

LAIKIPIA *Mali Asili*

A NEWSLETTER ON SUSTAINABLE LAND MANAGEMENT IN LAIKIPIA COUNTY

Issue 2 March 2015



COMMENTARY

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Water Resources and Sustainable Land Management in Laikipia

Laikipia County has been categorised as one of the water scarce counties in Kenya. The main water sources are Ewaso Narok and Ewaso Nyiro rivers and their tributaries. The Northern part of the County in areas such as Dol Dol is mostly semi-arid while lower parts near Nyahururu are wetter and more agriculturally productive.

The rivers' system support two major forests namely Rumuruti and Ewaso Narok forests. They also support a large populations of wildlife.

According to agencies involved in protection of water catchment sites in Laikipia County, such as the Kenya Wetlands Biodiversity Research Group (KENWEB), there is an urgent need to conserve the water catchment sites of Laikipia.

The national Government, County and civil society bodies are working with water users' associations in order to preserve water catchment and riparian areas. These efforts have included raising communities' awareness about the need for sustainable use of scarce water resources, afforestation through tree planting and sustainable utilization of forest and forest products.

Only 20 per cent of Laikipia's land is arable with most small scale farmers owning an

average of two acres. The County also has a significant population of pastoralists. A significant part of the land mass is occupied by conservancies, with Laikipia having 43 registered ranches larger than 10,000 acres, which also double as cattle production enterprises.

Key economic activities in the County: agriculture, livestock rearing and tourism are heavily water dependent.

According to the National Climate Change Action Plan (NCCAP), most arid and semi-arid parts of Kenya will become hotter and drier over the next 30 – 50 years. Already, communities are noticing that the regularity of rainy and dry seasons to which they have become used has changed in recent years, already pointing to increasing incidences of climate variability.

During time of water stress, incidents of human wildlife conflict become common as animals invade farms in search of pasture. In some instances, larger animals, particularly elephants, encounter farms as they follow historical migratory corridors. Ways and means of sustainable use of water in Laikipia and indeed in Kenya will have to be the concern of all members of the society: leaders, women, men, young people and even children.

About *Laikipia Mali Asili*

Laikipia Mali Asili is a voice for people promoting sustainable land management practices in Laikipia County.

Who can contribute? Anyone concerned about the environment of Laikipia County or Kenya can contribute.

The Children Corner: *Laikipia Mali Asili* has set aside a children's corner to provide a platform for them to share information about the environment in a fun, creative and informative manner.

About UNDP GEF SGP

The UNDP Global Environment Facility (GEF) Small Grants Program (SGP) is an initiative aimed at supporting community-based projects to result in positive change in the environment while at the same time supporting poverty reduction and local empowerment objectives.

More than 15 projects, including the one under which *Laikipia Mali Asili* is being produced are supported by UNDP GEF SGP in Laikipia County.

Editorial Team

Esther Lungahi – Editorial Coordinator
Anthony Mugo - Chief Editor
James Nguo – Member and Regional Director, ALIN
Noah Lusaka – Member
Joshua Koskei – Member (Rumuruti Forest Association)
Hon., Jennifer Koinante – Yaku Laikipia Trust and Member, Laikipia County Assembly
Mwangi Mumbo – Contributing Writer
Milcah Rajula – Communication Consultant

Design & Layout: Ecomedia Limited

Illustrator: Shadrack Melly

Published by ALIN
Box 10098 - 00100, Nairobi, Kenya
Tel +254 20 2731557
Fax +254 20 2737813
Email laikipiamaliasili@alin.net

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EDITORIAL

Water resources and the importance of preserving catchment sites

In this second issue of *Laikipia Mali Asili*, we focus on water resources and the importance of preserving catchment sites as a crucial element of sustainable land management. Laikipia is relatively water stressed county with large areas of the northern part being semi-arid. Yet the County's main economic activities namely tourism, agriculture and livestock keeping are highly water-dependent.

Noah Lusaka's article about a project that is demonstrating use of drip irrigation as a climate smart agriculture technology at Matwiku in Laikipia West gives promising insights that farmers can begin practising agriculture that uses water more efficiently. With climate change taking place, it is predicted that many areas of Kenya, including Laikipia are likely to become drier. At the same time, extreme events particularly droughts and floods will become more frequent.

That is why the article by Njenga Kahiro about how to harvest water from a Manyatta (traditional Maasai house) provides a new perspective about water harvesting, a practice that needs to be adopted by all communities.

The Children's Corner once again demonstrates the amazing potential of the young to play their part in protecting their environment. The illustrations, poems and articles reveal that children are indeed aware of the role that they can play to protect their surroundings and support their parents in practicing sustainable agriculture and livestock keeping.

Laikipia Mali Asili is a tool for sharing information between initiatives focused on preserving Laikipia's landscapes and enhancing communities' resilience while improving their livelihoods. A listing of organisations supported of UNDP GEF SGP, their contacts and where they operate from is provided in this issue as a way of making it easier for them to share and receive information.

Anthony Mugo - Editor

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Opinions and views expressed in the quotes, illustrations and articles do not necessarily reflect the views of the editors or ALIN. Technical information supplied should be cross-checked as thoroughly as possible as ALIN cannot accept responsibility should any problems occur.

Quotes



"I am glad that ALIN decided to train some members of Yiaku Laikipia Trust on blogging. This is a great opportunity for us as we will now be able to share our project activities with our partners and the general public. This will also go a long way in enhancing the online visibility of our work."

