growing, they have not all been able to deliver quality health services. Some of the challenges they face include inadequate budget, frequent stock-outs of essential medicines, shortage of human resources, and absence of strong governance with transparency and accountability.

1.3 Health financing reforms

The Government of Ethiopia adopted a HCF strategy in 1998 that set forth a wide range of HCF reform initiatives that promote facility-level governance, planning and management of resources, and allow for the mobilization of resources through various revenue generation mechanisms at the facility level. Also included were safety net programs for the very poor and the establishment of risk-pooling measures through health insurance. The HCF reforms include the following components:

- **Revenue retention and utilization:** Allows public health facilities (health centers and hospitals) to keep the fees they collect from patients rather than remitting them to the Treasury, and to use this revenue to improve the quality of health services. The increased funding made available at the health facility level allows for improvements in areas such as infrastructure, utilities, and the procurement of medical equipment, supplies, and medicine.
- **Systematizing fee waiver system and standardizing exemption services:** To minimize financial barriers and ensure that the poorest of the poor have access to the full range of health services offered through the public system, Ethiopia institutionalized mechanisms to provide services to the poor free of charge through a fee waiver system and through the free provision of selected public health services through exemption (i.e., health education and treatment of tuberculosis patients, immunization of children under the age of five). The reform includes systematizing the fee waiver system, including the identification and certification of those who are eligible, to reduce inequities in access to health care across regions. In addition, the package of critical public health services provided free of charge to the entire population is standardized so that there is no variation among facilities and equity in access is enhanced.
- **Outsourcing of nonclinical services in public hospitals:** Encourages public hospitals to outsource non-clinical services such as laundry, security, and catering by contracting with companies with a comparative advantage in providing these services in order to improve efficiencies and reduce the burden on hospital management teams.
- **User fee setting and revision:** Because user fees did not reflect the actual cost of providing services, this reform stipulates that they be revised to reflect the costs of delivering health care services.
- **Establishment of a private wing in public hospitals:** In most regions and at the federal level, public hospitals are allowed to open and operationalize a private wing to generate revenue from patients who are willing to pay higher or relatively close to market rates for health services. The primary objective of using this revenue is to improve health workers' retention as hospital physicians are paid a percentage of the fees collected. The reform also provides alternatives and choices to private health service users and generates additional income for health facilities to use for service delivery improvements.

- **Initiation of health insurance:** To address the issues of high out-of-pocket spending for health services and financial barriers to care, and to generate more resources for the health sector over the long run, the Ethiopian government piloted and scaled up community-based health insurance for citizens in the agricultural and informal sectors, and conducted preparatory activities to launch payroll-based social health insurance for Ethiopians working in the formal sector.
- **Health facility autonomy through the establishment of governing bodies:** Most directly relevant to this study, this reform allows for increased health facility autonomy through the establishment of governing bodies at health facilities to contribute to the proper and timely use of facility resources and respond to client needs. These bodies are called “governing boards” at hospitals and “management committees” at health centers. For the purposes of this study, both will be referred to as governing boards. Governing boards are mandated and authorized to ensure that facilities are fully implementing HCF reforms, are offering the best patient care possible, and are functioning efficiently, effectively, and economically. Board members represent local government agencies, facility management, health workers, and the community.

Legal frameworks – comprehensive HCF legislation that includes the Health Service Delivery and Administration proclamation, regulations, and directives – along with implementation structures and operational manuals were developed to guide HCF reform implementation, and were adapted to fit the unique conditions and concerns of each regional state.² HCF reforms were introduced using a phased approach starting in 2004. The study regions – Amhara, Oromia, SNNP, and Tigray – were early starter regions. Beginning in 2008, reforms were expanded to Ethiopia’s remaining regions (Afar, Benishangul-Gumuz, Gambella, Harari, and Somali) and to Addis Ababa and Dire Dawa city administrations.

1.4 Health facility governing boards

The introduction of governing boards at health facilities is considered a critical reform area that allows facilities to use their resources to improve the quality of services in a more timely, transparent, and accountable manner. The regional legal frameworks authorized boards to: augment the financial resources available for health facilities by implementing different mechanisms such as efficient revenue collection and retention mechanisms; facilitate regular audits of financial activities; conduct timely reviews and approvals of facility annual plans and budgets; encourage community-facility dialogue; prioritize spending on quality improvements; and regularly review the financial and technical performance of health facilities. The following are some of the major governance challenges that health facilities faced prior to implementing the governing board reform:

- **Lack of autonomy:** Problems with health facility governance were due in part to a lack of autonomy. Hospitals were accountable to RHBs, and primary health care units were accountable to woreda health offices (WorHOs). Therefore, facility-level decisions such as those related to making structural improvements or major procurements needed to go through the central bureaucracy; hospital managers did not have the opportunity to make strategic decisions aimed at improving service delivery in their own facilities. Health centers also had challenges with autonomy as they were not considered as cost centers in the government structure. This meant that the Treasury did not earmark a budget directly to them; instead, they had to obtain their budget from WorHOs. Regular decisions related to planning, budgeting, and procurement were centralized at the woreda level and involved little or no consultation with facility managers.

² Regional proclamations, regulations and directives citations are included in the references section of this report.

- **Lack of responsiveness to community needs:** A centralized system of governance made health facilities very bureaucratic and unresponsive to communities and health facility users. Constraints to facility autonomy meant there was little room to prioritize local community needs. No mechanisms were in place to hear community voices or to address community grievances. In addition, target setting and monitoring mechanisms were poor in responding to community demands to improve the quality of services.
- **Lack of accountability:** The centralized management system meant that health facility managers were not directly accountable to their local government administrations and communities. Therefore, the managers did not take the initiative to implement innovative practices to improve service delivery because they did not feel a sense of ownership of their work or over their facilities.
- **Lack of health facility role in resource mobilization:** Because the health sector was chronically underfunded, facilities often ran out of funds budgeted for operational activities and therefore had to limit the quantity and/or quality of services they provided. Facility management was not directly involved in the planning and budgeting process, and managers never had the leverage to make their case for increased funding – and therefore increased quality – of services.

