World Vision

Farmer Managed Natural Regeneration

An effective approach to restoring and improving agricultural, forested and pasture lands

PRIMARY TARGET GROUP

The main beneficiaries of this approach are those who use or depend on tree resources such as farmers, herders, community members, and particularly women and children who harvest wood and non-timber forest products.

What is this approach?

Farmer Managed Natural Regeneration (FMNR) is a rapid, low cost and easily replicated approach to restoring and improving agricultural, forested and pasture lands. FMNR is based on encouraging the systematic re-growth of existing trees or self-sown seeds. It can be used wherever there are living tree stumps with the ability to coppice (re-sprout) or seeds in the soil that can germinate. Vast areas of land around the world, particularly in the tropics and semi arid tropics, still have coppicing tree trunks, roots, and seeds in the ground from which there is the potential for FMNR.

When would this project model be used?

FMNR can be considered in any agricultural, livelihoods or development project where increased tree cover will contribute to an improvement in long term well-being and where the physical ability to conduct FMNR exists. When community members realise that trees are disappearing, the environment is degrading, and conditions are deteriorating, implementation of FMNR is highly recommended.

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Acronyms

ADP	Area Development Programme
DADDs	WV's Do-Assure-Don't Do Frameworks
DME	Design, monitoring and evaluation
FMNR	Farmer Managed Natural Regeneration
WV	World Vision

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Farmer Managed Natural Regeneration (FMNR) project model

1. What is Farmer Managed Natural Regeneration about?

Farmer Managed Natural Regeneration (FMNR) is a rapid, low cost and easily replicated approach to restoring and improving agricultural, forested and pasture lands. FMNR is based on encouraging the systematic regrowth of existing trees or self-sown seeds. It can be used wherever there are living tree stumps with the ability to coppice (re-sprout) or seeds in the soil that can germinate. Vast areas of land around the world, particularly in the tropics and semi arid tropics, still have coppicing tree trunks, roots, and seeds in the ground from which there is the potential for FMNR.

FMNR is an empowering form of social forestry. It gives individuals and communities responsibility for the care and nurture of naturally occurring woody vegetation and rewards from the sustainable harvesting of wood and non-timber forest products. Conventional approaches to reversing desertification, such as planting tree seedlings raised in nurseries, rarely spread beyond the project boundary once external funding is withdrawn. Particularly in arid and semi arid areas, the scarcity of water makes tree planting projects particularly prone to failure. By comparison, FMNR is cheap, rapid, locally-led and implemented, uses local skills and resources, and is highly successful.

FMNR uses nothing new. It is simple and cheap so that the poorest farmer can learn by observation and teach her neighbour. FMNR can be done on a large scale without on-going government or non-governmental organisation interventions. Given an enabling environment, or at least the absence of a 'disabling' environment, FMNR can, and does, spread well beyond the original target area without project or government help.

'Farmer' Managed Natural Regeneration started with farmers, but it can be implemented by whole communities and by people of any profession. Each language group is encouraged to pick a name in the vernacular which best captures what FMNR means to them.

1.1. What are the issues or problems that the project was developed to address?

FMNR can be considered in any agricultural, livelihoods or development project where increased tree cover will contribute to an improvement in long-term well-being. The physical ability to conduct FMNR must also exist.

Specific issues and problems the project addresses:

- poor crop yields due to poor soil fertility, soil erosion, drought, flood or wind damage
- decreasing income for those in natural resource-based livelihoods such as farming, herding or selling of wood, charcoal and honey which leads to chronic or increasing poverty
- insufficient wood supplies for cooking or building
- security issues for women and children due to walking long distances to find fuel wood
- food insecurity and malnutrition
- conflicts over natural resources

- chronic or repeated natural disasters from flooding, strong winds or drought. Trees help to decrease the risk of floods, enhance water infiltration into the ground and shield more fragile plants from strong winds and intense sun.