**Hon. Jennifer Koinante,
Executive Director, Yiaku Laikipia Trust and also a nominated Member of County Assembly (MCA) in Laikipia County**

"I liked the first edition of the *Laikipia Mali Asili* as it was done professionally; particularly the fact that our article was featured in the newsletter. The information in it has really been beneficial and I have learned a lot about other UNDP GEF SGP grantees from Laikipia County from the information written."

**Joshua Koskei, Manager,
Rumuruti Forest Association**

"I sincerely thank ALIN for taking time to run us through the techniques of blogging. I appreciate the fact that we were trained from the basic level and now I can

successfully create a blog. The information that we have learned will be put into good use at KOAN."

**Wanjiru Kamau
Kenya Organic Agriculture Network (KOAN)**

"I have really liked the *Laikipia Mali Asili* Newsletter. Most of the people who have been visiting our offices have been requesting for a copy of the newsletter. I hope we will get more copies next time. The UNDP GEF SGP grantees were wise to come up with the newsletter as the information shared in the newsletter has reached a wide audience."

**Peter Gitau
Upper Ewaso Narok Water Users Association (WRUA)**

"The blogging training by ALIN was a very important learning opportunity that cannot be overlooked. Through the training, Environmental Liaison Centre International (ELCI) will be able to attain its objectives as it enhances its goals and values through online journalism."

**Dennis Ong'ech
Environmental Liaison Centre International (ELCI)**

"I was given a copy of *Laikipia Mali Asili* at the Mazingira Knowledge Centre based at Ng'arua Maarifa Centre. The information has enabled me to learn a lot about Sustainable Land Management (SLM). I hope I will also be receiving subsequent editions of the newsletter."

**Moses Ndungu
Ng'arua Maarifa Centre user**

"I am always keen about the environment and I am glad that the UNDP GEF SGP grantees decided to start a newsletter about Sustainable Land Management. This will go a long way not only in educating the public but also in facilitating sharing of knowledge. Our students have really enjoyed reading the Children's Corner."

**John Kiara
Senior Teacher and Head of Environment Department
Lariak Primary School**

COUNTY NEWS

OI-Moran Ward public participation on preparation of MTEF

On February 18, 2015, Ng'arua Maarifa Centre hosted a public hearing on the preparation of the Medium Term Expenditure Framework (MTEF) budget 2015/16- 2017/18. The Center, which is based in Laikipia West is one of the knowledge centres Arid Lands Information Network (ALIN) operates to promote knowledge sharing among communities.

The objective for MTEF hearings was to help in improving the management of public finances by providing a link between the allocation of budget expenditures - according to policy priorities - and the fiscal discipline required by budget realities. It will help to build fiscal policy credibility and predictability via a more strategic, multi-year, budget planning perspective.

The public hearings were organized by the County Government of Laikipia through the County Treasury. In attendance were: Nelson Ochungo, County Revenue Officer; Charles Keru, OI-Moran Ward Administrator; Noah Lusaka, Project Manager of ALIN; and members of the public.

Public participation is in line with Section 117 of the Public Finance Management Act, 2012, which provides for an effective management of public finances by the national and county governments. Completion of the hearings is intended to facilitate finalization of County Fiscal Strategy Paper, 2015. During deliberations at the hearings, residents of Wangwaci and Sipili were particularly keen on water rehabilitation during dry spells and provision of fertilizers at subsidized cost.



Bursary awarded to each ward

H.E. Joshua Irungu on February 2, 2015 handed bursary cheques to each ward at a colorful ceremony in Nyahururu stadium. The ceremony was attended by all Members of County Assembly (MCAs), beneficiaries, university students and members of the public. Each ward will receive Ksh. 3 million for bursaries for poor secondary and tertiary institutions college students.

Beyond Zero campaign



First Lady Margaret Kenyatta on January 22, 2015 handed over the 18th mobile clinic to the County Government of Laikipia as part of her Beyond Zero campaign. She noted that the Beyond Zero campaign gives Kenyans the opportunity to contribute to the reduction and eventual elimination to mother-to-child transmission of HIV during childbirth.

She was speaking at Central Park in Nanyuki Town in Laikipia County. She was received by H.E. Joshua Irungu, the Governor Laikipia County, Laikipia County Senator

Hon. G G Kariuki, Laikipia East Member of Parliament Hon. Mutahi Kimaru among other leaders and County Government of Laikipia staff.

Launch of GIS for schools

The launch of a Geographic Information System (GIS) initiative was held on February 20, 2015 and officiated by the Governor of Laikipia County, H. E. Joshua Irungu in Nanyuki. It is the result of a partnership between the County Ministry of Education, Youth, Gender and ICT together with Netherlands-based SNV World.

Under the initiative all schools in Laikipia will be mapped through GIS. The County Government ICT Department will manage the system. The exercise was led by Chief Officer of the Ministry Ndiritu Chiuri together with Leah Njeri, an official of SNV.

Fibre Optic infrastructure

Laikipia County has received communication equipment as part of National Fibre Optic Backbone Infrastructure (NOFBI). The brand new equipment from Belgium will enhance connectivity and reduce communication costs. It will improve Voice over Internet protocol (VoIP) and video conferencing.

Source: <http://www.laikipiacounty.go.ke/>



Climate smart agriculture for communities' resilience in Matwiku

By Noah Lusaka

Farming as a business is becoming more risky due to rainfall variability and erratic patterns experienced in recent times affecting farmers' access to sustainable water resources for food production. This article shares the experiences of Matwiku Horticulture Growers Self Help Group based in Gathanga Ward, Laikipia County. The Group has adopted climate smart agriculture resulting in efficient use of increasingly scarce water.

The Matwiku Horticulture Self-help Group

The group has 21 members composed of 19 males and two females. Group members are experienced in growing kales, tomatoes, onions and cabbages during the dry season and they consolidate their produce for marketing.

