ENGINEERS’ PROPOSAL FOR REDUCING POVERTY AND ERADICATING HUNGER FROM ETHIOPIA

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September 2002
ADDIS ABABA
Preface:

It is to be remembered that lots of discussions and debate had been going on in various forums throughout Ethiopia last year to find and propose a lasting solution for reducing poverty and eradicating hunger from Ethiopia. I would like to thank you for giving me this chance to present here the proposal which I presented in the meeting organized by the Ethiopian Association of Civil Engineers which I thought might help to eradicate hunger and reduce poverty in Ethiopia.

What is the problem? Is there really a problem? Does starvation and poverty really exist in Ethiopia?

It is an open secret that hunger had been widespread in Ethiopia in the past and is materializing recurrently at present. The prime reason attributed to the downfall of the Emperor Haileselassie’s Government is the famine in Wollo region that occurred in 1974. The Dergue regime was also toppled primarily because it could not solve the problem of the recurring hunger. The present EPRDF government is also kept very busy in alleviating the widespread hunger. From the present perspective, it is surmised that famine is going to be the major problem in our country for the coming many more years. If we agree in this viewpoint, I will try to give my explanation below why many Ethiopians are starving.

The Direct Outcome of unemployment is starvation and poverty

Unemployment = Starvation + Poverty

For what reasons are we—Ethiopians hungry and poor? It has been said time and again that 85% of the Ethiopian population or 50 Million Ethiopians are engaged in agriculture or related areas. If this much population is
productive, why are we starving and living in poverty? We have to deeply consider these two facts below and find out the truth.

1. 50 Million Ethiopians are engaged in agriculture
2. Ethiopians are forever hungry

These two facts are mutually exclusive, the first contradicts the second and vice versa. The Population of Ethiopia is estimated to be about 63 Million out of which 85% are believed to be engaged in Agriculture. We are told that there are about 10 Million households relying for their subsistence on farming. This fact displays that most Ethiopians are engaged in agriculture. This is the first reality.

The second reality is that many Ethiopians are always hungry and poor. From times dating back to Emperor Menelik’s reign till the present regime, poverty and starvation have been haunting the major part of the Ethiopian population.

Since these two facts are mutually exclusive, we can not accept both of them as valid realities simultaneously: One of them should emerge as a valid fact and invalidate the other.

**Which fact should we accept and which one should be rejected?**

In my point of view, it is better if we accept the apparent reality we witnessed recurrently for many years that we-Ethiopians are ever hungry and poor and reject the assertion that 85% of the Ethiopian population is engaged in agriculture.

If we proceed with this understanding, we find out the true picture and realize that 85% or 50 Million Ethiopian have settled on farmsteads, have land under their control or they claim to be farmers but they are actually not productive farmers. They have not engaged themselves in proper farming
modes to be productive. Hence we find out that they are not productive farmers from their output. An Ethiopian farmer is an illusion, it exists only in name but practically it does not.

Continuing further with the discussion, let us discuss in detail what makes a farmer really productive. A Farmer needs the following resources and conditions to be productive.

1. **Solar Energy**
2. **Labour**
3. **Improved selected Seed**
4. **Land**
5. **Democratic Government**
6. **Water**

A productive farmer can only thrive when at least these six conditions are melted and fused together in an intelligent way. If one or more of these conditions are failing, missing or not sufficiently available, a productive farmer can not be created.

Starting from the resources that are in favor of Ethiopia and available in abundance, I will proceed to the conditions that strangled the formation of a productive farmer when discussing the actual status of these six conditions in detail.

1. **Solar Energy**

   Ethiopia enjoys a favorable climate by virtue of its location in the vicinity of the Equator and its high altitude. We have abundant farm lands amounting to millions of hectares which enjoy temperatures of 30°C during daytime and 15°C at night throughout the year. I feel we are blessed in solar energy as this moderate temperature is very suitable for most types of crops. At least for the time being, it is a resource which we get for free.
2. Labour

2.1 About 3 Million Ethiopians are senior citizens not involved in productive engagements.

2.2 About 36 Million Ethiopians are in the range from 0-20 years of age and thus normally not considered to be eligible to get involved in productive activities.