Because FMNR is very simple and does not require large investments of financial capital or outside resources, it can also address problems if programming resources are limited.

1.2. What are the main features of the model?

The specific practices of FMNR will vary, based on the needs, resources and goals of those implementing it. Any of the suggested procedures should be adapted to meet the goals of the farmer or other practitioner. Facilitating the implementation of FMNR will typically include the following:

- **FMNR awareness creation:** A workshop is organised for all stakeholders (men, women and youth of the community including majority and minority ethnic groups, sedentary and nomadic residents, local government representatives, agriculture and forestry department representatives, local partners, and other non-governmental organisations). Women and children are particularly crucial because in most societies, women are responsible for fuel wood collection and children are often required to clear and burn all trees in agricultural fields before planting time. Children are also more receptive to new ideas and they are the next generation of farmers. The workshop includes hands-on training in pruning and management techniques and facilitated discussion of how to select potential trees. Appendices A and B provide a sample workshop outline from Uganda, and a practical hand-out on FMNR.

  Once a community decides to practice FMNR, discussion and promotion moves beyond stakeholders who attended the workshop, to include the wider local society: local partners, community members, schools, religious leaders, local media, and traditional and administrative authorities. At this point, the wider agricultural community needs to develop some form of enforceable social contract to protect tree regrowth and respect regrowth on their neighbours' land.
- **Advocacy for a favourable policy environment:** The primary motivation for an individual or community to practice FMNR is the belief that practitioners will benefit from their labour. In many countries, individuals and communities do not own trees or do not have user rights. For FMNR to succeed it is important to have a legally-binding agreement with the government that individuals and communities will either own the trees they care for outright, or have user rights to use or sell wood and non-timber forest products. Getting policies changed is not easy. However, in countries where World Vision (WV) has established good relations with high-level government officials, they can be exposed to the benefits of FMNR through video presentations, workshops and visiting successful project sites.
- **Organisational structures:** Cooperatives can be identified and strengthened (or established if none exist) and appropriate mutually agreed by-laws for the management of trees can be developed. This group may be a part of a working group that was formed in Step 5 of the Critical Path or they may be identified and are collaborating with a working group. A member of the working group may serve as a coordinating partner.
- **Adequate follow-up and encouragement:** New concepts invariably encounter early problems and it takes time for them to become normal practice. It is important for WV and the coordinating partner to provide adequate follow-up and encouragement during the formative stages of uptake.
- **Advocacy for enhanced market access:** Steps may be needed to create an enabling environment to facilitate the sale of wood and non-timber forest products. In many countries it is illegal to sell firewood despite 90 percent of energy needs being met by fuel wood. Tree cutting may be legal if a permit is obtained, but the process can be very

difficult for someone living in a remote area. Often this is open to corruption. When a community decides to practice FMNR, it is possible to establish local by-laws and set up a coordinating partner or management committee. Scouts can then monitor tree cutting and certify that the wood comes from sustainably-managed FMNR stands. At a later stage, when the community is ready, consideration should be given to facilitating the establishment of certified wood markets that only sell wood produced through FMNR.

1.3. What are the expected benefits or impacts of this model?

FMNR has a significant and positive impact on income (poverty alleviation), food security (including the volume of food, energy content and dietary diversity), disaster resilience and reduction of conflict. FMNR is a significant approach for both climate change adaptation and mitigation. It has proven effective from small scale to landscape scale, as a means of restoring degraded land, reversing desertification, enhancing ground water recharge and contributing to reforestation. With guidance, FMNR can be a prime motivator for improving local governance structures and enhancing positive community-local government engagement. See the articles listed in Section 8 for further details.

One independent study estimates that the annual additional income earned directly by farmers from FMNR in the Maradi region of Niger is between US$17 – 23 million. Per family, incomes have increased by around USD$200 per year. This occurs without any on-going project input. Because of FMNR, farmers in Niger are producing an estimated additional 500,000 tons of cereals a year.[1] This additional production covers the food requirements of 2.5 million people out of a total population of about 15 million in 2009. FMNR also has an indirect impact on food security through tree crop products, which farmers can harvest and sell in local markets. Moreover, despite a near-doubling of the population since 1980, Niger has been able to maintain per capita production of millet and sorghum, which make up more than 90 percent of the typical villager's diet.