They used to grow crops using conventional furrow and basin irrigation system that involves pumping water using diesel or petrol-powered generators from the nearby Kariaini Dam. "This type of irrigation takes over seven hours to irrigate one acre and the generator will consume six liters of petrol," says Raphael Wa Mutito, 18. Given that farmers irrigate their farms twice

weekly, they incur about Kshs. 1300.00 (US\$14) which translates to over Ksh.15,600.00 (US\$173) for fuel alone for horticultural production in a season lasting three months.

Climate smart agriculture practices

Climate smart agriculture aims at reducing emissions at the farm level, conserving natural resources particularly soil and water, while increasing nutritious food production at household level and increasing family incomes.

This project was introduced to Matwiku Horticulture Growers Self Help Group ALIN in partnership with Act. Change. Transform! (Act!)

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with financial support from the Embassy of Sweden and the United Kingdom Agency for International Development (UKAID). The project aims at strengthening communities' resilience as well as enhancing income generation from horticultural production while creating employment opportunities for women, men and young people. Among the climate smart agriculture practices include:

- Water harvesting and conservation – group members have invested in digging a shallow well near the farm that is now providing sustainable water supply.
- Drip irrigation technology which uses water more efficiently and enhances water control and conservation on the farm.
- Planting of tree tomato plants that produce fruits while sequestering carbon dioxide. Soil fertility enhancement is done through use of farm yard manure. The group also prepares their own liquid manure.

Setting up the drip irrigation system

Group members were trained on setting up the drip irrigation system and its management in mid-November 2014. During the five-day training, a 5,000-liter water tank was mounted on a firm metal platform with an elevation of three meters above the ground, bringing about enough pressure for water to irrigate one acre. Participants dug trenches to lay out the piping system on the one acre farm that was subdivided into eight smaller plots and each plot installed with a gate valve for controlling water during irrigation.

The drip irrigation taps were then connected to the water pipes where one raised bed had two drip tapes. The final stage involved mounting the water storage tank. A water filter was fixed at the water tank outlet to reduce clogging of the drip tapes. Group members learned



that it is important to regularly check and clean the filter to ensure smooth water supply to the farm. To test the drip irrigation system, the storage tank was filled with water and each of the eight farm units watered at intervals to wet the soil. The group then planted tomatoes at the wetted soil zones covering four blocks: two blocks for cabbages and two for beans.

Outreach activities

The group members, with the support of ALIN, organized an open day in January 2015 where over 350 farmers participated and learnt about climate smart agriculture practices including water harvesting and its efficient utilization. The opportunity offered a platform for communities to interact with the County leaders.

Lessons learnt

- Less water is used per acre since the water targets the root zone of the crops only; therefore helping in water conservation and efficient use for food production.
- The crops are grown systematically and are evenly spaced
- Drip irrigation reduces workload for farmers since the water is easily controlled per block by only one person opening the gate valve then water flows

through the drip tapes reaching each plant.

- Energy for water pumping is conserved by using the generator less frequently hence reduction of harmful emissions
- Water is distributed to a section of the land that is slightly sloping and encourages crop growth.
- The group has initiated a revolving fund that enables all farmers to access the drip irrigation technology enhancing their resilience by producing food without relying on rainfall.

Challenges

Initially the group was drawing water for irrigation from Kariani Dam. As the drought intensified however, the dam completely dried up in mid-February 2015. They had to innovatively dig up a shallow well near their farm to overcome this constraint.

The Matwiku area is near a conservancy hence farmers have to guard their crops against elephants and other game during the night. Neighboring pastoralist communities also pose a threat because they occasionally allow their animals to stray into farms, resulting in conflict.

Noah Lusaka is a Programme Manager at ALIN he can be reached through nlusaka@alin.net

Manyatta rain water harvesting technology quenching Laikipia County's thirst

By Njenga Kahiyo

Like many areas of central and north of Laikipia County, Segera area faces water scarcity. Laikipia County lies on the leeward side of Mount Kenya and therefore receives low rainfall.

Rain water is the cheapest and cleanest water. But how can it be captured by those who live in a grass thatched house and who are likely to relocate if the pasture diminishes? Two local community based organizations (CBOs), *Segera Jirani na Mazingira* and *Sugutan* have with the help of Zeitz Foundation and funding from UNDP GEF SGP been implementing the Manyatta Rain Water Harvesting Project in Laikipia County.

In keeping with the Zeitz Foundation's tradition of finding innovative solutions to everyday problems, partners like Engineers Without Borders USA and Sugutan CBO have been at the frontline of this innovation piloting a novel rainwater harvesting model for Samburu Manyattas in the North of Segera.

After many deliberations, rain-water harvesting through manyattas eventually became a reality. The challenge was how to ensure a household gets clean rainwater irrespective of whether the house is grass or mud roofed. The project implementation team, together with partners – Engineers Without Borders USA - have come up with an innovative solution involving: a water proof poly tarp; wood guttering frame; first flash filtering; above ground capture; and underground storage with a hand pump to draw the water from the underground tank. Unlike most rain water harvesting setups, the principle in this innovation is not to force the Samburu households to change their building architecture

but rather to incorporate the tradition in designing the innovation.

Challenges

On average, a household would need around 20,000 litres of clean water annually but the roof surfaces of their houses would not collect that much water. The cost of doing 20,000 litres storage is also prohibitive. Another challenge is when one water source is shared by many households. It is therefore often a source of conflict when some households want to draw more than the agreed share. Another challenge is when some in the community fail to conform to agreed use of water. An example is when some use the clean rain water for washing or watering livestock while the agreed use is cooking or drinking.