Regional legislations were passed (primarily in 2005/6) to allow health facilities in the study regions to introduce facility governing boards, empowering them to make more independent and timely decisions. The reforms were subsequently introduced to all regions and the two city administrations of the country. Directives and guidelines were adjusted to meet regional contexts. In many health facilities, governing boards have been operational for more than five years.

The mandate of health facility governing boards is primarily to:

1. Make facilities responsive to local needs and mitigate administrative complexities.
2. Facilitate linkages with the community.
3. Advocate for increased resources for facilities.
4. Serve as the major monitoring and decision-making body of facilities, and oversee the implementation process of all health reforms, especially HCF reforms, including:
 - Examining and approving facility strategic and annual plans.
 - Managing and following up on facility activities.
 - Reviewing and approving facility activity reports.
 - Devising mechanisms to enhance resource mobilization at hospitals.
 - Determining services that can be contractually outsourced to third parties.

Overall, there is little evidence on how facility boards function. Anecdotal evidence gathered through supportive supervision and other informal means has shown that the performance of health facility governance boards substantially varies from facility to facility and region to region. A survey of hospital governing board chairpersons in six regions conducted in 2012 found significant variance in terms of board rules and procedures, although representation from non-hospital government members and community members on boards were on average consistent across all regions (Ageze et al. 2012).

2. METHODS

2.1 Study aim

The main aim of this study was to assess whether governing boards: 1) are functioning in adherence to the legal and operational frameworks put in place in their respective regions of Ethiopia; and 2) contribute to better health facility responsiveness to community needs and improvements in service delivery. Also examined was the level of community participation in and female representation on boards, the support boards receive from government authorities and how it affected their functioning, and the identification of further needs for board strengthening.

2.2 Study design and data sources

A cross-sectional study based on qualitative interviews combined with document review and data extraction from routine monitoring systems was conducted in four regions with an aim to generate an analysis that is of national relevance.

Data collection methods and sources included:

- Document review of background literature and regional legal frameworks, including the legal mandate of governing boards by region and previous evaluation reports relevant to the study.
- Qualitative interviews with key respondents about the role, function, and contribution of governing boards. Respondents included: facility governing board members, health facility workers (non-board members), and government authorities from regions, zones, and woredas.
- Review and extraction of data from health facility records that included financial reports for two fiscal years, the preceding fiscal year (July 2012-June 2013) and the first fiscal year after the board started functioning (varied from board to board), and review and extraction of data from health management information system (HMIS) records for the same time frame. The status of HCF at facilities, including revenue collected and utilized, was taken as an indicator for assessing board performance in facility governance.
- Review and extraction of data from governing board minutes for all meetings convened in fiscal year 2012/13.

2.3 Sampling

Four regions were purposively selected for the study: Amhara, Oromia, SNNP, and Tigray. Amhara, Oromia, and SNNP were the first regions to implement HCF reforms that led to the formation of health facility governing boards, followed shortly thereafter by Tigray. The regions have significant experience implementing the governing board reform and are also the largest regions in Ethiopia in terms of population size.

Within each region, one zone was selected for study. In each study zone, two hospitals (one referral and one district hospital) and four health centers located in two or three woredas were included. Where there were few facilities, the number of woredas per zone was increased to three and in some cases four to access a sufficient number of health centers per zone. A total of 24 facilities (eight hospitals and 16 health centers) across the study regions were selected (Table 1).

Table 1: Regions, zones, and health facilities selected for study

Region	Zone	Woreda	Woreda Population	Facility Type	Catchment Population	Location*	Year Facility Established	Year Board Established
Amhara	East Gojam	Debremarkos	101,582	Hospital	3,500,000	In town	1965	2007
				Health center	40,461	In town	1972	2007
		Motta	38,200	Hospital	898,233	In town	2000	2007
		Enebesearmider	153,962	Health center	38,558	In town	2000	2007
		Huletijunese	277,651	Health center	24,349	Out of town	2011	2012
		Baso Liben	160,334	Health center	51,007	In town	2004	2009
Oromia	West Arisi	Sheshemane	139,967	Hospital	2,200,000	Out of town	1952	2007
		Bishan Guracha	215,600	Hospital	123,653	In town	2010	2010
			21,811	Health center	21,811	In town	2011	2013
		Negele	257,428	Health center	121,150	In town	2004	2008
		Adaba	173,119	Health center	38,119	In town	1984	2009
Assassa	233,955	Health center	65,610	In town	2000	2008		
SNNP	Gomogofa	Arba Minch	199,615 (Arba Minch Surrounding s) + 103,965 (Arba Minch Town)	Hospital	2,000,000	In town	1973	2007
				Health center	81,679	In town	1966	2006
		Chencha	137,834	Hospital	300,000	In town	1961	2007
				Health center	29,023	In town	2010	2010
		Mirab Abaya	91,976	Health center	44,618	In town	1998	2007
Ditta	102,418	Health center	33,753	In town	2008	2008		
Tigray	East	Adigrat	81,738	Hospital	850,000	In town	1950	2008
				Health center	64,000	In town	1972	2009
		Wukro	42,925	Hospital	500,000	In town	1993	2008
				Health center	23,129	In town	1997	2009
		Gulemekada	92,175	Health center	32,302	In town	2001	2009
Awalo	109,583	Health center	36,636	Out of town	2004	2011		

* "In town" refers to health facilities located in the regional, zonal, or woreda capital. "Out of town" refers to facilities located in rural areas, outside of these towns.