1.4. How does the project model contribute to WV's ministry goal and specific child well-being outcomes, and reflect WV strategies?

FMNR is designed to empower communities to improve and manage, in a sustainable, inclusive and consultative manner, the resources upon which they base their livelihoods, health, food security and futures. It is therefore directly linked to World Vision's ministry goal. FMNR impacts positively on multiple child well-being outcomes - with the greatest contribution likely to be on improving child health and nutrition ('children are well nourished').

FMNR can also contribute to the child well-being outcome, 'parents or caregivers provide well for their children' because it increases the ability of caregivers and communities to restore and build their livelihoods and to also help to provide children with skills and resources to build and maintain their own future livelihoods. The degree of impact on each outcome will depend on the context.

FMNR also contributes significantly to the WV Agricultural Strategy, to the Economic Development and Agriculture DADDs and to the overall ministry of the Agriculture and Food Security sector.[2]

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[1] www.ifpri.org/publication/millions-fed

[2] World Vision's Sector and Theme Do-Assure-Don't Do Frameworks (DADDs): http://www.transformational-development.org/ministry/transdev2.nsf/Sector_Theme_DADDs.pdf

2. Context Considerations

2.1 In which contexts is the project model likely to work best?

The following examples all describe contexts where the implementation of FMNR can be beneficial:

- Loss of tree cover is negatively impacting crop yields and livestock productivity.
- Landscapes are deforested and degraded.
- The environment has lost critical levels of biodiversity.
- There is a shortage of firewood and building timber.
- Community members are forced to migrate for work due to decrease in crop yields and farm profits.
- Stronger winds, more prolonged droughts, more severe floods, higher temperatures, dust storms, decreased seasonal water flow and well recharge, caused or increased because of tree loss and have made environments less habitable.

The success of FMNR increases with policies that provide user rights or ownership to natural resources and organisational structures such as cooperatives and development groups, with a defined set of by-laws devised by all stakeholders. These groups can serve together on a working group or function as a broader network. A coordinating partner or partners may take the lead in coordinating activities and working with farmers to implement.

From the initial consideration of this project model, it is critical to remember these points:

- The practice of FMNR is extremely flexible with an emphasis on being 'farmer-managed' or 'community-managed' rather than project directed. **WV** can guide and give advice, but in the end **stakeholders** need to be given the freedom to decide for themselves on what species to leave, when and how to prune, how to share the proceeds, what to do about infringements of agreed rules, and the respective roles and benefits of women, men and vulnerable groups.
- FMNR may be appropriate on communal land or on farmland or both.
- The objectives of the practitioner will dictate the type and frequency of pruning.
- Government policies on trees and access to them vary from country to country. These need to be taken into consideration and appropriate action taken, to ensure an enabling environment for FMNR.

2.2 In which contexts should this model not be considered?

- FMNR would be unlikely to succeed in volatile conflict situations. However, if conducted appropriately, evidence from Niger indicates a reduction in conflict over scarce resources where FMNR is practised. The promotion of FMNR could thus be seen as a peacebuilding exercise which assists communities to plan natural resource use jointly, to enhance productivity and to share the benefits.
- Urban settings are less likely to have the necessary tree stumps or social cohesion required for practising FMNR.
- Areas which are very dry, which do not have latent seed or living trees stumps in the soil and which experience regular high levels of livestock impact are less likely to be suitable, or at least will present greater challenges. Even so, tree stumps have been found growing even in desert conditions where very low rainfall levels are recorded (50-100mm per year).

2.3 What questions should field staff ask when adapting this model, and are there particular context factors relating to this project model that they should consider?

