Urbanisation and housing in the face of weather risks in Africa: The case of Abidjan in Côte d'Ivoire

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INTRODUCTION

Every year, the floods in Abidjan kill dozens of people and cause extensive property damage. This is likely to intensify with climate change and rampant urbanisation.

Given the Ivorian government's policy of access to economic and social housing, this vulnerability to flood risks in West Africa's first financial hub could hinder the country in achieving its goals for growth. The recurrence of floods and the increasing cost of property damage caused by bad weather in Abidjan highlight obvious problems in implementing a flood risk management plan adapted to the threat.

However, the adoption of the new Code of Construction and Habitat, which in addition to governing the rules of construction and housing, also governs some urban planning rules. This new code, which incorporates positive new developments such as the insurance of construction work, regulation of the activity, the constitution of real estate agencies and real estate brokers, and special safety standards applicable to buildings, could be the way for Côte d'Ivoire to respond in its fight against floods. This will require the guarantee of strict compliance with the provisions of this code by both the population and the professionals covered by this law. Pending the next rainy season, which should begin in July, this article attempts to provide an analysis of the measures taken (the list is not exhaustive) to increase the resilience of the Abidjan district to the risk of flooding. It also offers recommendations that could be implemented by the Ivorian authorities to enhance the flood risk management initiatives and measures already undertaken.

1. OVERVIEW

On October 2019 the city of Abidjan once again recorded loss of life, as has been happening every rainy season for some years.

The following table 1 shows the genesis of this national drama from 1996 to 2010.

Date	Events	Location	Consequences
30 - 31 May 1996	Torrential rains	Abidjan	28 dead, property damaged
18-Jul-96	Landslides	Abidjan	2 deads, property damaged
11-Jun-97	Torrential rains	Abidjan (Abobo, Koumassi, Marcory, Riviera)	Property damaged
	Torrential rains	Abidjan (Abobo)	1 dead
	Torrential rains	Anyama	1 missing person, 3 casualties, property damaged
20-Oct-98	Flood	Abidjan (Riviera, Yopougon)	Property damaged
16-Nov-98	Storm	Abidjan	3 dead, several missing persons, property damaged
3 - 5 June 2007	Flood	Abidjan	9 dead, property damaged
12 - 15 June 2009	Landslides and flood	Abidjan	22 dead, 6 missing persons, 7 casualties, 48 homeless families
28 - 29 June 2009	Flood	Abidjan	7 dead, 20 homeless people

Source: ONPC (l'Office Nationale de Protection Civile or The National Office of Civil Protection)/ GSPM (Groupement des Sapeurs Pompiers Militaires or Group or Military Firefighters), (Receuil des Statistiques de l'Environnement en Côte d'Ivoire, 2011 or Collection of Environmental Statistics in Côte d'Ivoire, 2011.)

The following table 2 look at the years from 2014 to 2019.

Date	Events	Location	Consequences	Sources
Jun-14	Torrential rains	Abidjan (neighbourhood with the most damaged, Attécoubé)	At least 23 dead, property damaged.	RFI, publié le 01/07/14
June 22, 2015	Torrential rains followed by flooding and landslides	Abidjan (crossroad of 7 December, canal zone 4 street, Attécoubé et Adjamé)	At least 16 dead At least 6 dead, property damaged	RFI, publié le 22/06/15. abidjan.net, publié le 22/06/15
August, 2016	Torrential rain	Odiénné	Destruction of bridges	AIP, publié le 27/08/16
Sep-16	Torrential rains causing the destruction of some homes	Danané	At least 20 dead	AFP, publié le 28/09/16
July, 2017	Torrential rains	Abidjan (Yopougon)	At least 7 dead	les observateurs France 24 du 15/06/17
18-19 June 2018	Torrential rains followed by flooding and landslides	Abidjan (Cocody, Riviera palmeraie, Akouédo, Allabra, Pallet, Mossikro)	At least 20 dead, recorded property damaged	RFI, publié le 20/06/18
Oct-19	Torrential rains followed by flooding and landslides	Abidjan (Abobo, Yopougon, Riviera palmeraie, bonoumin)	At least 7 dead; property damage	Abidjan.Net, published 12, October 2019

Source: various newspaper reporting on damages caused by the floods

Over the past five years (from 2014 to 2019), at least **99 people** have lost their lives during the rainy seasons in Abidjan, representing more than half the total number of deaths registered over the years from 1996 to 2019 (**172 people** died).