Gender dimensions

In Sugutan village, women who are the traditional builders in this community, have learnt how to fix the roof and the guttering. The system is completely plug and play, and if the household moves, the owner can set up the same system in their new homestead as long as it adopts the same dimensions.

Replication of the innovation

Recently, a much more improved system developed with technical input from China's Gansu Research Institute for Water Conservation (GRIWC) has been introduced resulting in more households accessing clean water. Engineers from GRIWC completed a project with a similar approach at Greater



Segera and the plan is to monitor the two different designs and see which is most effective for scaling up and introducing more broadly to improve sustainable water management in Laikipia County.

African Wildlife Foundation (AWF) has made requests to share the knowledge and explore its application at institutional level. Some schools namely Uaso Nyiro Primary School which uses 350,000 litres and Endana Secondary School 1.2 million litres of water annually have used the innovation to become self-sufficient in water.

In addition, the newly finished Samuel Etoo Football Academy adopts the same water harvesting approach and is now collecting 1.4 million litres from the roof of a sports stadium, a canteen and girls dorm. More exciting, perhaps, is the combination of rain water harvesting and conservation agriculture in one site. This package is truly set to change the face of dry land communities in Central and North Laikipia.

Njenga Kahiyo is the Laikipia Programme Manager, Zeitz Foundation - Kenya
 Email: njenga@zeitzfoundation.org
 Tel: +2540612309996, 0721475876

Organic farming promoting drought resistant crops in Laikipia County

Interview by Milcah Rajula

Organic farming is a system of production that relies purely on natural inputs for agricultural and livestock production. According to a consumer survey conducted by Kenya Organic Agriculture Network (KOAN) for the Enhancing the Coordination of Organic Products Access to Markets in East Africa (ECOMEA) project – a Danida-funded project-a good percentage of the consumers are willing and ready to pay premium prices for organic products.

KOAN's Teresa Ndirangu and Richard Mwangi share their experience implementing the organic approach in Laikipia County where scarce water resources demands good sustainable land management practices.

Teresa: Most KOAN projects mainly focus on organic farming but also promotion and upgrading of water resources and sustainable land management through: introduction of drought resistant crops like tea tree; usage of drip irrigation; and growing of cape chestnut, borage and Night Primrose which are rich in essential oils.

Richard: Livestock keeping, which we encourage, ensures production of manure for use on the farm. Making compost manure is also encouraged as a way of fertilizing the soil besides ensuring moisture is retained during the dry spells. Other farm practices such as terracing, mulching, inter-cropping are also encouraged to conserve water. Farmers are encouraged to dig water pans to tap on the flood water during the rainy seasons which can be used for irrigation and consumption by livestock during the dry season.

How many groups do you engage with the County?

Teresa: KOAN and Earth Oil work with small scale farmers who are grouped in zones namely: Huku, Mwireri, Barguret, Sweet Water, and Timau among others. These zones, which include community members, are each represented by elected officials who represent them in meetings especially under the umbrella body of Kenya Organic Oil Farmers Association (KOOFA).

KOOFA and Earth Oil work hand in hand with the latter company providing extension workers who perform structured training: improving farmers' skills, demonstrating the importance of buffer zones in organic farms and other farming methods. Overall, KOAN works with both parties in providing technical know-how on best practices in organic farming.

Which eco-friendly fertilizers would you advise during farming?

Teresa: Rock phosphate fertilizer is the most recommended as the advantages are: harmless to the soil, cheap and has other nutritional minerals which build the soil.

What are some of the challenges you have faced in implementing your projects?

Teresa: Some farmers do not appreciate the value of practising conservation. They prefer planting exotic trees such as Eucalyptus instead of indigenous trees. However, we are persistent in passing the message that more indigenous trees need to be planted since they improve soil fertility.

Another challenge is gender imbalance. Some women are reluctant to engage in the projects because they are raised up to believe that the projects and the returns belong to their husbands. In turn, we are training KOOFA and

Earth Oil Ltd extension workers on sensitizing the farmers on gender integration to ensure men and women have equal shares in the projects.

Richard: Low quality seeds pose another challenge. To address it, seed companies with support of the county government, should provide certified seeds so that farmers can purchase them as needed.

What recommendations would you give to the County to address the issue of water resources and sustainable land management?

Teresa: The County government needs to employ strategies conservation of water. In most instances, incentives should be awarded to farmers who are using local resources: usage of organic fertilizer and drought resistant crops in their farms, for their efforts in promoting conservation.

Richard: Construction of water pans, ponds, dams, venturing into shallow wells and conservation of river banks needs to be implemented to promote water harvesting in the County. Additionally, farmers should be encouraged to have a minimum area on their farms under tree cover and also to practice agro forestry. More emphasis should be given to planting of indigenous trees because of the vital role they play towards conserving the ecosystem.

For more information, contact:

Teresa Ndirangu, Production and Training Adviser, teresan@koan.co.ke and **Richard Mwangi**, Marketing Officer, richardn@koan.co.ke

Milcah Rajula is a Communication Consultant at ALIN; she can be reached on MRajula@alin.net

UNDP GEF SGP Laikipia Grantees



Upper Ewaso Narok Water Resources Users' Association

OI Moran, Laikipia West
Contact: Peter Gitau
Tel: 0710584021
E-mail: PEGIC2002@yahoo.com

Laikipia Central Community Development Organization (LAICCODO)

Nanyuki
Contact: Margaret Ngatia
Tel: 0725348406
E-mail: Laiccodo@gmail.com

Segera Jirani na Mazingira CBO

Segera, Laikipia Central
Contact: Njenga Kahiro
Telephone: 0721-475876
Email: njengakahiro@gmail.com
or: njenga@zeitzfoundation.org