In gaining understanding of any community, many of the indicators for FMNR may become apparent, but first it is important that staff members are fully aware of the impact of tree loss. Communities do not always link poverty, declining crop yields or increased hardship with the loss of their trees. Some communities do make the connection, but either do not know how to respond, or fear losing the little income they do make from tree harvesting, which leaves them feeling threatened by discussions about forest and tree loss. For these reasons, it is extremely important to focus on building a relationship of trust and empathy with the community before probing too deeply on this issue.

Once relationships and mutual understanding of goals, roles and positions have been developed, indicators for the implementation of FMNR are identified through visual and community assessments. First, observe the state of the landscape. Then, through discussion or by referring to historical records, establish information about the previous state of vegetation in the area. Encourage discussion around useful questions such as:

- Where do you get firewood? How far do you walk? Is it easier or harder than previously to get wood?
- Are crops producing more, or less than in the past?
- What are the main problems leading to any recent crop failures?
- Is there a decline in soil fertility and yields which can be linked to tree loss?
- Is there any change in the amount of animal fodder compared to the past?
- Is it difficult to find enough animal fodder?
- Are problems with crop pests increasing? (often linked to loss of biodiversity)
- Have streams and springs dried up or reduced? Has the environment lost critical levels of biodiversity?

Due to its nature, FMNR will address Do No Harm, and some disaster risk reduction elements (drought, famine, conflict, policy environment risk, desertification or flooding) within the basic implementation work. Other important elements of context appropriate adaptation of this model should be addressed through adherence to the principle of keeping FMNR flexible, locally-appropriate and farmer (practitioner) managed.

3. Who are the key target groups and beneficiaries of this model?

3.1 Target group(s)

FMNR can quickly provide an increase in valuable natural assets which cannot be fully secured. Because of this targeting may actually be harmful, resulting in a loss of social cohesion or theft of trees and tree products and resulting conflict. For this reason, it is usually best to introduce FMNR to as much of the community as possible, encourage sharing of the methodology and to work with existing or new organisational structures on setting mutually agreed by-laws.

The main beneficiaries of this approach are those who use or depend on tree resources such as farmers, herders, community members, and particularly women and children who harvest wood and non-timber forest products. When community members realise that trees are disappearing, the environment is degrading, conditions are deteriorating, and express a felt need for support, implementation of FMNR is highly recommended.

Members of the community who are already interested and active in conserving and sustainably managing trees may be the best initial partners, with a view to influencing the whole community over time. Potential groups who may be interested in being involved in a working group focused on this approach include, women's and farmer's co-ops and collectives, youth employment and action clubs, savings and loan groups, individual farmers, community-based organisations, and faith-based groups.

The local government must be targeted for their potential role in information sharing and working on enabling policy environments. If WV is involved in an emergency response in an area with the indicators for FMNR, where it plans to provide food or cash for work programming, FMNR makes an excellent activity for such programmes.

3.2 Who are the intended primary beneficiaries?

Primary beneficiaries will vary by programme area. Because of FMNR's low cost and high impact, any group or community that is experiencing problems such as insufficient wood supplies, soil erosion, loss of tree cover, poor crop yields, and low income for natural resource-based livelihoods are all potential beneficiaries as long as they have the capacity to implement the simple techniques of FMNR.

Children, women and marginalised groups, who often suffer first in situations of chronic or increasing scarcity, and who may bear the greatest burden of farming, wood collection and food preparation, may benefit significantly. Families can also benefit significantly. Farmers who formerly had to migrate to find work, leaving behind family members on the land, become able to make a living from the land again.