2.3 About 24 Million Ethiopians are in the range from 20 -60 Years of age and are readily available productive manpower.

In Total, it amounts to 63 Million People.

These figures show that Ethiopia has a high potential of productive manpower. Nowadays, there are only few countries in the globe with such high number of productive manpower comparable to Ethiopia. However, the important factor is not only the number but also having an educated, organized and active manpower. It is believed that Ethiopia has a good standing in this respect. We have only to work hard to improve our shortcomings.

3. Improved Selected seed

It is not a difficult task to get the much needed selected seeds. We have been hearing encouraging news from Agricultural Research Centers and Agricultural Universities here in Ethiopia. There are numerous indicative signs that our agricultural scientists can find through research improved selected seeds even to the limit of producing seeds suitable for each district if they get sufficient encouragement and are furnished with the necessary budget. We believe that we have a good foothold in this area. More farmers can be encouraged to produce more quantities of improved selected seeds, and types of seeds not available at present can be imported from areas of similar climate and be reproduced here.
4. Land

Ethiopia is a large country with an aerial extent of 1.13 Million Square kilometers which can sustain adequately a population of many millions more. Most of the land in the country can be manipulated and transformed to be a productive arable land. The problem of we-Ethiopians is that we do not know what we are doing and we do not know what we speak due of lack of adequate knowledge. I was one of those students who went to the streets carrying the “Land to the Tiller” slogan. This slogan has brought tremendous chaos and disturbances in the country and it also enabled Socialism to place its feet in Ethiopia and Africa. However, We have been shouting this slogan for thirty years but the end result happened to be more hunger, more poverty and more fighting between us. The apparent result of this slogan was to make the Ethiopian people more starved and brought about more and more people to live in abject poverty.

Throughout Ethiopia especially in Southern, Eastern and Western regions, two or three kilometers sideways from the highways, one finds plenty of land where no human being has ever ventured. Many farmsteads are not tilled from year to year. What we want to snatch is the one which a hard working Ethiopian has cultivated through his sweat. This is blind jealousy arising out of poor education.

I urge you here that those of us, who shouted the “Land to the tiller” slogan, to self-examine ourselves and find out the truth. We have to purge ourselves from our sins and we have to replace the misguided and misconceived “Land to the Tiller” slogan by ways of intelligently handling the six conditions or resources listed above and forge a productive farmer. If we had made our slogan “Water for the Tiller”, we would not have been hungry today. Even now, the government and all of us are wasting precious time that should be spent on productive works on debates whether land should be privatized or not. Land will have a real value only
when the six conditions above are fused together to create a productive farmer.

To conclude this point, our Ethiopia has enough farming land. We have to enrich our knowledge on the question of ownership of land to get insight on who should own or administer the land so that all this idle land can be cultivated to feed not only us but our fellow human beings in other countries. It is imperative to find out ways that make all of us the beneficiaries of our land.

5. Democratic Government
You may ask me why a democratic government is a prerequisite for a productive farmer to thrive. In my opinion, we have now reached an era where all of us should work together and not individually. Getting ourselves out of the confines of “kebele”, district, region and country, we should accept the fact that we are part and parcel of the whole world. In this new Millennium, the world has become a small global village and the deeds and misgivings of the one will affect its neighbor so our whole works and progress should be carefully coordinated. Democratic Government is the one that implements this coordination. In our Ethiopia, the one that brings together these 50 Million rural dwellers to work and be productive, the one that will deploy all of us in to the field by convincing us to work together with love and affection like a good father, the one that facilitates for us to get supplies for our needs and in another perspective the one that takes action to educate and punish the lazy, the thieves and the hooligans is called a Government.

When we say “Government”, we have to realize that it encompasses not only the Prime Minister and his Cabinet but also the postmen, the police, the soldiers, the secretaries, the judges, the members of parliaments, the teachers, the nurses, the medical doctors etc. To manage all these and
beyond that to enable the people self – administer themselves in a
democratic system, to forge a productive farmer and to eradicate poverty
and starvation, let us convince each other that all these is a possibility only
when the country is ruled by a democratic government.