2.4 Data collection instrument development

Drawing from an analysis of regional legislation and preliminary visits to health facilities, the following research instruments were developed:

1. Interview guide for facility board members
2. Interview guide for facility health workers (non-board members)
3. Interview guide for woreda, regional, and zonal authorities
4. Financial data extraction form
5. HMIS data extraction form
6. Board minutes data extraction form

Interview guides were translated into Amharic prior to piloting and revised several times after piloting, with translations checked through back translation. Forms developed to extract data from health facility records were developed and revised after piloting to ensure that data categories were consistent with official government and/or facility finance and HMIS records.

2.5 Data collector training and piloting instruments

Data collectors were PhD students from Addis Ababa University. They participated in a six-day training session led by HFG. The training covered research design, methodology, objectives, and expected research outcomes; research ethics; conduct of qualitative research; use of qualitative guides including asking, probing, and use of voice recorders; ensuring informed consent; working with the instruments; and proficiency in using the interview guides.

Training was followed by piloting the data collection instruments at Zewditu Memorial Hospital and with regional health authorities in Addis Ababa. Researchers practiced using the interview guides with select respondents and using the data collection tools to extract information from the facility HMIS database, human resource and financial records, and board minutes. Debriefing after piloting helped to refine data collector understanding of study objectives, further revise study instruments, and better plan for data collection.

2.6 Data collection

Field data collection started once a letter of support from regional governments was received by the research team to present to respective zonal authorities. Oromia was the first region to receive the letter of support, followed by Amhara, SNNP, and finally Tigray. Two research teams traveled to each region simultaneously. Data collection was conducted in 2014.

Interviews were conducted with 175 respondents across the four regions. Informants included board members, non-board health workers, and government authorities in administration, health, and finance. At least three board members, preferably the board chair, facility CEO, and/or medical director; administrative officials such as zone and woreda administrators; finance officials such as zone and woreda finance representatives; and health worker, civil society organization, and community representatives were targeted for interview. Respondent type, gender, and board member status are detailed in Table 2.

Table 2: Number and type of respondents interviewed in Amhara, Oromia, SNNP, and Tigray regions, Ethiopia, 2014

	Regional Health Bureau	Regional Finance Bureau	Zonal Admin Office	Zonal Health Department	Zonal Finance and Economic Dev't Dep't	Woreda Admin Office	Woreda Health Office	Woreda Finance and Economic Devt. Office	Women's Rep	CEO	Medical Director	Community Rep	Health Worker Rep (Board Member)	Health Worker (Non-Board Member)	Gender		Board Member		Total Interviews
															Male	Female	Yes	No	Total
Amhara	1	1	1	1	1	8	4	3	0	4	0	4	5	11	36	8	27	17	44
Oromia	1	0	0	2	1	6	5	4	1	5	2	4	6	11	38	10	34	14	48
SNNP	0	0	1	2	2	6	4	3	0	6	2	5	1	12	39	5	27	17	44
Tigray	1	1	0	1	0	4	4	2	1	6	0	4	5	10	28	11	19	20	39
Total	3	2	2	6	4	24	17	12	2	21	4	17	17	44	141	34	107	68	175

3. FINDINGS

3.1 Board profile

This section reviews study findings on how governing boards were constituted, terms of membership, and how well they functioned with respect to organizational processes such as regularity of meetings and the nature of board member participation.

3.1.1 Composition and terms of membership

Board composition varied by region in accordance with each regional directive but typically regions have similar rules for membership, i.e., hospital boards have seven or eight members and health center committees have five to seven members, with representatives from government offices, health facilities, and communities. The only difference among them is the number and type of government offices represented on the board. An example of board membership is that of Oromia, which has the most detailed board membership requirements (per the Oromia Regional State Regional Cabinet 2007), as follows:

1. Zone/woreda/city administrator
2. Zone/woreda/city administration health department/office head
3. Zone/woreda/city administration representative of finance and economic development bureau
4. Hospital general manager (CEO) member and secretary (non-voting)
5. Hospital medical director
6. Representative of hospital staff
7. Community representative, resident in the woreda where the hospital is located

Tigray board member requirements are distinctive from those of other regions, in that they emphasize the inclusion of representatives of civil society organizations (e.g., professional and local grassroots associations including youth, women, traders, workers, and farmers) (Tigray Regional State Council 2006). A health office representative is required for all boards, except in Amhara.

Other than officials who automatically have a seat on the board, RHBs nominate hospital board members, and WorHOs/Zonal Health Departments nominate health center board members. Boards are accountable to these authorities and are expected to regularly report to them on their performance. Professional competency, work experience, motivation, trust, and residence are considered in determining nominations.

Based on interview data, across all regions, respondents were satisfied with the nature of board composition. They recognized that the inclusion in board membership of senior government officials is valuable because their political standing is important to facilitating facility board decision making. Nevertheless, there was consensus among respondents that these higher-level members were not always able to participate in board activities due to other commitments.

In some instances, alternates (delegates) for senior government official board members would participate in board meetings, but respondents felt this was not effective, as these alternates were either not well oriented or were not empowered to make decisions as a board member. When

representatives from the finance sector (i.e., Bureau of Finance and Economic Development, Zone Office of Finance and Economic Development, and Woreda Office of Finance and Economic Development) were included as board members, their financial expertise was valued for budget-related activities and ensuring that governmental financial regulations were followed. They were not, however, always included on boards. In Tigray, board members could call on finance department personnel, although the latter were not formally part of the board. Across all regions, respondents consistently stressed the need to improve board member understanding of financial topics.