3.3 Life cycle stages to which the model contributes

Prenatal to 5: The biggest contributions to child well-being at this stage can be expected in the areas of health and nutrition. Through the practice of FMNR, one can expect increased availability of vitamin and mineral rich wild foods (fruits, nuts, leaves), greater amount of available food through increased crop yields and livestock productivity, and a greater range of foods (through increased purchasing power by parents). Foods are likely to be better cooked as the supply of firewood will increase. The presence of trees is likely to improve the microclimate; reducing strong winds and dust resulting in a positive impact on health. Parents will be more likely to have assets (standing wood) which they can sell for cash in times of need, such as in a medical emergency. Pregnant and nursing women will be less exhausted from having to walk long distances with heavy loads of wood. This will contribute to their strength, general health and nutritional status at birth and during lactation.

6 to12 and 12 to 18 years: Additional well-being contributions at this stage can be expected in the areas of education, inclusion in community development, contribution to life skills and exposure to a healthier environment. Parents practicing FMNR will be more likely to have the resources required to send children to school. Children can be active participants in decision making and community development, by giving input to community planning meetings, creating environment clubs at their schools, and by taking part in learning activities centred on FMNR. In this way they can be included in activities that affect their present and future quality of life while gaining valuable life skills. Children will grow up in a diverse environment with trees, birds and wildlife that they can experience and enjoy.

12 – 18 years: Well-being benefits are the same as for children 6 to 12 years old. In addition, through participating in FMNR activities, older children learn valuable lessons about sustainable farming and environmental restoration.

3.4 How will the model include and impact the most vulnerable?

Inclusiveness can be deliberately designed into any FMNR project. For example, landless people, minority groups and female and child-headed households can benefit from community FMNR projects on communal land. As well as going beyond mere day wages, vulnerable groups can be intentionally included as equal stakeholders with responsibilities. In this way they will gain the benefits from communal forest management.

All able-bodied community members can contribute to, and benefit from an FMNR project. A well-designed FMNR project will include the most vulnerable, and will ensure information on FMNR and its implications, is accessible to all. They can also be involved with associated enterprises such as bee keeping and the sale of firewood, medicines, and fruits, which may not have been possible before FMNR. Here are some ways of ensuring the most vulnerable are included:

- Give the most vulnerable appropriate roles. For example, landless people can be 'employed' by the community to patrol fields and report infringements, or as fire wardens.
- Emphasise the inclusion of all stakeholders in FMNR workshops and management decision-making bodies.
- If the vulnerable do not have access to their own private land or to communal land, labourers can benefit from increased employment in pruning and carting wood and non-timber forest products. Employment opportunities may also be created through increased tourism opportunities.
- Elderly and disabled people can be included in FMNR activities. Depending on the disability and their capacity, they can be included in all activities in this approach. For anyone whose health or disability status limits their ability to be involved with physical care for wood stocks, activities like marketing may be preferentially reserved for their participation.
- The most vulnerable can also benefit from the availability of edible fruits which can contribute to nutrition and income.

4. How does the project model work?

4.1 Overview of approach/methodology

The FMNR project model involves both awareness creation and behaviour change components, along with the physical practice of restoring and managing tree growth on degraded land. The physical methodology of FMNR practice is extremely simple (please see the resources in Section 8 and in the Appendix B, for step-by-step guidance). The basic concepts are as follows:

- Tree stumps that are re-sprouting are selected based on the participant's goals, resources and needs.
- Those trees which are to be managed through FMNR are then pruned, leaving only a small number, sometimes even only one strong sprout. This can then grow more quickly because it is not competing for resources.
- Sample sites should be selected, marked by posts, and GPS coordinates recorded and photographed. This will provide valuable information over time for monitoring and evaluation and will provide a convincing historical record.
- Participants periodically return to the trees to prune away new sucker branches so they do not drain resources from the selected branches.
- Depending on the participant's management style and goals, the tree may be harvested once it has grown large enough, or maintained with unwanted trimmings used for fertilizer,

fodder, food or fuel wood, or portions of wood may be periodically harvested once large enough.

