Clean
Rivers
Trust

Charity No. 1037414.

Addis Ababa;
Sewage, Scoping and Funding.

February 2011.

Introduction.

This paper is the result of a meeting between HE Mr Berhanu Kebede, the Ambassador, Mr Biruk Mekonnen, Head of Political Affairs, of the Embassy of the Federal Democratic Republic of Ethiopia and Dr Harvey Wood of Clean Rivers Trust; which took place at the London Embassy on 26th January 2011.

The meeting looked at the progress to date regarding Clean Rivers Trust's actions to help in the development of a waste water collection system and treatment infrastructure for the Ethiopian capital, Addis Ababa. There have been extensive contacts with the civil service as to the Trust's abilities to aid the actual works and now the question of funding the scheme and its scoping over a not too protracted period of time are the main issues that need to be addressed.

HE the Ambassador has outlined what this report is to cover and a continuation from the e-mail sent to Mr Getu Degefa of the Ministry of Urban Development and Construction; on the 17th January 2011. The paper outlines the time-scale and scope of the plan, at the same time allowing for an understanding of a few of the basic costs to be envisaged. This also will allow for an understanding of the time scales and benefits to the nation of Ethiopia as a whole and not just to the capital and its mostly urban population. That population though is the main agricultural produce market and economic focus of the rural economy.

The spin offs from this scheme are likely to be far reaching, producing new work and wealth producing activities and revitalising some older infrastructural sites, such as at Aba Samuel. These spin offs will include power generation sources, food and soil reconditioning facilities; further it will allow the government of Ethiopia to negotiate in carbon trading initiatives and be amongst leaders in negotiations regarding Climate Change Mechanisms.

The cleanup of the environment of the Rivers Akaki and the benefits that can arise from this project are not just of local benefit, but will affect around 1/3 of the geographical country, the Awash catchment; but will also have supplementary benefits in developing both known and cutting edge technologies across the whole nation. This development, including new and novel skills bases and manufacturing expertise to service the project can then also be developed to service the developing water and waste infrastructure companies, providers and projects across the whole of sub-Saharan Africa. This ability will allow for a growing export income stream that will benefit the whole country. This export potential could further develop into the large and rapidly growing markets of the Middle East.

All these areas are developed in the next pages as a rational for grasping this project and developing the subsidiary benefits that would flow from it. The industrial, economic and infrastructural progress that would be developed would allow the nation to demonstrate a secure and expanding technological and fiscal environmental engineering and sustainable development base.

Clean Rivers Trust, 72 Appletongate, Newark, Nottinghamshire NG24 1LR UK.
01636 611572

Project Phasing.

This project is not an entity that may be pulled off a shelf and assembled over a period of a few months or a year. The detailed planning will take a year or eighteen months to develop the first phase from initial concept; which has bee4n outlined in several other communications. The need for formalisation and detailed discussion has in several areas been reached.

The project is best viewed as a tree, the roots and base need to be sound so that the rest of the structure can function as an entity. With this project the roots are the southern basic infrastructure, the actual outfall of the treatment works and there design and establishment.

The need for environmental studies to be carried out on the areas of land that may be deemed suitable for the development of treatment and discharge locations would need to be undertaken. These would need to be carried out in the knowledge that though the eventual scheme is for the environmental benefit of the capital and the nation; there must never be a possible chance of criticism that something was lost that had been overlooked for 'the general good' of the project. At this same stage the discharge consents must be negotiated with the Environmental Protection Agency and other bodies with interests in the Awash catchment.

This consultation exercise can not begin till an outline study is carried out into the likely effluents from the city are understood; the residential sewage, industrial wastes and medical discharges. At this same moment there would need to be a development in general urban waste management, rather than the general foul mix being just removed from the city into some benighted rural area, as is at present often the case.

The urban wastes would need to be understood in a similar fashion to that of the drainage wastes of the city. Both waste streams would have a role to play in the initial development of read bed and wetland systems of treatment and later as an income generating industry in its own right producing soil enhancers or other specialist growing media.

The treatment sites once properly identified studied and their wastes for treatment characterised the construction of these main points could be undertaken. A time frame that could be achieved would be in the region of three years if all the elements of the scheme were properly linked together and there was a will for this to take place. The construction and initial treatment wastes could be in place within the next 18 months.

The second phase would be to put in place the main body of the tree; the branches that would follow the larger river beds of the city. This would at the same time considerably lessen the problems of flood and the health issues that flow from that problem as well as the financial and human costs. This phase would follow on seamlessly from the first stage as the planning would have been carried on as the first phase was constructed.

Clean Rivers Trust, 72 Appletongate, Newark, Nottinghamshire NG24 1LR UK.
01636 611572

The third phase would be as the tree's secondary branches, these would be linking both sewage and floodwater channel directions and developing regional networks of pipe work.

A forth stage may require a group of reservoirs to be established around the northern extremities of the city to allow for periodic flushing of the drainage systems. This would be of benefit if the whole or the majority of the sewer system was drained by gravitational forces rather that pump. These reservoirs need not be of large, but strategically placed during the planning process as envisaged in the run up to the first phase of the project.

The fifth phase of the scheme would be as the twigs of the tree; these would gather the remaining areas that had not been taken into the scheme in the preceding phases. The city authorities might consider that legislation or regulation was in order so as to direct all new or renovated buildings had to be linked into the system and not allowed to revert to the septic tank or surface water discharge mechanism.

Costs leading to Phase 1.

The initial costs are not high for this stage of the project and much of the expertise could be gathered from with in the country. The development of a core of expertise with a set of objectives and deadlines could be delivered for a sum of less than £400,000 (UKP). With planning and survey work carried out over much of the city.

The costs of wetland development and the utilisation of native flora to make the systems both functional and sustainable could be achieved at a cost of £45,000 per hectare of site plus attendant small additional civil engineering costs.