All regional directives require health worker and community representation, and also a minimum number of two female members. In some regions, gender, youth, and religious group balance was noted to be weak by some respondents. Despite a minimum requirement of participation of two female board members, board minutes found that only 26 percent of health center board meetings and 25 percent of hospital board meetings included the mandated two or more female participants. Tigray had the strongest female representation at their board meetings, and SNNP was at the other extreme with no female representation (Tables 3 and 4).

Table 3: Percent of female facility board members as recorded in board meeting minutes in Amhara, Oromia, SNNP, and Tigray regions, Ethiopia 2014

	Amhara (n=40)		Oromia (n=45)		SNNP (n=6)		Tigray (n=50)		Total (n=141)	
	Health Center	Hospital	Health Center	Hospital	Health Center	Hospital	Health Center	Hospital	Health Center	Hospital
Percent of female facility board members	7%	13%	18%	11%	0%	0%	24%	22%	17%	16%

n= Number of board meetings

Table 4: Percent of facility board meetings with the minimum of two female representatives attending in Amhara, Oromia, SNNP, and Tigray regions, Ethiopia 2014

	Amhara (n=40)		Oromia (n=45)		SNNP (n=6)		Tigray (n=50)		Total (n=141)	
	Health Center	Hospital	Health Center	Hospital	Health Center	Hospital	Health Center	Hospital	Health Center	Hospital
Percent of facility board meetings with the minimum of two female representatives	3%	0%	36%	13%	0%	0%	41%	52%	26%	25%

n= Number of board meetings

Across all regions, the regional directives specify that facility worker and community representatives are elected by their constituencies whereas the remaining board members are representatives of government offices and local administrations. The main criteria for board members include a willingness to serve, a diploma, and no personal benefit from being a board member or conflict of interest with the facility. Community representatives are exempt from the educational requirement.

Board member terms of service differ in the study regions – five years in Amhara, three years in Oromia and SNNP, and two years in Tigray. Per the regional directives, no board members except facility managers and members representing local government offices and associations are allowed to serve

more than two terms. Board members representing government offices, the hospital medical director, the facility manager, and associations can extend their board tenure for as long as they remain in their positions. Study interviews found that board member turnover varied by region. Some regions did not report a problem with term limits because there was high turnover of board members (Oromia). In Amhara and SNNP, turnover was not reported to be a problem and members tended to serve for at least two years, with many staying on for a second term. In Tigray, respondents reported that despite tenure limits, representatives stayed on due to their continued positions in community associations.

In terms of ethics, the directives specify that board members are not meant to impose their personal interests in decision making and must keep matters discussed at meetings confidential. Board members can be dismissed if there is proof of misuse of facility income for personal benefit or corruption, or if they are absent from three consecutive meetings without reason, are not interested in serving on the board/committee, or are not meeting duties and responsibilities as determined by the board. While most respondents did not report problems with board member behavior, there were a few instances where board members were dismissed. For example, in Amhara, one board member was terminated for lack of professionalism and inadequate contributions to board productivity.

As per the regional directives, allowances for attending board meetings are determined by RHBs. Remuneration was inconsistent, varying across and within regions, with no respondent in SNNP having reported receiving financial incentives for participating in board meetings. Overall, across all regions, despite low and inconsistent monetary compensation and reported lack of training, respondents reported being personally motivated by their participation on the board, particularly when they could see how board decisions contributed to improvements in health facility performance.

3.1.2 Board functioning

The regional directives stipulate that ordinary board meetings are meant to be held every month in Oromia and every three months in Amhara and SNNP; in Tigray, the frequency is determined by each board. An analysis of board minutes reveals board meeting frequency ranging from 1 to 13 meetings for the year prior to data collection (Table 5). Amhara exceeded its mandate of having one meeting per quarter. Among the boards that were to meet every month, Tigray had the most regular health facility board meetings (7.3 average for health centers, 10.5 average for hospitals) in contrast to SNNP that had the least (1.7 for health centers, 1 for hospitals). Averaging across regions, board minutes suggest that hospital board meetings were more frequent than those at health centers, except in the case of SNNP; however, the overall number of meetings was already low in SNNP.

Table 5: Frequency of board meetings and number of board meeting participants in Amhara, Oromia, SNNP, and Tigray regions, Ethiopia, 2014

	Amhara (n=40)		Oromia (n=45)		SNNP (n=6)		Tigray (n=50)		Total (n=141)	
	Health Center	Hospital	Health Center	Hospital	Health Center	Hospital	Health Center	Hospital	Health Center	Hospital
Frequency of meetings range	1-13	3-12	3-10	8-11	1-2	1-1	7-8	9-12	1-13	1-12
Frequency of meetings average	7.3	7.5	5.5	9.5	1.7	1	7.3	10.5	5.4	7.1
Average number of participants	4.5	8.2	5.6	6.3	5.8	6.5	5.6	6.6	5.4	6.9

n= Number of board meetings

Across all regions, respondents reported problems in ensuring that facility boards met regularly. Some reported that setting a fixed date helped to ensure that meetings would take place. However, respondents reported that the main constraint to meeting regularly was the lack of availability of woreda/zone administrators to chair board meetings, as they are required to do for most boards. When board meetings did not take place, board decisions were delayed, which had implications on decisions relevant to health facility performance and utilization of internal revenue.

As per the regional directives, board members are meant to attend every meeting, but quorum is accepted if more than half of the board members attend, with the exception of Amhara where two-thirds are required to attend. In interviews, respondents in Amhara reported that all board members needed to be present for a board meeting to be held. Any absences were seen as reason to delay meetings. However, information from the Amhara board meeting minutes contradicts this. While none of the 11 hospital meetings were held with fewer than seven people, 29 health center meetings frequently had five members in attendance, but five meetings were held with as few as two or three members.