- If there are few or no stumps, trees that sprout from seed within the ground may be protected from animal and human use so they grow large enough to begin pruning and managing.
- The use of Zai holes (planting pits containing compost) can be used to start growing trees where naturally occurring seeds are not sufficient. This is a successful way of helping to return trees to treeless landscapes. See Appendix C for more details.
- It is also possible to maintain trees from tree nurseries by using the FMNR techniques, if there are no naturally occurring trees resources available, but it is much cheaper and easier to begin FMNR with existing resources.

Awareness creation can be more complex. This calls for staff, the working group members and the coordinating partner to participate and facilitate without taking over the community's ownership. These components include:

- Wide-scale awareness creation, consultation and all-stakeholder planning is encouraged at the outset.
- An inventory of indigenous species and their uses should be made and the number and density of species occurring in specific sites recorded.
- Potential partners, including traditional organisational structures (such as cooperatives or farmers clubs) should be established or strengthened. If governing structures are not already present they must be established.
- By-laws on tree use and management should be created by all stakeholders.
- Government recognition and the formalisation of rights and responsibilities of those practising FMNR should be promoted.

4.2 What local level partners could be involved?

A working group, formed in Step 5 of the Critical Path, is a made up of organisations and groups who are seeking ways to work together on one or more of the community's child well-being priorities. A working group could be focused on health, education, child protection or other priorities identified by the community. A working group makes the decision to implement the FMNR project model and, depending on the context, identifies a coordinating partner. The working group may identify a member of the group or may decide to find another local partner who could work with the WV development facilitator to implement the project.

Where possible, government forestry and agriculture departments should be involved in the working group, regardless of their strength. All other organisations and groups working with rural communities should be seen as potential partners and beneficiaries of FMNR training by WV, and as collaborators in spreading this technique country-wide.

Contexts of low civil society need not impede the successful implementation of FMNR because of the key role of mobilisation. FMNR uptake and spread is based on the mobilisation and capacity building of community members, traditional and religious leaders, local and national government, local academic, and other non-governmental organisations. It requires very little in terms of technical expertise and inputs.

If the working group is comprised of community-based groups that have weak organisational capacity, then the process of implementing FMNR can help strengthen and build their capacity. WV implementers are also encouraged to share FMNR information with all relevant organisations because this may contribute to strengthening their portfolio and capacities.

TABLE 1: Recommended partners		
Potential partner	**Priority for partnering (Essential, Desirable)**	**Partner role**
• Local government	Essential	• Creation of favourable policy environment • Endorsement and encouragement of FMNR activities • Communication of progress to national government.
• Local departments of agriculture and forestry	Essential	• Adoption and promotion of FMNR in their standard suite of agricultural and forestry activities • Monitoring and follow-up, encouragement of FMNR practitioners • Authoritative intervention during disputes and breaking of by-laws • Assistance in establishing certified markets.
• Other organisations – particularly those working in natural resource management, agriculture, micro enterprise development.	Desirable	• Promote FMNR in adjacent areas • Support joint FMNR initiatives • Partnership will ensure they do not undermine FMNR promotion.

4.3 How does the model promote the empowerment of partners and project participants?

The practice of FMNR empowers individuals, communities, government, civil society, non-governmental organisations and local partners in a variety of ways by:

- giving individuals (women, men and youth) and communities access to, and control over, the natural resources they depend on
- facilitating increased decision-making power and collective action while reducing the ability of authorities to deny responsible access to natural resources
- improving all partner's knowledge on the sustainable management of natural resources
- empowering those implementing the process to determine how best to meet their own needs
- facilitating improved governance structures
- strengthening the capacities of civil society groups
- involving all stakeholders, including the disadvantaged and the most vulnerable
- building capacity to implement and train others to implement an inexpensive and rapid means of improving their resource base
- bringing communities, government agencies, non-governmental organisations, research and teaching institutions and other civil society together
- giving people a voice, so their views are respected and incorporated into policy and project activities.