2. GOVERNMENT, URBAN PLANNING, AND FLOOD RISK MANAGEMENT IN ABIDJAN

The public authorities are aware of the city's urban risks and the challenges it faces to achieve effective flood risk management. Many official documents highlight the need to address the flood problem and suggest ways of improving it.

The new Construction and Housing Code introduced by Law No. 2019-576 of June 26, 2019, is one of the Ivorian government's most recent responses to date. Title 5 (Quality of Buildings) Subtitle 1 (General Building Standards) Chapter 5 (Building Connection) Section 2 (Connection to Urban Sanitation Networks) and Section 3 (Connection to Drainage Networks),

include safety standards provisions aimed at avoiding the risk of flooding or reducing its negative impact.

Section 265 states that "connection to sewers of wastewater established under public roads is mandatory for buildings with access to it, either directly or through private lanes or easement of passage". Articles 267-270 establish responsibility for the construction of the works necessary to bring wastewater to the public part of the connection, maintenance of the sewerage facilities, the risks incurred in the event of non-compliance, and the procedures for the application of Section 2.[1] Section 271 states that "connection to public drainage systems (rainwater systems) is mandatory for buildings with access to them, either directly or through private lanes or crossing easements". Sections 272 and 273 establish the terms and conditions for the application of Section 3.[2] In general, some articles put in place provisions relating to the safety of persons and buildings against natural hazards – in Subtitle 1, Chapter 10, Protection from Natural Risks – as well as construction standards under the control of departmental authorities to assess all forms of risks associated with the development of a construction project.

The March 2015 report of the Greater Abidjan Urban Development Master Scheme (SDUGA) produced by the Japan Agency for International Cooperation (JICA) provides a comprehensive analysis of the climatic conditions in Abidjan. The study shows that Greater Abidjan is a wetland with an annual rainfall of up to 3 040 mm. During the great rainy season, which lasts an average of three months, from June to August, sometimes until September, the intensity of precipitation is very high and can reach 115 mm/hour over 15 min and 71 mm over one hour. In addition, the 2013 report on disaster vulnerability and response capabilities analysis highlights the urgency of adopting a flood control plan. It examines the causes of successive floods and the extent of their damage, which includes:[3]

- Low soil permeability.
- Destruction of vegetation, inadequate development, poorly maintained pipes.
- Obstruction of the sewerage works with waste.
- Soil erosion.
- Poor planning.
- Housing crisis.

In 2015, the urgency of the situation was again underlined in a document published by the Ministry of Construction, Housing, Sanitation and Town Planning, which stating that "concrete planning for waste and effluent management, and flood control seems to be an urgent subject".[4]

[1] Government of Côte d'Ivoire. (2019). Construction and Housing Code. http://www.droit-afrique.com/uploads/RCI-Code-2019- construction-habitat.pdf. Pg. 58 – 59. (Accessed 12 May 2020).
[2] Ibid. Pg. 59.
[3] Kaman, P. (2013). Analyse des vulnérabilités aux catastrophes et des capacités de réponses en Côte d'Ivoire. http://www.environnement.gouv.ci/pollutec/CTS3%20LD/CTS%203.13.pdf. Pg. 28 - 31. (Accessed 13 May 2020).

[4] 2015 Master Plan Reassessment.

Issues related to land construction and landslides were also addressed. The 2015 SDUGA report provides the authorities with a list of 72 sensitive areas in Abidjan, which are areas exposed to natural hazards. These so-called "sensitive" sites are mainly located in areas of precarious habitation (see following table 3).

Municipality	Number of precarious housing ares	Total size of precarious housing areas (hectares)
Abobo	9	199
Adjamé	8	20
Attecoubé	11	81
Cocody	8	54
Koumassi	6	82
Marcory	3	9
Plateau	0	0
Port-Bouët	13	224
Treichville	1	9
Yopougon	13	97
TOTAL	**72**	**775**

Source: ANDE (Receuil des Statistiques de l'Environnement en Côte d'Ivoire, 2011 or Collection of Environmental Statistics in Côte d'Ivoire, 2011).