I can not deny the fact that there have been taken numerous measures to
create a democratic government in Ethiopia. In the past sixty years, we
have advanced forward a lot. We have learned to criticize our leaders
after realizing that they are not elect of God as they claimed but ordinary
human beings like us. Forty years ago, when I was announced to Emperor
Haile Selassie, I proceeded immediately to answer to his Majesty without
bowing to him. Immediately the sturdy guard held me by the neck and
discharged me out of the room. Nowadays, we are criticizing openly our
leaders in various forums and in the free press. However, there remains a
lot to be done. We have to learn how to present our point of view in a
disciplined manner and we have to know our duties and obligations. We
should not forget that if we proceed too fast in building a democratic
system, the whole system may collapse all together. It has taken 800 solid
years for Great Britain to build the system they now have achieved.

In my conclusion, I reiterate that unless we have a democratic
government, we will never realize our target of creating a favorable
environment for a productive farmer to thrive and our dream of
eradicating hunger and poverty from Ethiopia once and for all.

6. Water
Satisfying adequately the demand of water that is required to forge a
productive farmer is the most decisive and difficult point for Ethiopia to
fulfill. The paradoxical fact is that though Ethiopia has a huge amount of
water resources, it is being wasted without having been utilized. An
estimated 130 Billion m³ water flows out of our country in different
direction to the neighboring countries. If we utilize only 2 billion m³ of it, we can prevent the starvation of about 10 Million Ethiopians. For every 1 Billion m³ water we utilize for agricultural production, we can feed about 5 Million people. That means if it is made possible to harvest 25 Billion m³ of water, about 150 Million people can be fed easily. Where lies then the problem? Why did not we put this solution into practice?

The world has advanced forward tremendously in recent times. It had been possible to land on the Moon. Scientists are creating cloned organisms through genetic engineering. However, we Ethiopians are always facing starvation. At the moment, there is no more humiliation other than being called an Ethiopian and being the poorest nation in the world. We have managed to be champion athletes. If we all run into the sea and drown ourselves, we can perhaps escape from our deep humiliation.

As an Engineer, my proposed solution to reduce poverty and famine and completely eradicate them is to allocate 2 Hectares of land with 10,000m³ water per year for one farmer. If we can accomplish this, we can solve our problem.

Relying on rain fed agriculture to feed a nation of 63 Million people is like trying to catch a cloud in the sky. The present government has lost 11 years without eradicating starvation even though it has allocated a huge amount of budget and manpower in the so called Extension Programs.

Why did the Extension Programs fail? It is only because we relied on rain fed agriculture. Weather is the most difficult phenomenon to predict. Hoping to feed 100 Million Ethiopians by the year 2015 by relying solely on rain fed agriculture is sheer madness. Even NASA could not predict accurately the weather having the most advanced technology at its
command. Emperor Haileselassie has commented that the donkey’s ear predicts weather better than the forecast of our meteorologists. Had we rather than carrying and shouting the “Land to the Tiller” slogan have shouted “Democratic Government for the Tiller” and “Water for the Tiller”, we could have obtained a productive farmer today.

What I put emphasis in my proposal is in answering how we can supply water for the farmer to make him productive. First of all, I have to answer the question that how much water is needed to make a farmer productive. To estimate the quantity of water needed, there are plenty of choices. One should conduct a detailed study and consider many conditions to estimate the quantity needed. The water requirement depends on the type of crop, the soil condition, the air temperature, the money going to be invested on the land, the consciousness of the farmer etc. So taking all these factors in to consideration, the quantity of water needed can be estimated.

Starting with the actual situation nowadays, if we can provide 2 Hectares of land and 10,000m³ water for an Ethiopian farmer, he can produce about Birr 30,000 worth of output. If this much can be produced, that would be really nice and he has become a productive farmer.

Therefore:
1. If we can harvest 1 Billion m³ water accompanied by a settlement of 100,000 family heads, it would be possible to feed 5 Million People.
2. If we can provide 2 Billion m³ water, it is possible to feed about 10 Million Ethiopians by mobilizing 200,000 farmers.
3. If we can secure the provision of 25 Billion m³, 125 Million Ethiopians can be fed by mobilizing 2.5 Million farming households.
In the three proposals below, I tried to show how we can supply the following amounts of water to the farmer. To visualize these figures, River Awash has an annual discharge volume of 1 Billion $m^3$ which all the various Agricultural enterprises in the basin from Koka to Tendaho utilize.