Sugutan CBO

Mathira II, Nanyuki
Contact: Njenga Kahiro
Telephone: 0721-475876
E-mail: njengakahiro@gmail.com

Rumuruti Forest Association-RFA

Located in Rumuruti
Contact: Joshua Koskei
Telephone: 0731044524
E-mail: koskeijk@mail.com

Kenya Organic Agricultural Network (KOAN)

Duduville, Kasarani, Nairobi
Contact: Eustace Kiarri
Tel: 0707027728
E-mail: ekiarri@koan.co.ke

Tuongane Tusaidiane Self Help Group

Nturukuma, Nanyuki
Contact: Josephat Kariuki Theuri
Tel: 0722909362
E-mail: Luutasa2013@gmail.com

Kantuka CBO

Nanyuki Town
Contact: Francis Mwangi
Tel: 0722947575
E-mail: kantukadairy@yahoo.com

Sustainable Agriculture Community Development Programmes (SACDEP) Kenya

Thika, Kiambu County
Contact: Charles Kiama
Tel: 0722855744
E-mail: charleskiama@yahoo.com

Yiaku Laikipia and Trust

Nanyuki
Contact: Jennifer Koinante
Tel: 0715706564
Email: koinante6@yahoo.com

Ilmamusu Mukogondo Forest Association

Contact: Samali Letai
Tel: 0724740283
E-mail: ilmamusiforest4@gmail.com

Tree is Life Trust

Nyahururu
Contact: Thomas Maina Gichuru
Tel: 0723692031
Email: treeislifetrust@gmail.com

Mpala Research Centre and Wildlife Foundation

Nanyuki
Contact: Margaret Kinnaird
Tel: 020 353 3480
E-mail: mkinnaird@mpala.org

Sanitation Activities Fostering Infrastructure (SAFI)

Nanyuki
Contact: Pannuel David Parsitau
Telephone: 0724236035
Email: pphanue@yahoo.com

Thome Development Communities

Nanyuki
Contact: Hezron Muiru Waihiga
Telephone: 0723518222

Ensuring proper management of water resources in Laikipia

By Bob Aston

Increase in population and economic activities have led to increase in demand for water resources across the country. This has not only affected agricultural production but has also contributed to water related conflicts.

In some areas covered by Ewaso Ng'iro North Catchment Area (ENNCA), excessive abstraction of river water for both irrigation and domestic use in the upstream areas usually leaves very little water for downstream users. Water scarcity issues have become critical along a number of tributaries resulting in water conflicts within the catchment area. This continues to escalate as surface water which these activities depend on gets scarce. The area covered by ENNCA is about 210,226 square kilometres, which is about 36 percent of the total area of Kenya spread over ten counties. It covers the whole of Laikipia, Samburu, Marsabit, Wajir, Isiolo and Mandera counties and also parts of Nyeri, Meru, Nyandarua and Garissa counties.

It is the largest of all the six sub catchments but with the least population as it falls in a semi-arid landscape. It lies in Kenya's dry corridor with well-defined double maxima of rainfall in March-May (long rains) and October-December (short rains). Most of the catchment is below 1,000 m above sea level.

Drainage is controlled by four major independent systems namely: Ewaso Ng'iro North River, Ewaso Laggas, Daua system and Chalbi system. It also has five sub regions namely: Upper Ewaso Ng'iro, Middle Ewaso Ng'iro, North Ewaso Laggas, Ewaso-Daua and Engare-Narok Melgis.

Water related issues

Mr. Timothy Mutie, ENNCA Regional Technical Manager, noted that proper water resource management can help in addressing the food security situation in Laikipia County.

He said salient issues facing the catchment include: extensive degradation in the past as a result of deforestation, encroachment into water catchment areas, cultivation in wetlands and overgrazing. Pollution from agro-industries, effluent discharge and solid waste from urban areas are also issues which continue to affect water resources in the catchment.

Addressing water related issues

He said that they came up with catchment management strategy (CMS) to regulate management of the water resources and related land resources in the catchment. CMS also outlines how the concept of integrated water resources management can be implemented at the catchment level.

Some of the strategies that ENNCA is currently pursuing to resolve water issues include: improving the use of water resources management tools for effective water resources planning and allocation; strengthening stakeholder collaboration to enhance water storage; and adaptation to climate change impacts and to strengthen use

of water resources management tools and collaboration for effective catchment protection and conservation.

The ENNCA management has been collaborating with stakeholders like Laikipia Wildlife Forum (LWF), National Environment Management Authority (NEMA), Water Resource Users Association (WRUA), Kenya Forest Service (KFS) and the Ministry of Water, Environment and Natural Resource in resolving water related issues in the sub catchment.

ENNCA future plans

In order to meet customers and regulatory requirements in water resources management, ENNCA regional office management is planning to: enhance equitable allocation of water resources through increasing the time the reserve flow is maintained at determined points by two percent; and reducing water use conflicts by addressing reported complaints within ten working days.

Mr. Timothy Mutie, ENNCA Regional Technical Manager
Mobile: 0724857616
Email: timmuteti@yahoo.com

Bob Aston is a Community Journalism trainer with ALIN and is based in Laikipia County.
E-mail: ngaruamaarifa@alin.net

Water resources in Ilmamusu Mukogodo Forest facing extinction in the future

By Samali Letai



The majority of the population in Mukogodo area of Laikipia heavily relies on wood fuel as the household source of energy. This over dependency is a threat to the forest. Fossil based fuels are expensive and not environmentally friendly. Therefore, impacts on the environment and natural resources need to be closely monitored.