Côte d'Ivoire also has a regulatory framework for submitting construction projects for the granting of a building permit, contained in Decree No 2016-49 of 10 February 2016 amending Articles 13, 14, 15, 16 paragraphs 2, 21 and 22 of Decree No 92-398 of 1 July 1992 regulating building permits, as amended by Decree No 2014-363 of 12 June 2014**.** This administrative authorisation requires a verification of the compliance of a construction project with the land-use rules applicable to the land concerned. Any building permit is issued by the one-stop-shop (GU) (new Article 13) which is composed of several departments in which there is an architect, a building engineer, and all public and private actors involved in the procedure for issuing the building permit (new Article 14).

According to the new Article 14, for the construction categories the building permit may be required (for Classes 2-5) or dispensed (for Class 1, which is for social housing developed by the Ministry of Construction and Town Planning).

These legal provisions prove the existence of a coherent and preventive approach to avoid any risk of anarchic construction and disaster that could be linked to an inadequate and imprecise urban planning policy.

But why until 2019 was the city of Abidjan still at risk of flooding?

Critical context analysis

Despite the existence of legislation, many of these are not being properly implemented, even though a National Risk Management Strategy Catastrophes and Action Plan was developed in 2011.[5] This defined the strategic axes for disaster risk reduction as a government commitment. It also encouraged risk assessment, awareness, and resource mobilisation, while giving importance to the priorities of the Hyogo framework. There is, however, no framework for ensuring the effectiveness of the laws applicable to construction, housing and urbanisation. For example, building standards are generally still not respected and this has a major impact on the resilience of buildings to flooding. The JICA, in its 2015 SDUGA report, recommended to the relevant authorities the creation of a system for controlling urban space and development, including:[6]

- The creation of control procedures.
- Monitoring the construction of buildings.
- Monitoring the implementation status of development activities.

The same report presented a list of threats the country could face in implementing the Urban Master Plan, such as:[7]

- Laxity and/or non-control of illegal facilities and development.
- Non-involvement of other enforcement agencies and governance bodies.
- Lack of funding at the local authority level to carry out and control development.

The reason why some of the existing texts are not being implemented effectively could be explained partly by the need for greater State involvement in the risk management process. Public authorities need to take an even more active approach to ensure that all actors participate in reducing risk. Whereas until the 1980s, the State was strongly committed to land and housing, the economic crisis at that time brought it to a halt. Since then, the government has only been responsible for stimulating the private sector to carry out these tasks.[8] The government withdrawal is not really problematic and could have been translated into further initiative in the building process and risk prevention. The 2015 SDUGA report highlights the illegal installation of villas, courtyard habitats, and slums on land reserved for public programmes and strategic lane rights-of-way in the Master Plan (see page 193 of the report). The floods of June 2018 led to the destruction of properties in almost the districts of Abidjan, from the neighbourhoods considered upscale – included in urban planning – to the working-class neighbourhoods, with the highest concentration of slums in the economic capital.

[5] ISDR. (2011). Stratégie Nationale de Gestion des Risques de Catastrophes & Plan d'Action. http://www.environnement.gouv.ci/pollutec/CTS3%20LD/CTS%203.16.pdf. (Accessed 12 May 2020).
[6] JICA. (2015). Projet de développement du Schéma Directeur d'Urbanisme du Grand Abidjan (SDUGA). https://openjicareport.jica.go.jp/pdf/12230629.pdf. Pg. 27 – 28. (Accessed 13 May 2020).
[7] Ibid. Pg. 196-197.
[8] Amadou Diop. Développement local, gouvernance territoriale: Enjeux et perspectives Publié par Amadou Diop. https://bit.ly/3fiZR5K (Accessed 12 May 2020).

However, according to the 2016-49 decree of 10 February 2016 mentioned above, during construction, mandatory checks are carried out by a control technician approved for Class 2-3 projects or by the office of risk standardisation for projects in Classes 4-5 (Article 22 new, paragraph 7). After construction, the relevant GU services of the building permit are required to conduct a visit to determine the compliance of the work carried out with approved plans and regulations and to issue the Certificate of Compliance (Article 22 again, paragraph 8).

This raises a number of questions.

How is it then possible to explain the construction of villas and courtyard housing on illegal land despite the requirement to obtain a building permit before the completion of construction is carried out?

Even in the context of when the properties built were built on legal sites (take the case of upscale neighbourhoods such as Cocody and the Riviera), having obtained a building permit, how is it possible to explain the collapsing of buildings?