A health facility governing board may hold extra-ordinary meetings if proposed by one-third of its members. Some regions may hold the extra-ordinary meetings frequently, others not. Likewise, their primary reasons for doing so might vary. During interviews, respondents from Amhara and SNNP reported extra-ordinary meetings were held frequently at most facilities in those regions; the meetings were called primarily to address urgent matters on budgeting or service delivery that could not be solved by facility management. By contrast, in Oromia, information from board minutes showed that extra-ordinary meetings were extremely rare (4 extra-ordinary meetings vs. 137 ordinary meetings reported in one year across 23 health facilities in the region). All four extra-ordinary meetings in Oromia took place at the hospital level; two of them at the regional hospital and two at the district hospital. Reasons for calling the Oromia extra-ordinary meetings varied but included clarifying performance reports and why salary increments were not forthcoming, selecting high-performing workers, discussing incentive payments and revenue generation by private wings, and reviewing construction of additional rooms at the hospital.

As per the regional directives, if board members do not agree unanimously on a decision, a vote is held. The majority vote rules; if tied, votes that include that of the chairperson's determine the verdict. Respondents confirmed that when boards made decisions, those decisions were not considered controversial because respondents were aware of board procedures.

3.2 Board roles

This section reports on the technical areas of work for which governing boards are meant to be responsible and the content of agenda items as reported in board meeting minutes. Also reviewed are interview data and, where possible, routine HMIS data, related to financial planning, service delivery improvements, and accountability and responsiveness of health facilities.

Overall, the availability of data on meeting minutes varied across regions, with health facility boards in some regions reporting data from frequent meetings on a consistent basis (e.g., Tigray with 50 meetings reported by six facilities over a seven-month period) and other regions having a paucity of meetings (e.g., SNNP with six meetings between five facilities). The heterogeneity in the data collected has implications for interpretation of the content summarized below. For example, in SNNP health center boards discussed budgeting and planning in all of their meetings. However, the total number of board meetings was only four in health centers and two in hospitals for a regional total of (n=6) meetings.

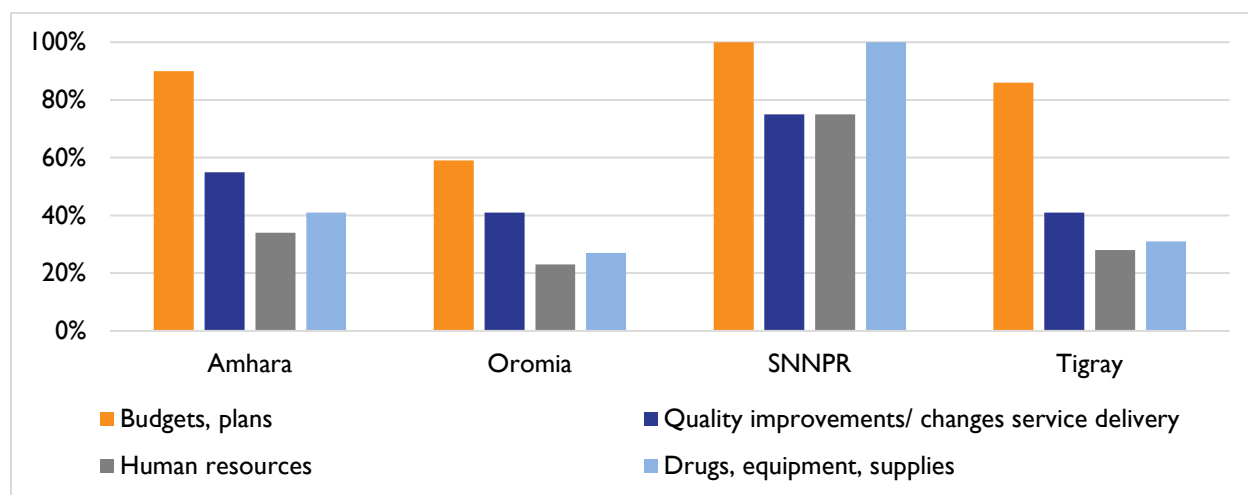
3.2.1 Governing board meeting topics

Health centers

Across all health centers in all of the study regions, 84 meeting minutes were reviewed. The number of health center board meetings conducted (and therefore meeting minute records) was similar in Amhara [n=29], Oromia [n=22], and Tigray [n=29], but significantly lower in SNNP [n=4].

Overall, budgeting and planning was the most commonly discussed topic during board meetings, and on average was discussed in 81 percent [n=84] of board meetings. Across all regions, it was discussed in nearly all meetings (SNNP 100% [n=4], Amhara 90 percent [n=29], Oromia 59 percent [n=22], Tigray 86 percent [n=29]). Topics included reviewing/approving health center annual plans, detailed budget breakdowns, budget requests/approval for specialty items such as a generator or staff per diem (Figure2).

Figure 2: Content analysis of health center board meeting minutes in Amhara, Oromia, SNNP, and Tigray regions, Ethiopia, 2014 (n=84)



The second most common topic of board discussion was quality improvements and changes in service delivery. This was discussed in 48 percent [n=84] of meetings overall (75% SNNP [n=4], 55% Amhara [n=29], 41% Oromia [n=22], 41% Tigray [n=29]), and generally included topics such as construction of additional wards, comparing current and previous performance, and making improvements to the reception and waiting room/area. Drugs, equipment, and supplies were discussed in 37 percent [n=84] of meetings across all regions (SNNP 100% [n=4], Amhara 41% [n=29], Oromia 27% [n=22], Tigray 31% [n=29]), while human resources were also an important topic, discussed on average in 31 percent [n=84] of health center board meetings, with high variation in the number of meetings at which it was discussed across regions (SNNP 75% [n=4], Amhara 34% [n=29], Oromia 23% [n=22], Tigray 28% [n=29]). In SNNP, discussions focused on worker performance and hiring additional facility staff.