1 Billion $m^3$ water $\geq$ In Proposal One (One Additional Awash)
2 Billion $m^3$ water $\geq$ In Proposal Two (Two Additional Awashes)
25 Billion $m^3$ water $\geq$ in Proposal Three (25 Additional Awashes)

**PROPOSAL ONE:**

*Objective:* To provide farmers with 1 Billion $m^3$ of water

*Cost Estimate:* 500 Million Birr

*Design & Construction Time:* 3 Years

The works that need to be accomplished in Proposal One include:

1. To dam and divert two rivers (Bilaten and Dijo) that originate from Southern Ethiopia around the Butajira and Hossana area and make them discharge their water into Lake Ziway. At the moment, these two rivers are discharging their water into the Abaya and Shala lakes. I think nobody has an objection to this idea if we utilize the waters of these rivers for all Ethiopians’ benefit using the state-of-the-art technology and mitigating any environmental impacts that may arise from this scheme.

2. Diverting the Awash river when it reaches the Zuquala hills into Lake Ziway. In this proposal, River Awash will be trained so that it travels gently and slowly and diverted to flow into Lake Ziway leaving the huge amount of sediment it has accumulated in its watercourse by eroding the river banks. A very large flat area that can be used as a silting basin can be found between the Zuquala hills and Lake Ziway. These silting basins will then be transformed into fertile land. This
proposal has harmful consequences to nobody and it will provide for many Ethiopians a very fertile farming land.

3. Lake Ziway is situated in between the high and low lands of Ethiopia and has over 450 Square Kilometers aerial extent and can hold easily two more Billion m$^3$ of water with only a four meter elevation difference. This four meter rise in depth has minimal side effects on the environment. Of course, it may overflow over some few nearby farm lands but this is insignificant when compared to the cultivation of 200,000 hectares of land. The benefit to be derived significantly outweighs the negative impact that may arise from the implementation of this proposal. An engineering solution can be found to save the Ziway town from being destroyed by overflow.

4. Through controlled release of the 2 Billion m$^3$ of water accumulated in Lake Ziway and through river training of River Awash, the water can be transported to Aliy Dege Plain. (Aliy Dege plain is 200 Km downstream of Lake Ziway). When the water reaches the plain, it can be made to reach the Awash Mille and Assaita towns by gravity alone with no need for pumps. If we have to transport 1 Billion m$^3$ water using pumps, we would need all the oil of the Arabs. We can realize here how much our landscape is so suitable.

**Benefits derived from the implementation of Proposal One:**

1. Permanent employment for 100,000 farmers and their families.
2. These 100,000 farmers will have the capacity to feed 5 Million Ethiopians.
3. From this 1 Billion m$^3$ water, 200MW of electricity can be generated by the available three hydropower plants in the Awash Basin with little expenditure.
4. A 100km long inland waterway can be created.
5. The farmlands at Wonji, Metahara, Middle Awash, Amibara, Tendaho and the three hydropower plants will have a prolonged service year. If corrective measures are not taken, the Koka dam will be filled with sediment through siltation in the coming 20-30 years and these enterprises will get extinct.

6. The Koka Dam can be converted in to farm land and three farmlands each as big as Wonji can be created giving 30,000 family heads employment opportunity.

**Proposal Two:**

**Objective:** To provide farmers with 2 Billion m³ of water

**Cost Estimate** 3620 Million Birr

**Design & Construction Time:** 6 Years

The works that need to be accomplished in Proposal Two include:

1. To dam 13 small rivers located in North Shoa zone at an altitude 2600 meters and channeling the water they take to neighboring countries in the rainy season through Addis Ababa and discharging in to a lake that will be created near Metahara

2. To dam River Kesem and River Kebena in East Shoa and making them discharge their water in to the lake that will be created near Metahara