Mukogodo Forest ecosystem is well endowed with a rich variety of resources. Located in Laikipia North and sitting on a total land area of 280 square kilometres, the forest is famous for impressive biological diversity, socio-economic and cultural significance.

It is a vital water catchment area, has high potential for tourism and recreational facilities and supports livelihoods of the adjacent communities through fuel wood, fodder for livestock, honey and herbs, and serves as an important resource for scientific research.

Mukogodo Forest ecosystem constitutes an important reservoir for biodiversity. Despite these attributes, the forest has faced threats over the last two decades from a range of human-related activities. These activities include illegal harvesting of timber, charcoal burning, and improper grazing.

Unsustainable tree harvesting leads to the destruction of the

forest's capacity to absorb carbon dioxide. Other factors include: poverty, inappropriate/ineffective government policies, erosion of traditional values and ignorance.

The impact of forest destruction is evident through drying up of formerly permanent water sources and changing of micro-climatic conditions of the area. Over exploitation of the forest's resources where extraction appears to exceed the rate of natural replenishment of the ecosystem, is largely to blame for the rapid rate at which the rangelands ecological integrity is being eroded.

In Makurian Group Ranch, increased dry climatic variations have led to inadequate water for domestic use and livestock watering. Most earth dams are silted because of increased erosion and sedimentation as a result of improper land use practices. Scarcity of water is also resulting in increased human-wildlife conflict.

Recommendation

Development of water points in the group ranches will bring about reduction of pressure on the usage of natural springs found within the forest reserve. Furthermore, the time will be limited for pastoralists taking their animals to drink water; they move to the forest early when pasture is still available in the group ranch.

There are eight water sources in the forest which are highly depended on by the community during dry seasons. Mostly, a large quantity of water from the sources is contaminated and is unhealthy for people and livestock. Through protection of these sources, clean water is guaranteed throughout the year for the four group ranches: Ilngwesi, Makurian, Mukogodo, and Sieku Group ranch, surrounding the forest.

Samali Letai, Project Manager
Ilmamusu Mukogodo Forest
Association
Tel: 0724 740283
Email: ilmamusiforest4@gmail.com;
Lescolimited9@gmail.com

laikipia mali asili

Children's Corner

Where Has Water Gone?

*Our beloved water, where have you gone?
Rivers, lakes, underground water, where have you gone?
Water! Water! Where have you gone?*

*Our negative activities have made water disappear,
Forest destruction and bush fires, all contribute,
Waste management and poor land, use all contribute,
Water! Water! Where have you gone?*

*Destruction of catchment areas, wet land and springs,
Grabbers, corruption, overgrazing and overstocking,
Water! Water! Where have you gone?*

*Generation to come will ask, "Where has the water gone?"
Livestock and birds will wonder, "Where has the water gone?"
Wild animals and insects will wonder, "Where has the water gone?"
Water! Water! Where have you gone?*

*Increased human wildlife conflict, the order of the day,
Food insecurity and severe drought, the order of the day,
Water! Water! Where have you gone?*

*Water! Water! Save us from the increased poverty,
Water! Water! Save us from the loss of animals,
Water! Water! Save the generation from income,
Water! Water! Where have you gone?*

**By Caroline Mateta
Class 7, Ol-Jabett Primary School**

Environment

What is environment?

*Environment is our surroundings,
Major components of our environment are: air, soil, plants and water,
Let us conserve our environment!*

*If we cut down trees,
Trees are sources of rivers and control soil erosion,
Where shall we get rain?
Let us conserve our environment!*

*Our water in dams and rivers are to be conserved,
We use them in many ways,
Drinking, cooking, and washing our clothes and many other things
Let us conserve our environment!*

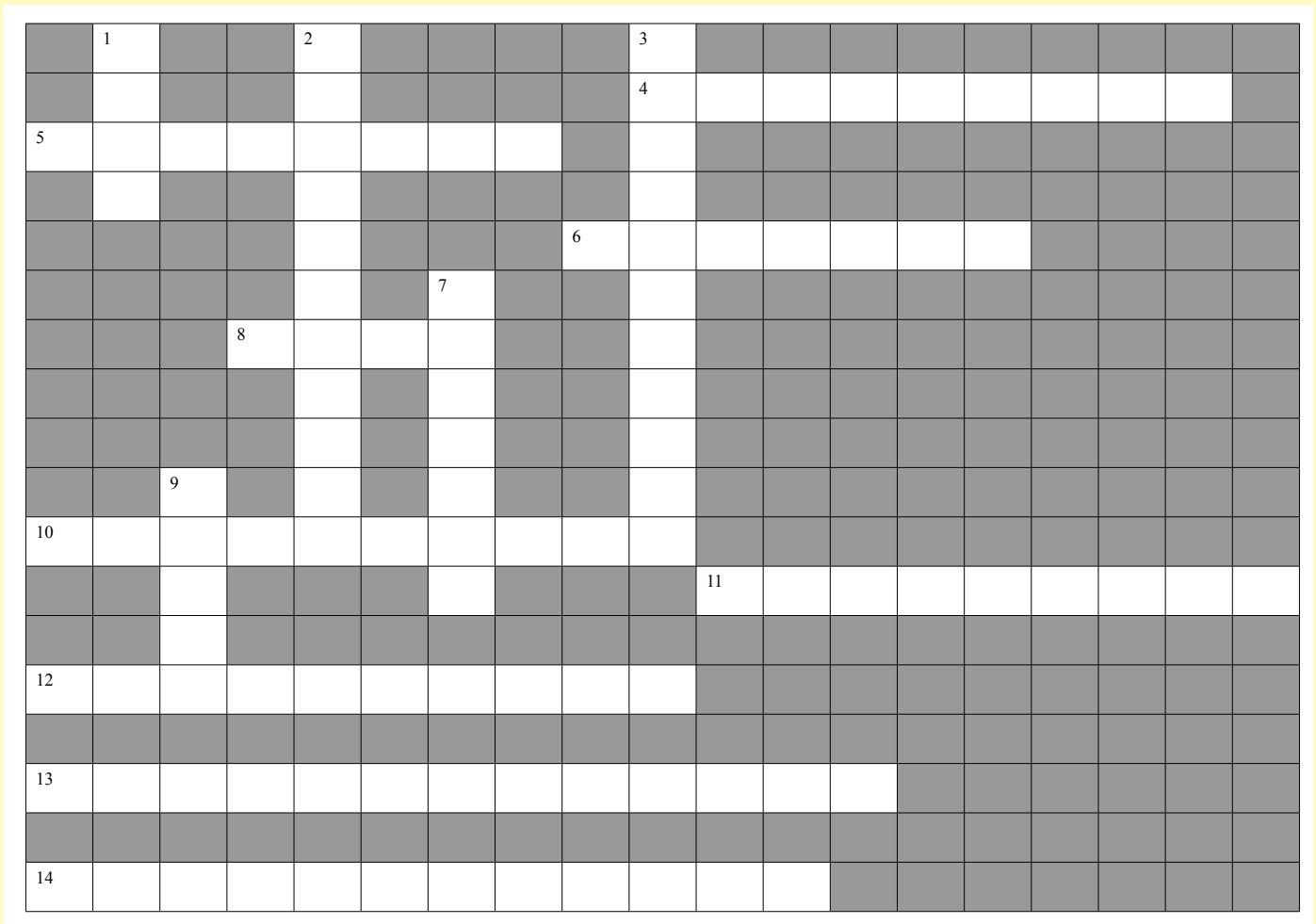
*Herbicides are not to be sprayed near sources of water,
They contaminate our rivers,
Let us conserve our environment!*