5. Project DME

5.1 What are the goal and outcomes that will be sustained as a result of this project model?

The goal is 'increased economic capacity of parents or caregivers to provide well for their children'. Specific outcomes will vary based on the context and individual goals and choices, but typical outcomes will include some or all of the following outcomes:

- improved nutrition, dietary diversity and access to food
- increased informal employment opportunities and income generation potential (with resulting food, educational, and development benefits to families and children)
- increased tree cover on crop, pasture, private and common lands
- decreased wind and water damage to crops and soil
- improved soil fertility
- increased water retention in watershed
- increased crop yield and diversity
- increased access to firewood for home or sale use
- increased access to wood for non-fuel uses for home or economic activities
- less need to migrate for access to pastures or work
- improved policy environment and capacity building for working with government structures.

In addition, all of these outcomes ensure long-term and sustainable benefits to the natural environment.

5.2 Sample logframe for this project model

The diagram below shows the logic of this project model. The indicators shown below illustrate the types of indicators that can be used. An illustrative logframe including a range of potential indicators is provided in Appendix D. See the *Compendium of Indicators for Measuring Child Well-being* for further details of these indicators.

* This indicator is part of the *Compendium of Indicators for Measuring Child Well-being*

5.3 Recommended monitoring methods

Monitoring and evaluation teams should include members with experience in FMNR so that they are conversant with issues specific to this practice. They will also be able to identify good and bad practices.

Methods used for monitoring and evaluation include focus group discussions, interviews with individuals, household surveys, field visits and photographic records (Note: It is important to have fixed-point photographs or GPS-located photos so that the same sites can be compared over time. All photos should reflect WV's standard child protection protocol.).

Monitoring and evaluation exercises concentrate on understanding:

- the degree of uptake of FMNR (Indicators include the 'number of practitioners', 'number and diversity of trees' and 'number of hectares of land involved'.)

- the extent of inclusion and participation in FMNR adoption (Is there equal access to FMNR information and tree resources by men and women and vulnerable groups? Indicators include the 'number of women and vulnerable groups successfully practicing and benefiting from FMNR', the 'number and position of women and vulnerable groups on key decision-making positions' and 'the average time taken to collect firewood and non timber forest products per day'.)
- how well the community dealt with key problems facing FMNR including fire management, livestock control and theft of trees
- the degree of spread of FMNR beyond the target population (Indicators include 'the physical spread of FMNR beyond project boundaries', the 'number of non-target population FMNR practitioners', the 'number of farmers who can cite three advantages of FMNR'.)
- the equity and level of benefit of FMNR (Indicators include 'financial resources', 'food security', 'harvest of firewood', 'increase in biodiversity', the 'sources of dry season income' and the 'average time to gather firewood per day'.).

5.4 Advocacy component(s)

- There is often a critical need to advocate for a favourable policy environment with FMNR to governments, especially where communities have no legal ownership or user rights to the trees on their land, or the land they use. Such policy may also encompass equal rights for women and men to access and own natural resources. This is of particular importance for women-headed households. Community meetings, exchange visits and conferences can prove powerful advocacy tools.
- Communities themselves may resist moves to change the status quo, believing that it is just a ploy to stop them from accessing and using natural resources. Advocacy and awareness raising activities may be needed to bring the entire community on board.
- Non-compliant community members may steal or destroy the trees pruned by practitioners. Community-wide consultation and agreement on by-laws and consequences for infringements need to be agreed upon early in the process.
- Forestry departments, or individual government foresters trained in traditional top down management of forestry resources, may resist the idea of 'community-managed forestry'. They may believe that if farmers have control over the trees on their land, they will destroy all remaining vegetation. Advocacy is needed to reassure them that greater diversity and number of trees will result from the practice of FMNR. It is vital to build relationships with and influence forestry staff and ensure they are exposed to successful FMNR models.
- Advocacy may be required to restrict illegal activities or commercial interests which may oppose community or individual user rights and ownership of trees.
- In situations where one ethnic group or one sex dominates natural resource use, there may be a strong need to advocate for inclusiveness.
- Nomadic groups with large livestock herds may be antagonistic to FMNR, fearing that it will deny them access to traditional dry-season grazing rights. It is important to include them in early consultations and exchange visits and to clearly demonstrate to them that the net gain in fodder that will occur with the return of trees, and to assure them that FMNR will not exclude them from traditional grazing areas, except perhaps while trees are still small and could be damaged.