3. Building a lake near Metahara that can hold about 3 Billion m³

4. Building channels that provide water to the farmlands in Metahara and other areas.
Benefits Derived from Proposal Two

1. Permanent employment opportunity will be created for 200,000 farmers and their families.
2. These 200,000 productive farmers will have the capacity to feed 10 Million Ethiopians.
3. When the water is being transported from North Shoa to Metahara, it will pass through or nearby to Addis Ababa and the water needed to adequately satisfy the water supply need of Addis Ababa (100-200 Million m³) can be easily provided and the Capital will be free from shortage of water forever.
4. If it is intended to get further benefits, the water can be made to travel through Sebeta, bisecting Addis Ababa till it reaches Legedadi by building a sufficiently big channel about 40kms long. This creates a cheaper means of transportation for the Addis Ababa dwellers.
5. Since there is about 1500 metres elevation difference between North Shoa (Elev. 2500 metres) and Metahara (Elev. 1000m), a 1000MW electric power can be generated from this elevation difference and the water discharge.
6. When the water is being transported from North Shoa to Metahara, a water way about 300 Kilometers long in the form of channels can be built to help the nearby farmers have a means of transporting their products.
7. When the water starts its course at North Shoa and passes through the Fiche town on its way to Addis Ababa, some water can be diverted to cultivate fruits and vegetables though the area to the west of the channel is full of gorges making the North Shoa farmers productive. The important thing is to hold and use the water we get in the winter from being wasted.
Proposal Three:

Objective: To provide farmers with 25 Billion m³ of water

Cost Estimate 7000 Million Birr

Design & Construction Time: 13 Years

The works that need to be accomplished in Proposal Three include:

1. Damming the Blue Nile at the place beneath Mertole Mariam with a dam 300m high. The dam will be used to store some water but the water will be made to overflow and continue its course.

2. To drill a 50km long tunnel at the junction of River Telelayen and River Tere and divert River Beshlo (tributary of the Blue Nile) from its normal westward course to flow eastwards.

3. Constructing two dams near the Wuchale and Mersa towns to impound 25 Billion m³ of water from the diversion of River Beshlo

Benefits to be derived from Proposal Three

1. Permanent Employment opportunity will be created for 2.5 Million farmers and their families.

2. These 2.5 Million productive farmers will have the capacity to feed 125 Million Ethiopians

3. An affordable inland waterway 800Kms long will be available enabling people to travel from Tis Abay to Wuchale town by boat.

4. About 2000MW electric power can be generated.

I have been able to propose these three Schemes based on the following six information.

1. Geography of Ethiopia (Landscape, altitude, climate etc)

2. The Rainfall pattern

3. Rivers and Lakes in our Country

4. The availability of an extensive fertile farmland
5. The location of Ethiopia in the vicinity of the Equator making adequate solar energy available throughout the year

6. the availability of huge young human resource (about 18 Million Ethiopian are between 20 to 40 years old)

When these six natural resources are utilized in optimal manner by applying appropriate technology, these three schemes will be a reality.

In the three schemes envisaged, damming of the rivers, channeling the impounded water into lakes, releasing the water from the lakes by regulating its quantity & duration and cultivating cereals, vegetables, fruits, flowers and raising livestock in the farmland using modern techniques is really very simple. Many Ethiopians have rich experience in construction and agriculture and can be described as experts without exaggeration.

Apart from the volume of work involved being huge, the three schemes does not presuppose complex and challenging engineering skills. Perhaps the difficult works in the schemes would be drilling the tunnels through the Entoto hills & from Tere bridge to Wuchale town. And to convey the water from Lake Ziway to Koka needs another tunnel. The total length of the three tunnels does not exceed 80kms.

To ensure the success of the three schemes, there are two huge tasks that can be accomplished only by H.E. the Prime Minister and H.E. the Minister of Water Resources.

1. To ensure no objection is raised from the neighboring countries and others who use our water

2. To secure the necessary amount of fund that this investment may demand from the Ethiopian people and government, from monetary organizations like the IMF and the World Bank, from donor organizations and philanthropists etc
As a preliminary estimate, the investment requires about 12 years time and about 12 Billion Birr. This estimate includes only the finance needed to transport the water from one region to another. This estimate does not include the huge investment that the Construction of 3000MW capacity hydropower plants, the preparation of the farmlands and the accompanying human settlement demands.

H.E. the Prime Minister and H.E. the Minister of Water Resources, if you tackle and resolve these two problems through diplomatic skills, clairvoyance and patience, we the Ethiopian people as a whole can complete the whole construction and agricultural works in 12 years to produce 300 Million quintals of cereal every year and eradicate hunger once and for all from our country and reduce poverty substantially. Through the experience which these 100,000 young Ethiopians will accumulate in these 12 years, we will generate an indomitable strong task force that is capable of transforming the whole of our country and Africa.