Why is it possible for housing to be constructed using inadequate materials when the monitoring of work by a control technician or the risk standardisation control office is guaranteed and required by law?

What about the private real estate developers behind the construction of part of the housing stock in the city of Abidjan?

“Unfortunately [the Ivorian administration] is readier to sanction the failure to apply for and obtaining building permits than to effectively enforce the standards and rules of urban planning by the builders. More concerned with being respected than in asserting the planning regulations in which the building permit must be used, it shows a certain predilection for the weapon of demolition after a formal notice to those who free themselves from application and get administrative permission to build.”[9]

Thus, the people non-conformism to some of the housing regulations evoked by the government, although real, cannot be the main cause of the urban planning challenges and flood problems in Abidjan. As explained, the authorities must ensure that laws are not only “voted” but that a framework for implementation is in place. With an illiteracy rate of 43.8 percent,[10] it is up to the State to develop appropriate communication strategies to disseminate the rules of urban planning to the entire population, and to establish structures to ensure their strict and rigorous application. As was the case in Japan with the 2011 earthquake, the State

[9] Tribune de la chambre administrative. Cour Suprême, Chambre Administrative, République de Côte d’Ivoire, (2016). Regards Sur Le Permis De Construire. Février 2016 – trimestriel. http://www.consetat.ci/app/webroot/img/files/tribune/REGARDS_SUR_LE_PERMIS_DE_CONSTRUIRE.pdf. Pg 4. (Accessed 13 May 2020).

[10] Portail officiel du gouvernement de Côte d’Ivoire. (2017). Le taux d’analphabétisme a chuté de 7.2% en Côte d’Ivoire. 9 October 2017. http://www.gouv.ci/_actualite-article.php?d=6&recordID=8173. (Accessed 12 May 2020).

must engage in learning and regular communication with the population. This should allow public authorities to anticipate the tendency of local people and some households to neglect or forget the risks of floods.[11]

Some actions undertaken by the Ivorian government

If the country recorded a lower loss of life in 2019 (see table 2), this is partly due to flood risk management initiatives and measures driven by the various reports, work, and research available from international and national flood risk experts. Preliminary assessments of the limits of public administration, coupled with existing data on the impact of bad weather on the Abidjan urban planning scheme, have amplified the **government's** interest in the need **to encourage** and **insist** on **strict compliance** with all applicable laws on construction, habitat, and urbanisation.

To this effect, the new building and housing code has considered the recommendations of JICA in its SDUGA 2015 report by instituting control measures in its Book 1 (Building Construction), which incorporates observations related to the creation of control procedures; monitoring of building construction; and the monitoring of the implementation status of development activities. The new Construction and Housing Code also provides for construction policing objectives by the Minister of Tutelle, which relies on a monitoring and investigation platform as part of a synergy of actions with decentralised communities.[12] It also includes the submission of a construction check after obtaining a driver's licence by consulting engineers known as "construction controllers".[13]

Other measures (the list is not exhaustive) have been undertaken by the government, such as the completion of several remediation works, and the creation of a fund allocated to improve the flow of water and equipment from certain pits. The remarkable work of SODEXAM, which is in charge of weather forecasting, allows the various civil security institutions (firefighters, the police) as well as the populations to have reliable information on the weather during this rainy weather and thus to anticipate individual and collective protection measures. Despite the initiatives, the toll remains mixed and heavy for people and goods. It would be nice to look at some suggestions to increase the direct and direct impact of the efforts undertaken by the Ivorian authorities.

3. SOME PROPOSALS FOR ADDITIONAL SOLUTIONS

Floods are not a fatality. Contrary to what is believed, it is quite possible to limit the consequences of this natural phenomenon, since it is aggravated by human activities. Numerous reports, such as those of the World Bank, the French Development Agency (AFD), the World Urban Campaign, and the Hyogo and Sendai frameworks for action, provide

[11] United Nations. (2012). Coverages of meetings and press releases. https://www.un.org/press/fr/2012/Conf120305-WALLSTROM.doc.htm. (Accessed 13 May 2020).
[12] Articles 31 et 32 of the Construction and Housing code op cit note 1.
[13] Articles 34 of the Construction and Housing code op cit note 1.

possible responses to the risk of flooding.[14][15] They give decision-makers in flood-prone countries the keys to understanding and implementing integrated flood risk management through structural and non-structural policies, commensurate with their socioeconomic context and financial resource.