*Throwing of waste materials around brings about pollution,
Disposing of garbage by burying is good,
The environment is polluted by air, water and harmful chemicals
Let us conserve our environment!*

**Mary Wanjiru and Mercy Wambui,
Class 8 West, OI-Jabett Primary School**



CROSSWORD



ACROSS

4. A community of plants, animals, and non-living things that exist in the same place
5. The process by which the surface of the earth is worn away by the action of water
6. The specific area in which a particular type of plant or animal lives
8. Earth surface which plants are grown
10. A usually large group of plants and especially trees under cultivation
11. The action of polluting or the condition of being polluted
12. Supplying dry land or crops with water by means of pipes, sprinklers, or streams
13. The act or result of cutting down or burning all the trees in an area

14. Protection, preservation, management, or restoration of a resource

DOWN

1. Land on which crops are grown
2. A tropical forest that receives a lot of rain and that has very tall trees
3. A general lowering of the earth's surface by erosion or weathering.
7. The average weather for a particular region and time period
9. The clear liquid that has no colour, taste, or smell, that falls from clouds as rain

Milcah Rajula
Communication Consultant
ALIN

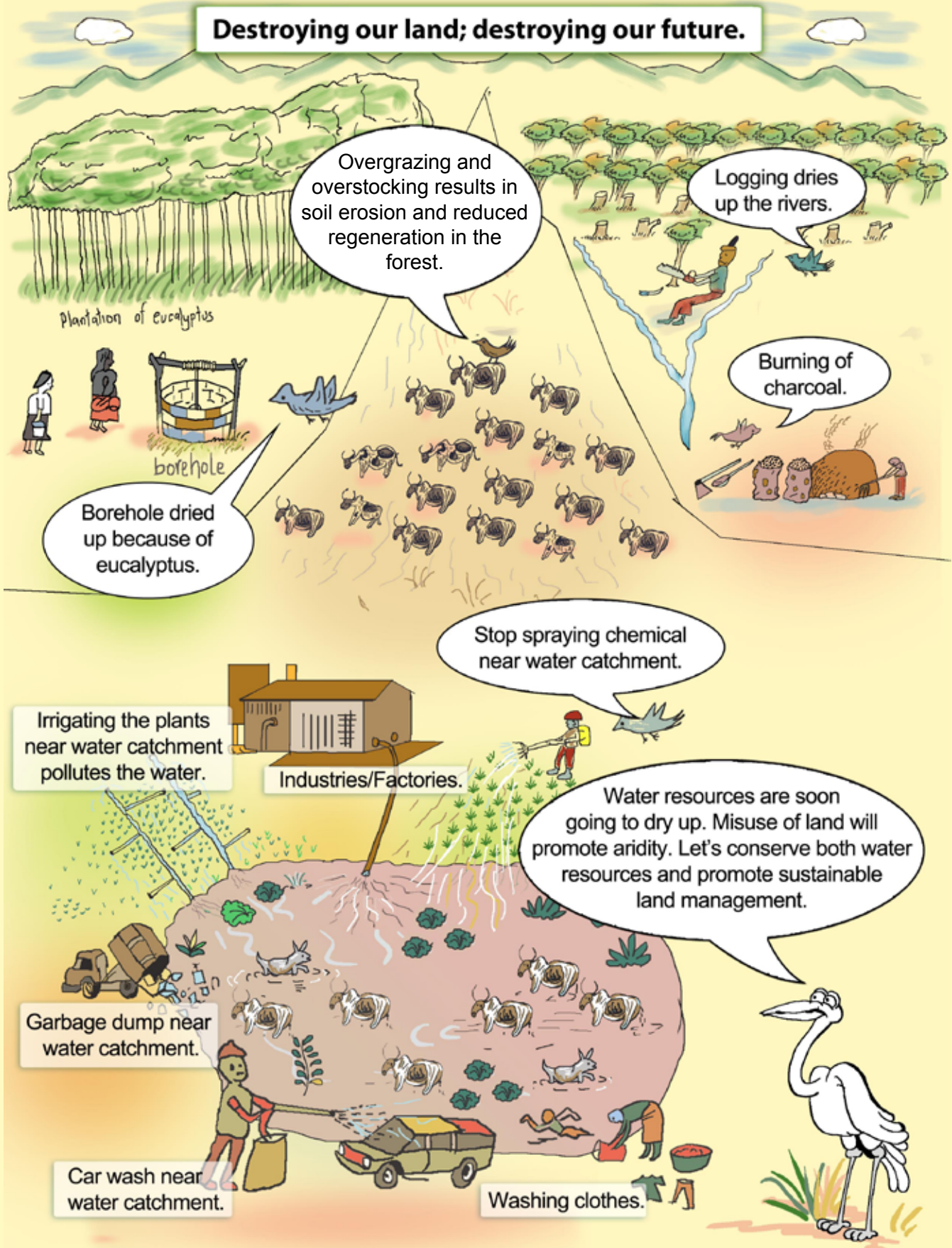
CROSSWORD Solution for *Laikipia Mali Asili* Issue No. 1