I believe that this proposal which I developed in my capacity and knowledge is beneficial to our country. I feel sure that the ideas which I presented here are all practicable and not dreams or fantasies. However, I draw your attention to the fact that to fully develop this proposal and prepare adequate responses to the queries that may arise in addition to financial matters like estimating the expenses, revenues and the investment needed, it is necessary to devote a budget for Ethiopian professionals that study in depth in the following six major areas.
## Budget for Pre-Feasibility Studies

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<tr>
<th>Item No.</th>
<th>Description of the Work</th>
<th>Birr (in Millions)</th>
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<tr>
<td>1</td>
<td>Surveying, route selection, design works and hydrological studies</td>
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<tr>
<td>2</td>
<td>Preliminary soil laboratory tests for the dams, canals, farm lands etc</td>
<td>3</td>
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<td>3</td>
<td>Studies on how to develop hydro electric power by augmenting the present capacity of the available plants and building new hydropower plants</td>
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<td>4</td>
<td>Studies on how to cultivate 200,000 Hectares of land; what types of crops and plant can be cultivated together with how much can be produced with the provided 2 Billion m³ of water; the costs involved in implementing the technology recommended</td>
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<td>5</td>
<td>Environmental impact assessment on problems that may arise from the construction of the dams and the channels and educating the masses about irrigation</td>
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<td>6</td>
<td>Studies on how to implement labour based technology instead of machine intensive technology on the envisaged projects to save the precious foreign currency (E.g. the Pyramids of Egypt and Great Wall of China are all constructed by human labour)</td>
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<td>7</td>
<td>Administration, field trips and other ancillary items</td>
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This expenditure is to be spent only on local consultants and individuals who have an in depth knowledge and rich experience in the above mentioned six areas when they provide consultancy services. In addition to this, this money can be paid to consultants from America, Israel and Turkey when they work with us to share their rich experience developed through years of research and work in the area.

If we finish this pre-feasibility study in the shortest time possible, it will help us to decide whether to proceed with it or quit it altogether. If we decide to proceed with it, detailed investigation may be conducted and the above stated sum of 30 Million Birr is not going to be wasted; rather it contributes to the immediate execution of the proposals and may help us in minimizing the expenses needed for the subsequent detailed studies. In my estimate, the aggregate expense needed: to convert these schemes into projects, to make a detailed investigation, to supervise the projects, to prepare drawings, specifications, bill of quantities & contract documents may amount to about 500 Million Birr. The 30 Million birr mentioned above is to be charged to this amount.

The Meeting of the Nile Riparian States

Last year, H.E. the Minister of Water Resources has briefed us about his meeting with the delegates of the Nile Riparian States. In his briefing, His Excellency has delivered the good news to the Ethiopian people that the Nile Riparian States are on the way to an agreement on the Equitable Usage of the waters of the Nile. We have to realize that the negotiations being undertaken by His Excellency are very decisive for the survival of the Ethiopian people. If these negotiations are successful, we should understand that it would mean having surplus food instead of being starved, affluence rather than poverty and a brighter future instead of bleak prospects for us.
If we utilize only 2% of our own river water letting the others have 98% of it to escape from this disastrous and heart-breaking famine and poverty, I think that no human being will judge it as unfair. The incredible thing is that when we are sleeping and are languishing in the throes of hunger and poverty, our fellows the Egyptians, leaving Ethiopia out of the scene, are negotiating with Saudi Arabia to sell our water at a rate of 80Birr/m³ just because they are with full stomach, educated and cooperate with each other. If Israel also does not have this water either through purchase or by force, its survival may be under threat. If Ethiopia, the source of Blue Nile, is remunerated for the waters of Blue Nile at a rate of 1 Birr/m³, we could get about 80 Billion Birr per year. Gentlemen! This is a huge amount of money. Suppose they remunerate us this money, we may not even have the place to deposit it. Let us not forget that our government’s annual budget is only 17 Billion Birr.

I raised this issue because I wanted to demonstrate how much benefit could be derived from H. E. the Minister of water Resources negotiations. Using this opportunity, I urge you to give him your full unreserved support so that the negotiations which His Excellency has been undertaking will yield a fruitful result.