First and foremost, the need to make flood risk reduction a national priority, while drawing its parallel with the existence of a sustainable housing stock, must be stressed. This requires an understanding of the challenges of integrated flood risk management and a long-term vision.

It is not surprising that the risk of flooding is not the only priority in a city like Abidjan. The socioeconomic challenges of a rapidly expanding city are numerous, and the lack of financial resources pushes the management of potential disasters behind more urgent priorities. Under the latter, for example, Abidjan's access to affordable housing remains among the priority objectives to be met. Since the launch of the presidential project for the construction of economic and social housing, more than 12 000 housing units have been built to meet the demand.[16] Although important, this remains far from the 150 000 units planned, and the Ivorian government is working to make more logistics available for the private real estate developers selected for the realisation of this project. To this end, 3 000 hectares of land allocated and more than CFA35 billion (US$58 million) were invested by the State for primary road and network (VRD) work on the various construction sites.[17] The use of so many logistical and financial resources can sometimes be constraining and lead to underinvestment in other equally important segments, especially in the case of scarce resources. The VRDs considered by the government in the current economic and social housing project, offer somehow a guarantee that a better management of flood risk is integrated in this project. Unfortunately, the death toll from previous years indicates that some dwellings have been partially destroyed or destroyed because of the floods. The housing sector since the 1990s has been hard hit during the rainy season.

This exposes the out-of-programme housing that has not yet benefited from the efforts made in the construction of VRD with possible cases of flooding and damage that could have a considerable impact on the current housing stock in Abidjan.

However, it is essential to consider the indirect costs caused by the floods. These indirect effects include diseases, food problems, declining educational opportunities, and loss of

[14] The World Bank. (2012). Integrated Urban Flood Risk Management Guide for the 21st Century. https://openknowledge.worldbank.org/bitstream/handle/10986/2241/667990PUB0v20F00Box385314B00PUBLIC0.pdf?sequence=8&isAllowed=y. Pgs. 23 – 42. (Accessed 12 May 2020).
[15] UN Habitat. (2012). http://www.worldurbancampaign.org/sites/default/files/abidjan_final.pdf. (Accessed 12 May 2020).
[16] Government of Côte d'Ivoire. (2018). Housing: 12 785 social and economic housing units built from 2012 to 2017. http://www.gouv.ci/_actualite-article.php?recordID=9049&d=1. (Accessed 20 May 2020).
[17] Radio Télévision Ivoirienne (RTI). Côte d'Ivoire: The keys to 512 social housing units handed over to policyholders by the government. https://www.rti.ci/actualite_article.php?categorie=societe&id=17804&titre=cote-deivoire-les-clefs-de-512-logements-sociaux-remises-aux-souscripteurs-par-le-gouvernement&page=304. (Accessed 20 May 2020).

livelihoods. These elements can largely contradict the development goals of a city or even a country.

A good flood management plan can be a considerable asset and achieve a better level of development than protecting and strengthening the existing housing stock. For example, the introduction of a solid waste management system can reduce the risk of flooding (direct benefit) and have major consequences for society: improved health, job creation, poverty reduction (indirect benefit). This would also help to eliminate, or significantly reduce, the number of houses partially or totally destroyed by the weather, thus allowing the new offer of economic and social housing to cover "new applicants" and not to replace housing losses due to flooding.

Investing in integrated flood risk management could be a more cost-effective approach in the long run. Margareta Wahlstrom, Special Representative of the Secretary General for Disaster Risk Reduction, stated that "one dollar ($1) invested in these different actions saves seven dollars ($7) that is invested in the response".[18]

Once this step is complete – which is on track – it would allow the government to ensure the adequate implementation of structural and non-structural risk management reforms and planning policies. According to AFD, these measures should consider three essential and complementary components: prevention, preparedness, and risk culture. These components translate into a strong institutional framework; tools to monitor, forecast, and early warning of floods; and more organised and prepared relief efforts. Investing in these measures would avoid the broad costs of disaster response by reducing their socially destructive effects in general and in the housing sector in particular.

Finally, the maximum participation and coordination of multiple actors is needed to complete the implementation of these measures. The governments strong commitment is also one of the key factors in the success of this initiative.