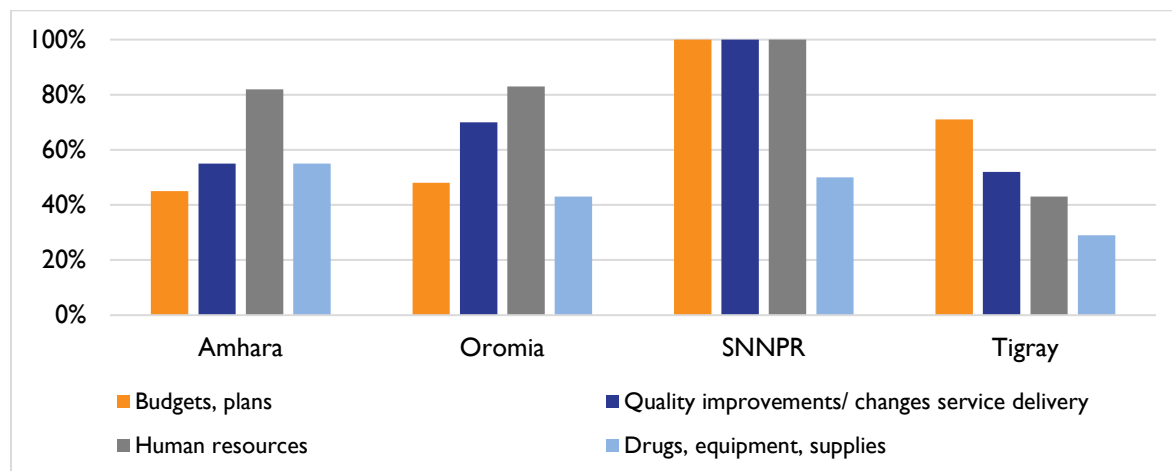
Hospitals

Across all regions, there were records for a total of 57 hospital board meetings. Oromia [n=23] and Tigray [n=21] had the highest frequency of board meetings, while fewer were held in Amhara [n=11] and SNNP [n=2].

In hospital board meetings, recorded minutes indicated that human resources and budgeting and planning were the two most commonly discussed topic across all regions. Both topics were discussed in just over half, or 55 percent [n=57] of all meetings. Human resources discussions often focused on staff

shortages, staff performance and behavior, disciplinary action against ill-performing staff particularly with respect to the night shift, and efforts to motivate and reward high performing staff members (Figure 3).

Figure 3: Content analysis of hospital board meeting minutes in Amhara, Oromia, SNNP, and Tigray regions, Ethiopia, 2014 (n=57)



As was the case with health center boards, quality improvement was also frequently discussed and was brought up in about half, or 49 percent [n=57] of all meetings (Amhara 55% [n=11], Oromia 70% [n=23], SNNPR 100% [n=2], Tigray 52% [n=21]). Drugs, equipment and supplies were discussed 33 percent of the time (Amhara 55% [n=11], Oromia 43% [n=23], SNNP 50% [n=2], Tigray 29% [n=21]).

3.2.2 Financial decisions and planning

All regional directives specify that governing boards are responsible for reviewing annual work plans and corresponding budgets, including plans to raise and spend internal revenue. Overall, respondents were positive about their board’s ability to raise internal revenue and the potential to improve facilities with these revenues.

Several respondents reported challenges with budgeting; in particular, the decline in funds, especially non-salary operational budgets, received from the government treasury and the need to make up for this shortfall. Respondents also felt they did not have the capacity/training to adequately review summary budgets, although their role deciding on budgets and appropriate allocation of funds was recognized as crucial for health facility functioning.

3.2.3 Oversight of health care financing reform implementation

Private wings and outsourcing

As per the regional directives, health facility governing boards are responsible for providing oversight for the establishment and functioning of private wings at hospitals, and for reviewing and authorizing health facility outsourcing. In general, respondents reported that these processes followed regional financial rules and regulations.

With regard to private wings, while some hospitals did open them, respondents noted variations in their implementation and a series of challenges in their operation, leading in some instances to their closure. Issues that needed to be addressed included managing staff expectations on being assigned to the private

wing, the appropriateness of running a private wing in their catchment area, and community awareness and understanding of the role of the private wing.

Boards also provide oversight of facility outsourcing of non-clinical services such as cafeteria catering, security, and cleaning services. There were instances when boards had to resolve challenges related to bidding on these services. In some cases, oversight took a considerable amount of time as contractors did not always meet their obligations. Study interview data showed that the extent to which non-clinical services were outsourced varied. Respondents also had differing levels of awareness about the possibility of outsourcing.

Fee waiver and user fees

Governing boards also provide general oversight for the reimbursement of fees to health facilities for services provided to fee waiver beneficiaries. However, overall implementation of the fee waiver program is managed directly between communities (selection of eligible households), woreda officials (approval of the list, budgeting and reimbursement for services provided) and health facility management (provision of services for fee-waived patients, submission and follow-up of reimbursement requests to woreda administrations). While board respondents were not directly involved in overall management of the fee waiver system, they noted at times experiencing delays in reimbursement by government offices that issued waiver certificates.

Governing boards also review requests from health facility management about revising user fees. In SNNP, user consultation fees were set as a result of a joint effort between facility management and the board, with management developing and proposing a plan to the board for suggestions/revisions or approval.