The September 11, 2001 New York Attack

The September 11, 2001 terrorist attack on the World Trade Center in New York has delivered a clear message to the leaders of USA and the developed European States that unless poverty and illiteracy is eradicated from the World, no one can be rich and lead a peaceful life. When H. E. the prime Minister made his briefing at Harvard University, he has stated that to eliminate terrorism, first starvation and poverty need to be wiped out.

With this understanding, the World Bank has planned to lend 50 Billion Dollars per year to poor countries to be spent on development works. Since Ethiopia is one of these poor countries, I believe we will be eligible to get a
loan from the World Bank. Once the world has sympathized with our proposal, it will not be difficult to get the necessary fund for the implementation of the project.

Summary

My friends and I were in jubilant mood when ten years ago, the EPRDF troops brought Addis Ababa under their control. We have considered it as being reborn again. If we are asked the reason for it, it is because the Dergue regime has stripped us from our basic human rights of freedom of thinking, freedom of speech, freedom of writing and freedom of movement. We believed on that very day, we will get back our human rights.

I have been able to conceive and propose this project because the Hydrology Department of the Ministry of Water Resources made available to me freely a 30 years flow record of the various rivers mentioned in this proposal and the Ethiopian Mapping Authority furnished me with 1:50,000 scale topographic maps of the regions free of charge. Had the present Government not allowed information like in the two sets of documents to be circulated without restriction, I would not have conceived this project at all even in my dreams. At the moment, the idea of Free Press, Free thinking and Free Spirit is developing and since the era we are now living is termed as “The Age of Information”, I invite every Ethiopian to read this paper thoroughly in a critical way and discuss the pros and cons of my proposal.

To eradicate starvation, hunger and misery from Ethiopia, we really need to work very hard. We have to think deeply, work diligently and intelligently and plan our move cautiously. Unless it is by miracle, we can not bring prosperity by sheer physical power and strength. To lead a life free from worries of misery and poverty, we need to learn from others and learn again and again and think again and again.
I presented this proposal with the strong conviction that the schemes I attached with this paper will bring about a concrete result by furthering the government’s incessant effort to eradicate the abject poverty we are in and alleviate the problems of starvation and health and hence I humbly request you to seriously consider my proposals.

I conclude my presentation by giving some comments.

To eradicate hunger and poverty from Ethiopia, there needs to be an all encompassing discussion among all members of the population at every place available: in kebeles, villages, churches, mosques etc to have an in depth insight on the following points. I have not the slightest doubt that these discussions may yield some solutions to our predicaments.

Topics for Discussion

1. Who manages the solar energy we get and the air we breathe? Who is the proprietor? Will there come a time when someone powerful and knowledgeable may levy a tax on the solar energy and the air we get? Or say he reduces amount of solar energy we get or pollute the air? Nowadays, people in Mexico City and in some Indonesian cities are having problems of breathing caused by polluted air. Why did the Americans refuse to sign and be bound by the Kyoto Protocol? What is the Kyoto Protocol itself?

2. To whom belongs the water that is falling on our roof tops and in our small compound? If we manage to collect and use this water that falls on our compound, will AAWSA keep quiet? Why engage in argument with AAWSA? Why not each of us try to collect our own water and use it for own use? Where does the River Awash originate and to where it flows? Who owns River Awash? and the Blue Nile? To whom belong the Wabi Shebele and Omo Rivers? Why do neighboring countries get
concerned? Is the water theirs or ours? What is the treaty signed in 1902 between Emperor Menelik on one side and Great Britain and the Sudan on the other side of the table? Will another controversial treaty similar to the Wuchale come in to the open air? What attempts have been made by Emperor Haileselassie and President Gamal Abdel Nasser? There is a lot be learned here so it is a good idea to discuss it.

3. What is the most appropriate and profitable land tenure system for us and the world in general? Shall land be put up for sale or not at all and ditto for water and solar energy?

4. What do we mean by a democratic Government? Is it to be granted like the cereal which we receive from developed countries as relief aid or is it a one that is our duty and obligation? We have to understand that this is a hot issue and we have to seriously discuss the concepts of democracy.