The costs that follow on from that would require an agreed protocol and specification of materials and their qualities.

Clean Rivers Trust would request an agreed set of fees that would be negotiated, but it would require the Trust to be involved in all negotiations, research, specifying, tender issues and ensuring that all operations are transparent and auditable from the outset to the projects completion on a fluctuating time scale.

The costs of the major civil engineering phases are not inconsiderable, but the phasing will allow for the development of industries to feed the needs of the scheme and in so doing develop expertise and product bases that will be of economic importance for the pan-African Continent and Middle East.

At this stage a detailed overview of the area would be a sensible development; including meetings with all the interested ministries and authorities. This could be achieved in a 2-3 week time frame.

Clean Rivers Trust, 72 Appletongate, Newark, Nottinghamshire NG24 1LR UK.
01636 611572

At Completion.

When the whole project would not be recognised as what is was, the ‘foul’ nature of what flows beneath the walkways and promenades. The areas of public concourse and relaxation would be the visible entities. Weirs that were pedestrian walkways, flood relief structures, power generation sources and sewage conduits will be an aspect of the final construction.

The walkways perfect for promenades or jogging, cycling and other sports activity.
The fact that floods will be avoided will become part of history and the allowance of new developments along the river corridors. The areas that were only considered for informal and ad-hoc housing will disappear. This would then allow for better public and social housing. This allows for the city to take its rightful place of demonstrating both good governance and urban modernity. This development would demonstrate the correct methods of industrial revitalisation to the rest of the Continent.

Other signs of this work would be the developed industries that would need to be encouraged to develop to service the infrastructural emplacement. These need not all be based in the capital but in the other parts of the country, both spreading financial benefit, but also allowing development of intellectual growth.

Non concrete benefits of health and welfare would be not just seen in Addis Ababa, but where ever the project spilled over to the other regions. The good housekeeping of this project will encourage the issues including the WASH initiative.

Wealth Creation.

The development of a project such as is envisaged for Addis Ababa is costly, but with the certainty that much if not most of the materials and technologies that would be used would be then available to supply other nations with the same or similar products as had been developed for use in Ethiopia would find this a ready market

The wastes collected from the sewage would be considered an asset, the production of electricity, bio fuels and other energy sources with in the scheme would help in the cost recapture program. W3ith the country approaching the region as a net fuel exporter, the generation would be an added resource to be capitalised on.

The clean up of Aba Samuel would further allow increased electricity generation, and if the silts were mined as part of the waste development strategy the resultant culinary fishery potential so close to the capital is clear.

The clean up of the waste from the urban areas generally would protect the potable well fields supplying the capitals major water needs.

The development of the sewage treatment and energy off shoot would be helpful for the nation with regard to carbon credits, climate change and sustainable development. Much

Clean Rivers Trust, 72 Appletongate, Newark, Nottinghamshire NG24 1LR UK.
01636 611572

of this could also be set aside the proposed exploitation of the nations under used mineral wealth. Allowing coal (lignite) to be exported rather than used internally for power generation.

The development of a clean Akaki river system will impact hugely on the River Awash catchment with all its attendant economic uses. It is also an economic indicator of the environmental well being of the nation.

The development of all aspects of sewage use and industrial and agricultural benefit, the possible development of composting toilets and similar initiatives may also be developed to tie into the whole scheme; these could be further rolled out across the whole country. This would allow the benefit of this waste to add to the nations regenerating of tired land structures and aid in re-forestation.

Funding.

Since the e-mail of the 17th of January there has been no response from Addis Ababa. It has been suggested that there are other sources of capital that may be forth-coming to allow this project to develop.

Most fiscal stimulus packages that have been agreed with the likes of the World Bank, African Development Bank, EU or independent national governments have either focused on developing power generation, the pay back guarantee being obvious, or aiding the more rural and economically straitened regions of the country.

Several governments including the UK have raised large infrastructure funds through private companies allied to the state. These have included the Channel Tunnel Project, the Second Severn Bridge, new motorway and railway schemes. In the 1980s UK government sold off the nation's water industry as the nationally owned organisation as it was at the time was unable as a nationalised entity to raise the funding to update a polluting and redundant system.

There are several private banks based in London, a number of which could be encouraged to organiser funding, both independently of as part of a capital raising consortium. This could be attractive if the treatment of waste was valued and revenue levied from the dischargers, industrial and residential and those between.

The Clean Rivers Trust is unable alone to command the sort of attention that such banks need to be encouraged to consider such fundamental investment, a formal link to the London Embassy and the 'right' ministries in Addis Ababa. It is very likely that much could be achieved with this working confederation. This liaison needs formal recognission, a charity can be considered worthy and well intentioned. But with the expressed confidence and formal links with the government will allow access the groups of financial and actuarial that need to be accessed to discuss this whole project. At the same time it allows the enthusiasm to be expressed to the political leaders of the European Union and other political unions or alliances

Clean Rivers Trust, 72 Appletongate, Newark, Nottinghamshire NG24 1LR UK.
01636 611572

The Next Stage.

Clean Rivers Trust submits to the Ethiopian people that it has carried out much work, research and fact-finding; both in the UK and in Ethiopia itself. It requests that this work, which was at the stated desire of the Ministry of Water and has been taken to this advanced stage, is given recognition of status.

The Trust needs the Federal Democratic Republic of Ethiopia to formalise its position so as to further the development of funding and also be kept informed of the ad-hoc projects that are being awarded at the fringes of the project. This intelligence will need to be factored into any approaches to prospective funders or when requesting political support.

Dr Harvey Wood. 8th February 2011.

Clean Rivers Trust, 72 Appletongate, Newark, Nottinghamshire NG24 1LR UK.
01636 611572