Audits

The regional directives state that facility governing boards are responsible for arranging audits. Respondents reported boards facilitating audits, but indicated that in some cases the ability for audits to be conducted was constrained by a lack of available auditors in the Ministry of Finance bureau/offices.

Retained revenue utilization and service improvement

Facility governing boards are responsible for ensuring that internal revenue collected at facilities is dedicated to service quality improvements. All respondents perceived that boards actively contributed to service delivery improvements by approving the use of retained revenue to resolve medicine/supply shortages; supporting facility management in reviewing staff performance and motivating staff; and changing how services were delivered to improve quality of care. All respondents reported that these types of enhancements led to improved access to services, particularly for facility-based obstetric deliveries. Respondents reported that internal revenue was most commonly used to improve service delivery in the following ways:

- Outreach to mothers for facility deliveries
- Free delivery services for mothers
- Improving mother's waiting room
- Providing food for expectant and delivering mothers at facility
- Supporting referral transport for mothers to other facilities
- Ensuring infrastructure (electricity, piped water, new construction, e.g., delivery rooms)
- Hiring contract staff

- Organizing the cafeteria and reception/waiting room/area
- Ensuring 24 hour a day operating hours

In some instances, respondents noted that there were still shortages or challenges, particularly for more expensive equipment (e.g., generators, computers, building improvements, ambulances).

The financial records reviewed as part of the study showed that across all health facilities there seems to be a general increase in internal revenue raised, although the extent to which this happened varied. The main source of this revenue was derived from fees charged for medicines and consultations. While non-medical services were a relatively minor financial contributor, there was a wide range in the increases reported in this area across facilities.³ Furthermore, the study found that health facilities are not spending all of the internal revenue raised, and therefore there is an opportunity to spend those additional funds on quality improvements or other facility health facility priorities.

Human resources

The lines of responsibility between management and the board with regard to reviewing performance of staff was reported to be blurred by some respondents. Facility management is responsible for hiring and firing staff, while boards decide more broadly on the organizational structure and number of staff required. Recorded meeting minutes indicate that human resource issues, particularly lackluster performance of staff, staff shortages, and providing rewards to recognize top performers and motivate staff in general, were frequently discussed during board meetings.

3.2.4 Accountability and responsiveness

Facility governing boards were constituted at the facility level in Amhara, Oromia and Tigray. In SNNP, per that region's regional directive, governing boards were expected to be formed at the woreda level, and therefore provide oversight over several health centers. However, respondents from hospitals and health centers in SNNP were not able to consistently confirm that this was the case; several mentioned that the board was specific to their facility.

As per the regional directives, all boards are supposed to be accountable to zonal/woreda authorities, except in Tigray. In Tigray, boards are to report to regional/zonal/woreda administration on financial matters and to health authorities on technical issues. Responses from study interviews in Tigray pointed to a general adherence to these levels of accountability; however, there were variations. Respondents from other regions also reported differences in technical oversight from health bureaus versus administrative oversight from other parts of government. In Amhara, some respondents indicated that hospitals were accountable to the RHB for technical issues and to zonal authorities for administrative issues. Respondents from health center boards in Amhara confirmed that they reported to the WorHO. In SNNP and Amhara, respondents felt that the oversight and support provided by the RHBs helped with income generation, budget use, and other technical activities.

Some respondents mentioned having received some training, but no further details were shared. In SNNP, respondents mentioned that training did take place but involved higher-level health system personnel, with little sharing with other board members overall. A few respondents also mentioned experience-sharing activities and were positive about these opportunities when they occurred.

³ Illustrative measures to raise revenue from non-medical services include: sale of non-medical materials like grass, trees, and farmland products; provision of non-medical services such as hall rental and cafeteria services; and receipt of donations from the community, town administration, and/or development partners.

With regard to public transparency, only the Tigray regional directives specify that boards must inform the public about facility performance. In Oromia, the regional directives specify that boards are mandated to take corrective measures on the basis of public grievances. Respondents varied in what they reported about board transparency. Non-board members were less aware of board decisions and board functions. In addition, there seemed to be different understanding among board members on the extent to which and how board decisions were communicated to health workers and communities. Various formal and informal practices for sharing board decisions with health workers and communities were reported across all of the studied health facilities in all of the regions.

The regional directives specify that governing boards have a responsibility in ensuring that health facilities meet the expectations of communities and that there is communication between facilities and communities. Board members from all regions felt that the strengthened community partnership was an important board function and achievement. In addition to having a community representative on the board, mechanisms that channeled feedback and dialogue with communities were implemented in several different ways, such as surveys, suggestion boxes, colored cards reporting client satisfaction, and regular forums/meetings.

Overall, respondents felt that they had a constructive relationship with those responsible for the governance of health facilities, working with them collaboratively to review facility budgets and provide oversight. In a few instances, boards intervened to remove CEOs that were deemed to be not performing.

3.2.5 Contextual factors limiting board influence

In terms of contextual factors that constrained board effectiveness in supporting management decisions to improve health facility performance, respondents reported there was an overall lack of awareness among some board members about the HCF reforms being implemented in Ethiopia. The implications affected how well facility governing boards and facility management were able to implement decisions and whether health providers understood the measures being instituted.

Although empowered to support facility managers in improving staff motivation, neither boards nor managers can fire health providers due to civil service rules. Board influence is therefore limited in terms of the impact it can have on human resources in facilities, which can also impact the quality of service delivery.

Board members also were cognizant that they could not address all constraints in infrastructure, particularly large investments.

3.3 Respondent suggestions for strengthening boards

Better orientation, training, and experience-sharing opportunities to improve board member capacity were uniformly mentioned by all respondents as being a strong need. Two areas that were highlighted for training were financial management and health, for board members unfamiliar with those topics.