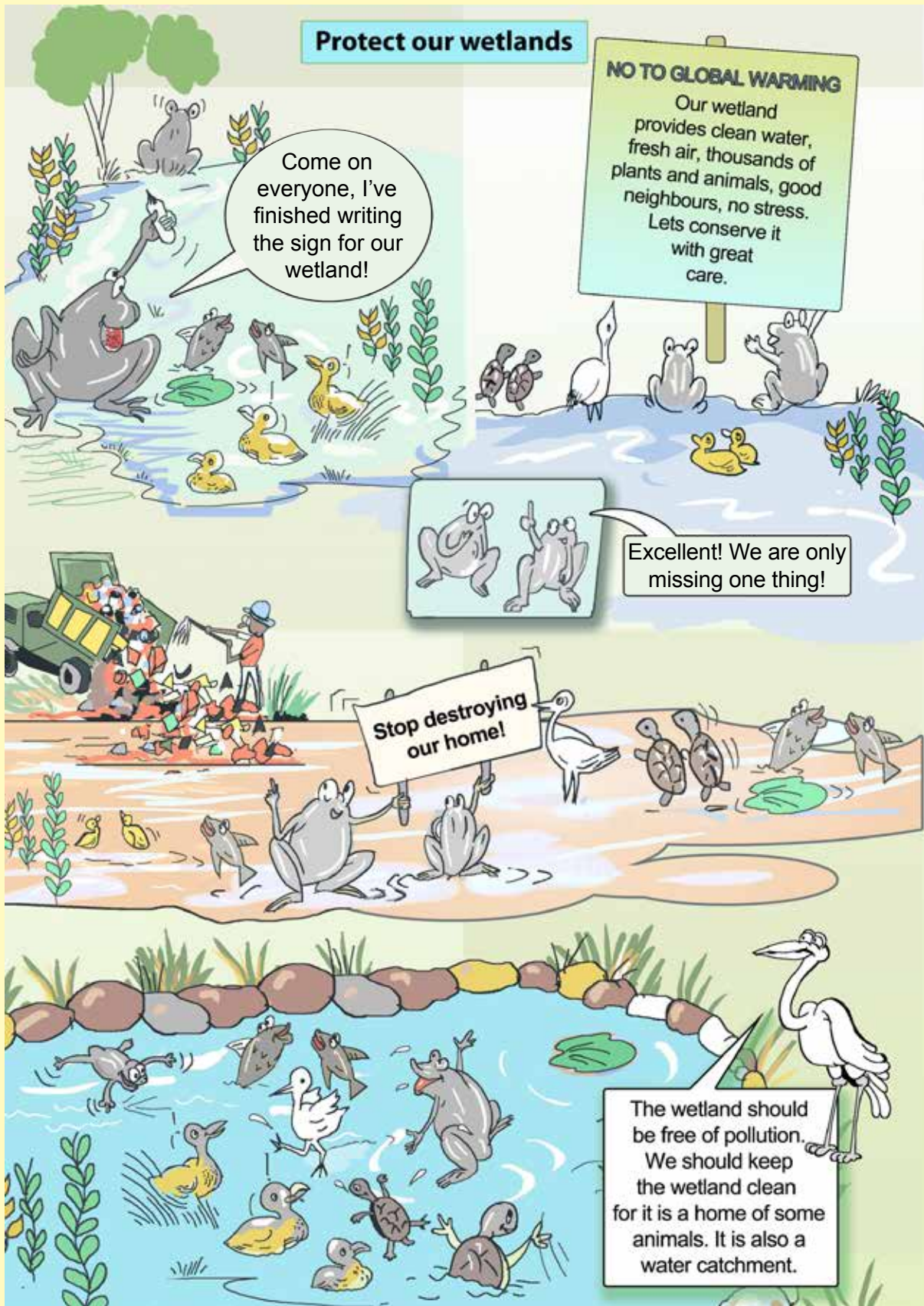
Across

1. Deer
4. Bee
5. Fish
6. Cheetah
9. Buffalo
11. Snail
12. Monkey
13. Baboon
14. Zebra

Down

2. Ant
3. Rat
4. Butterfly
7. Hippo
8. Elephant
9. Bat
10. Lizard
15. Peacock





Credit: Kevin Korir, Class 7, Ol-Jabett Primary School