5. How does a productive farmer thrive? Why has our Ethiopia happened to be a country where 10 Million farmers and their families are starving?

We can only find a solution to these questions when we get together and discuss about it. Then we can clearly see the apparent solution as clear as a day light. We have to create forums here and there to debate on it and have exchange of ideas. We will promote nothing by shying away from debates.

If you want to read and peruse this paper, you can get a copy either from Ato Asnake or by giving me a call at my office number 668961.

Thank you very much.
Tadesse Haileselassie
Civil Engineer
P.o.Box 419
Addis Ababa
Tel: 668961
<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Teff &amp; Maize</th>
<th>Flowers</th>
<th>Cotton</th>
<th>Sugarcane</th>
<th>Vegetables</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Crop water requirement per hectare per year in 1000m³</td>
<td>8</td>
<td>12</td>
<td>18</td>
<td>25</td>
<td>11</td>
</tr>
<tr>
<td>2</td>
<td>If one Billion m³ water is supplied, expected yield in Million quintals(1,000,000);</td>
<td>12</td>
<td>8</td>
<td>1.6</td>
<td>4</td>
<td>1</td>
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<tr>
<td>3</td>
<td>Ditto if Two Billion m³ water is supplied;</td>
<td>24</td>
<td>16</td>
<td>3.2</td>
<td>8</td>
<td>2</td>
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<td>4</td>
<td>Ditto if 25 Billion m³ water is supplied;</td>
<td>300</td>
<td>200</td>
<td>40</td>
<td>100</td>
<td>25</td>
</tr>
<tr>
<td>5</td>
<td>Permanent Employment Opportunity if one Billion m³ water is provided</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100,000 Family Heads</td>
</tr>
<tr>
<td>6</td>
<td>Ditto if two Billion m³ water is supplied</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>200,000 Family Heads</td>
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<tr>
<td>7</td>
<td>Ditto if 25 Billion m³ water is supplied</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.5 Million Family Heads</td>
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<tr>
<td>8</td>
<td>Amount of people that can be fed if 1 Billion m³ water is supplied</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5 Million People</td>
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<tr>
<td>9</td>
<td>Ditto if 2 Billion m³ water is supplied</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10 Million People</td>
</tr>
<tr>
<td>10</td>
<td>Ditto if 25 Billion m³ water is supplied</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>125 Million People</td>
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</table>
### SUMMARY

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Description</th>
<th>Proposal One</th>
<th>Proposal Two</th>
<th>Proposal Three</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Divert Awash, Dijo and Bilaten rivers to discharge in to Lake Ziway</td>
<td>Divert 13 small rivers in North Shoa &amp; Kebena and Kesem rivers in East Shoa to flow to a new lake near Metahara</td>
<td>Divert Beshlo river in Central Ethiopia to a new lake between Mersa and Wuchale towns</td>
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<tr>
<td>2</td>
<td>Water Provided for Irrigation (in Billion m³)</td>
<td>1 (One)</td>
<td>2 (Two)</td>
<td>25 (Twenty Five)</td>
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<tr>
<td>3</td>
<td>Employment opportunity (No. of Family Heads)</td>
<td>100,000</td>
<td>200,000</td>
<td>2,500,000</td>
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<tr>
<td>4</td>
<td>Land that can be Cultivated (in Hectares)</td>
<td>200,000</td>
<td>400,000</td>
<td>5,000,000</td>
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<tr>
<td>5</td>
<td>Expected Yield (in Million quintals)</td>
<td>10</td>
<td>20</td>
<td>250</td>
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<tr>
<td>6</td>
<td>No. of people that can be fed (in Millions)</td>
<td>5</td>
<td>10</td>
<td>125</td>
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<tr>
<td>7</td>
<td>Electric power that can be generated (in MW)</td>
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<td>1000</td>
<td>2000</td>
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<tr>
<td>8</td>
<td>Inland water way created (in kms)</td>
<td>50</td>
<td>200</td>
<td>800</td>
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<tr>
<td>9</td>
<td>Project cost Estimate (in Birr)</td>
<td>500 Million</td>
<td>3.62 Billion</td>
<td>7 Billion</td>
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<td>10</td>
<td>Construction Time needed (in Years)</td>
<td>3</td>
<td>6</td>
<td>12</td>
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