Some respondents also indicated the need to improve board composition in a way to address representation by women, religious leaders, and elderly community members. Also highlighted was the need to have influential and engaged people on the board to ensure meetings were convened regularly and those who attended had decision-making authority.

In Amhara, Oromia, and Tigray, respondents stated that having the same administrative representative required to attend board meetings at several facilities was challenging, especially considering their daily responsibilities. Even in SNNP, where the board is at times convened at a cluster level and not at a facility level, ensuring participation by board members who are from administrative offices remained a major challenge.

Respondents also expressed the need for more consistent support to be provided to board members in terms of financial incentives or travel per diems for attending board meetings. Some suggested instituting mechanisms to recognize performance by board members. Improving understanding of and guidance provided to regional/zonal/woreda authorities on how to replace board members that are not able to perform their roles was also identified by respondents as an area that could use strengthening.

4. RECOMMENDATIONS

Based on study findings, the following recommendations for improving health facility governing boards are suggested:

Board composition

- Place more emphasis on achieving gender balance.
- Board members who are high-level officials from woreda/zones/regions need to participate in regular board meetings. They should not send a representative or delegate to take their place at board meetings. This needs to be clearly communicated to each board and board member by those who assign government representatives.

Board member compensation

- In line with regional legislation, board members should be paid the allowed compensation for attending board meetings.

Board practices and capacity

- Problems regarding inadequate meeting frequency need to be resolved. Supervisors/higher-level officials should ensure that board meetings are taking place regularly; doing so will have an impact on facility performance.
- Given the high turnover of board members, new members should be provided with training on member roles and responsibilities, and an orientation on planning and budgeting.

Accountability

- More clarity on chains of accountability is needed for both board members and facility management.
- Clarity also is needed on the expected/appropriate channels of communication between boards, facility management/staff, and communities.

Awareness

- Awareness of HCF reforms by health facility governing boards, facility management/staff, and communities needs improvement.

ANNEX A: REFERENCES

- Ageze, Leulseged. March 2012. Health Facility Governance in the Ethiopian Health System. Health Systems 20/20 Project.
- Ageze, Leulseged, Berhanu, N, Bradley, E, Conteh, D, Linnander, E, Mengistu A, McNatt, Z, Tatek, D, Thompson, J. April 2012. Functionality of Governing Boards and Their Influence on Hospital Performance in Ethiopia. Submitted to Ethiopian Federal Ministry of Health. Yale Global Health Leadership Institute.
- Amhara National Regional State Council. July 2005. Proclamation No. 117/2005, The Amhara National Regional State Health Service Provision and Administration Proclamation, Bahir Dar.
- _____. May 2006. Regulation No. 39/2006, The Amhara National Regional State Health-care Resource Generation System Implementation, Bahir Dar.
- Amhara National Regional State Health Bureau, June 2012, *Health Care Financing Reform Implementation Directives Amended*, Bahir Dar
- Banteyerga, Hailom. 2011. Ethiopia's Health Extension Program: Improving Health through Community Involvement. Perspective *MEDICC Review* 13, no. 3 (July): 46-9. <http://dx.doi.org/10.1590/S1555-79602011000300011>.
- Central Statistical Agency [Ethiopia] and ICF. 2016. Ethiopia Demographic and Health Survey 2016: Key Indicators Report. Addis Ababa, Ethiopia, and Rockville, Maryland, USA.
- Federal Ministry of Health (FMOH). 1997. Health Sector Development Program. Addis Ababa, Ethiopia.
- _____. 2001. National Health Accounts 1995/96. Addis Ababa, Ethiopia.
- _____. November 2014. Health and Health Related Indicators. Addis Ababa, Ethiopia.
- _____. October 2015. Health Sector Transformation Plan 2015/16-2019/20. Addis Ababa, Ethiopia
- Transitional Government of Ethiopia. 1993. Health Policy of the Transitional Government of Ethiopia. Addis Ababa, Ethiopia.
- Oromia Regional State Council. March 2005. Proclamation No 93/2005, Proclamation to Provide for Health Service Delivery and Administration of Oromia Region, Adama.
- _____. July 2005. Regulation No 56/2005, Regulation to Provide for Health Service Delivery and Administration of Oromia Region, Adama.
- Oromia Regional State Regional Cabinet. March 2007. Oromia Regional State Health Service Delivery and Health Facilities Administration Proclamation Implementation Directive, Addis Ababa.
- SNNP Regional State Council. August 2004. Proclamation No. 84/2004, A Proclamation for the SNNP Regional State Health Service Delivery and Administration, Awassa.
- _____. December 2005. Regulation No. 46/2005, *Health Service Delivery, Administration and Management Regulation of SNNP Regional Government*, Awassa.
- SNNP Regional State Health Bureau. November 2006. A Directive for the SNNP Regional State Health Service Delivery and Administration, Awassa.

Tigray Regional State Council. March 2006. Proclamation No. 103/2006, Health Service Delivery, Administration and Management Proclamation of Tigray Regional Government, Mekele.

Tigray Regional State Council. February 2007. Regulation No. 42/2007, Health Service Delivery, Administration and Management Regulation of Tigray Regional Government, Mekele.

Tigray Regional State Health Bureau. 2007. Health Service Delivery, Administration and Management Regulation of Tigray Regional Government, Mekele.

UNICEF. 2008. Countdown to 2015: Tracking Progress in Maternal, Newborn, and Child Survival - The 2008 Report. New York, NY, USA.

World Bank, The. 2017. Sub-Saharan Africa – Data, Accessed on August 10, 2017 from the <http://data.worldbank.org/region/sub-saharan-africa?view=chart>.

