

# Supplementary material

## Participant Quotes (PQ)

### 3.1 Stakeholders' perceptions on WEP trees availability and consumption

#### Status of WEP availability

PQ1: "If we are not careful, like the animals, the WEPs will disappear from our community and expose us to more hunger than even now." [Workshop 9, Kamarese, 22 February 2023].

PQ2: "Any initiative that aims at conserving these wild edible plants is a great initiative and one of the best ways to address food insecurity while restoring our actual natural ecosystems" [Expert 2, 15 May 2024].

#### Impact of changing weather patterns

PQ3: "These fruits used to be very vital during the dry season.... during the wet season when there is rain, these plants take advantage and take in water, but in the dry season, they fruit. But this has changed. Since the beginning of 2021, rain disappeared and many rain seasons passed without rain. They [WEPs] have also refused to produce fruits because of this, and those that produce, the health of the fruits is not good; they are very small in size and deformed, and also the amounts produced are very small" [Workshop 9, Kamarese, 22 February 2023].

#### Other environmental and anthropogenic factors

PQ4: ".... many years ago, there were many wild animals here that used to eat these WEPs then when they deposited their waste, the WEPs would sprout from that. But with the settlements here and the killing of these animals, the seeds cannot germinate even if planted because they are not activated" [Workshop 1, Atala kamusio, 02 February 2023]

#### Cultural and dietary shifts

PQ5: "Change of culture has also contributed [to decline in WEPs consumption], from eating of wild fruits to modern fruits like mangoes, avocados, like small children have to eat lollipops and yoghurts" [Workshop 2, Namoruputh, 04 February 2023].

PQ6: "The young generations may not be aware of the decisions made to conserve these WEPs... so it requires a lot of sensitizations to them" [Expert 4, 20 May 2024].

#### WEP utilization

PQ7: "Because they are natural, they don't use any chemicals or fertilizers to grow, then they are medicinal, and they prevent diseases" [Workshop 7, Lochwa, 18 February 2023].

PQ8: "It's free, readily accessible and available to anybody who wants it because you might be travelling, and you meet Engomo (*Grewia tenax* (Forssk.) Fiori) on the road, you just pluck and eat and proceed with your journey" [Workshop 7, Lochwa, 18 February 2023].

### 3.1.3 Conservation challenges

#### Intergenerational Knowledge Gap

PQ9: "The young people here are the ones who cut the trees more. Many of them have moved to Lodwar but the few who remain here who did not finish school only see these trees as their only source of income" [Workshop 2, Namoruputh, 04 February 2023]

PQ10: "The younger generation lacks knowledge and appreciation of the value of WEPs, which hinders conservation efforts" [Expert 4, 20 May 2024].

#### Policy implementation issues

PQ11: "...a lot of Toyota Probox Saloon car pass here every day with loads and loads of charcoal, but you cannot question them because they have the permit" [Workshop 4, Lorugum, 09 February 2023].

PQ12: "Nationally we have policies though they are not sufficiently implemented... the Turkana County government needs to have policies that guide on WEP" [Expert 4, 20 May 2024].

#### Difficulty balancing conservation and immediate needs

PQ13 "If you ask why they are cutting down the trees, they will ask you which is important between saving the tree and letting their child die of hunger or cutting down the tree and saving their children from dying from hunger. At this point you will not have anything to answer back but to grant their wish" [Workshop 2, Namoruputh, 04 February 2023].

Lack of information on the nutritional potential and conservation of WEPs

PQ14: "We should also do more research for value addition of the product, like Elamach (*Balanites pedicellaris* Mildbr. & Schltr) to be milled like cassava" [Expert 1, 14 May 2024].

### **3.2 Community action planning for WEP conservation strategy**

Preserving and transferring traditional knowledge

PQ15: "We need to pass on the knowledge about these plants to our children, so they can continue protecting them "[Workshop 1, Atala kamusio, 02 February 2023].

Restoration and supportive cultivation of WEPs in managed spaces

PQ16: "If we plant these trees ourselves and take care of them, we can make sure they don't disappear" [Workshop 2, Namoruputh, 04 February 2023].

Collaborative roles and responsibilities for WEP conservation

PQ17: We need to know the nutritional benefits of these plants, so we can appreciate their value even more [Workshop 2, Namoruputh, 04 February 2023]."

### **3.3 Validation of conservation action plans**

PQ18: "I support the idea since the selected WEP plays a very vital contribution to our own nutritional status and ecosystems" [Expert 2, 15 May 2024].

#### [Comprehensive list of recommendations](#)

1. Establish a holistic approach that addresses the multiple factors contributing to WEP decline in the region.
2. Consider both local knowledge and scientific expertise in understanding and addressing WEP decline.

3. Develop tailored strategies that integrate cultural preservation with contemporary dietary preferences to ensure the continued relevance and conservation of WEPs.
4. Implement targeted educational initiatives and alternative livelihood strategies to engage younger community members in WEP conservation. intergenerational knowledge gap
5. Formulate robust policy and effective enforcement mechanisms at both county and national levels, including more localized strategies like use of forest guards and extension agents and specific guidelines to protect WEPs
6. Encourage community engagement initiatives and capacity-building efforts aimed at instilling a culture of conservation and stewardship among local populations.
7. Conduct further research on WEPs' nutritional properties and value-addition potential to enhance their economic value and incentivize conservation.
8. Valorize nutritional knowledge and value addition to strengthen community attitudes towards WEPs, potentially increasing consumption and conservation efforts while creating economic incentives.
9. Utilize diverse platforms to educate people about the value of WEPs and the need for their conservation.
10. Garner more broad-based support in WEP conservation efforts.
11. Develop a multi-tiered approach to WEP conservation, combining community action with broader governmental support.
12. Cultivate WEPs outside their natural environments and establish facilities to support their propagation and preservation.
13. Engage stakeholders in planting WEPs to ensure their continued availability
14. Establish community-managed tree nurseries to
  - a. serve as platforms for educating younger generations about the importance of trees and conservation,
  - b. generate income through seedling sales
  - c. create local employment opportunities.
15. Establish community-level gene banks to serve as repositories of genetic diversity, ensuring the availability of seedlings for future planting efforts, and to act as centers for research, education, and community engagement in WEP conservation.

16. Transition away from charcoal burning for survival and allocating land for food crops.
17. Design and implement incentives such as Food-for-Asset Programs and Cash-for-Work Schemes, to encourage community members to not only plant WEP trees but also motivate ongoing care for planted trees, including protecting them from destruction by roaming livestock, removing weeds and regular watering to increase survival rates.
18. Garner collaborative efforts from various stakeholders.
19. Deploy forest rangers to enforce laws and support community efforts, enforcing conservation policies, sensitizing communities about conservation, drilling boreholes for water provision, providing technical and financial support for WEP conservation initiatives, and supporting community incentivization schemes and programs.
20. Foster multi-level government involvement for creating an enabling policy environment and providing necessary resources for conservation efforts.
21. Document nutritional profiles of wild food sources and determine WEPs' nutritional value as a management strategy to eliminate threats to their availability and sustainability.
22. Develop strategies to revitalize interest in traditional food sources that may include:
  - a. integrating nutritional composition data into community extension services and empowerment sessions.
  - b. developing modern, appealing recipes
  - c. organizing food festivals and cooking competitions
  - d. integrating WEP knowledge into formal education curricula
23. Design and implement economic incentives or value-addition strategies for WEP conservation with robust safeguards to prevent unsustainable harvesting practices.