Some interesting examples

Côte d'Ivoire is far from being an isolated case. Many cities in the world are subject to risks of flooding affecting the lives of thousands of people. Some of these cities learn to manage this risk as they can, and with varying degrees of success. Côte d'Ivoire can therefore easily draw on measures already implemented in other countries and draw on them.

In Africa, several countries have developed measures that have significantly reduced their vulnerability to floods. In Mozambique, for example, many measures, mostly non-structural, have been developed to reduce the risk of flooding in cities. These initiatives include awareness-raising tools disseminated in schools and public services, accompanied by

[18] United Nations. (2012). Coverages of meetings and press releases. https://www.un.org/press/fr/2011/AG11048.doc.htm. (Accessed 13 May 2020).

simulation exercises during training of local disaster management committees.[19] An early warning system has also been put in place to predict, detect, and monitor flooding so that it can issue much-needed alerts and improve the effectiveness and coordination of responses. In addition, flood-resistant shelters have been built, and they can serve as community or school places and as a refuge during floods. This latest innovative and cost-effective solution could be feasible in a city like Abidjan.

With waste disposal, which is a major challenge for the disposal of water in the event of heavy rainfall or flooding, Abidjan could follow the example of Bamako in Mali. Like Abidjan, the city of Bamako is made up of a large part of precarious, anarchically established habitats and is faced with inadequate waste management. In the early 2000s, after suffering numerous human and material losses as a result of a flash flood, the city of Bamako initiated a comprehensive planning process based on the participation of all parties involved. By partnering with civil society organisations, the District of Bamako has been able to achieve an extensive environmental planning and management project, including addressing the problem of water disposal through water retention, waste collection and disposal strategies. In this way, it also stressed the creation of jobs generated by previous projects as well as the sanitation and improvement of the city's public health. Finally, this process has strengthened the environmental management capacity of the organisations involved in the planning process and enabled public awareness.

In general, this approach has greatly improved the situation as the city has not experienced a catastrophic flood since the project was implemented.

In Senegal, after the 2009 floods that mainly affected the residents of Cité Soleil, a district in Dakar, a collaboration between the government and the World Bank, with the support of the Global Facility for the Prevention of Disaster and Recovery Risk enabled a post-disaster needs assessment and led to the implementation of PROGEP.[20]

The main focus of this project was on building urban planning capacity; constructing priority drainage works; wetland management; promoting community involvement in reducing the risk of flooding; waste management; and adaptation to climate change.[21] Some results have been observed after two years of work with the rehabilitation of the formerly affected neighbourhoods and the increase in their resilience to torrential rains. Drainage work and the construction of storage ponds in Dalifort and Thiourour have saved approximately 18 500 people and 105 hectares of land (from the winter of 2013); and about 100 000 people and more than 400 hectares during the 2015 rainy season, which recorded exceptional floods. The second phase of PROGEP was extended to Yeumbeul and Mbeubeuss, where drainage works were planned. The creation of these structures allows the drainage of water from the water table and

[19] The World Bank. (2012). Op cit note 13. Pg. 29.
[20] The World Bank. (2016). Sustainably managing flood risk in Dakar outer suburbs. http://www.banquemondiale.org/fr/news/feature/2016/02/03/sustainablymanaging-flood-risks-in-dakars-outer-suburbs. (Accessed 12 May 2020).
[21] Ibid.

the evacuation of rainwater throughout the year.[22] In addition to its practical aspect of flood control, PROGEP conducts an institutional and financial sustainability study aimed at the operation and maintenance of the network to ensure the consistency of investments over the long term, which incorporates flood-area mapping and related land-use restrictions.[23]

Effective and holistic measures are therefore possible, even in countries that do not necessarily have many resources available. It is primarily a matter of political will.

CONCLUSION

Côte d'Ivoire has all the cards in hand to manage the risk of flooding. Its environmental, governmental, and economic strengths and weaknesses have been studied in numerous research reports, avenues for addressing these challenges have been developed, and it has the support of international organisations such as the United Nations.

To achieve effective flood risk management, it is necessary to develop – and implement – an integrated flood risk management plan.

To allow the structural and non-structural measures of this plan to be properly implemented, multiple actors must recognise the need for more responsible behaviour and actively participate in this management process. It is now a matter for the state to mobilise, raise awareness and empower these actors so that this local and national challenge becomes everyone's business.

[22] Ibid.
[23] Ibid.