5.5 Critical assumptions and risk management

TABLE 4: Risk mitigation		
Critical assumptions	**Importance (high, medium)**	**Management response**
Stakeholders are not opposed to FMNR introduction and collaborate to implement it. Communities, interest groups and forestry officials accept the benefits of the FMNR approach.	High	It is critical that awareness-building campaigns sufficiently address the concerns of potential practitioners and demonstrate the likely benefits in a way that allows informed decision-making. Patience and perseverance are required as it can take time for all stakeholders to accept FMNR.
All-stakeholder engagement for developing by-laws for FMNR practice.	High	Initial workshops, trainings and capacity building meetings must focus on creating rules, processes, structures and standards which all stakeholders agree with. Ongoing support may include re-convening and trouble shooting if original agreements are found to be inadequate to cover needs identified in practice. Those who benefit from illegal tree cutting activities may resort to threats or violence. Management needs to prepare communities for this and plan appropriate responses. It may be necessary to budget for assistance to vulnerable families whose livelihoods could be disrupted during the first year or two.
Sprouting tree stumps are present or there is potential to initiate FMNR through direct sowing of tree seeds.	High - Medium	If no sprouting tree stumps remain, it will be necessary to implement enabling projects before FMNR can be implemented. These may include sheltering naturally occurring seedling trees from animal or other predation, the digging of Zai (compost) holes to facilitate germination of seeds and similar relevant practices. It is possible to use the principles and methods of this model to manage trees started from nursery projects as well.
A favourable policy environment for FMNR in place.	High - Medium	The reality is that policy can take decades to change and FMNR projects should not wait for this. In many countries where FMNR is being successfully adopted (Niger, Ghana and Ethiopia), national level policies are unfavourable for FMNR adoption. However, by working with local level authorities and communities, projects have been successfully implemented, and in countries like Ethiopia, this success is having a strong influence on national level policy.
A stable political situation.	High - Medium	Evaluate this in the same way that political instability would be evaluated against all other projects in agriculture, livelihoods security or economic development. Each context needs to be approached individually. Because FMNR is a low-input methodology which takes place within standard development, agriculture, and food and livelihoods security programming, instability in the political context need not prohibit implementation.
Market cartels bypassed. Communities can access external markets with their products at fair price.	High	In rare cases, disgruntled cartels may use threats or violence. The working group and coordinating partners need to prepare communities for this and plan appropriate responses. Innovative ways of attracting more competition or gaining fairer prices may be required, such as farmer groups hiring vehicles for product transport.

5.6 Sustainability

The practice of FMNR promotes sustainability:

- **FMNR is self-sustaining and replicable:** FMNR has primarily spread beyond project boundaries from farmer to farmer and without project intervention or government involvement. Once started, the movement is generally maintained and spread using local initiative and resources.
- **FMNR increases social and financial sustainability:** FMNR has made rural areas more financially viable, improved physical living conditions, and enhanced food security and livelihoods. In some regions, farmers who have fully adopted FMNR have seen their average household income increase by around USD$200 a year. There is less pressure on men to leave home during the dry season and seek work elsewhere – a common practice which places large strains on families and their health. Women and children spend less time collecting firewood and have more time for productive activity and education.
- **FMNR facilitates environmental sustainability:** Treeless landscapes have been restored through FMNR. Without tree cover, crops and livestock may be exposed to high temperatures, floods and to strong, sand-laden winds. In the original FMNR project in Niger, young crops were often sand blasted or buried outright, causing farmers to replant up to five or six times in a season. For eight months of the year, fields were largely bare and windswept showing no vegetative cover or only the regrowth from living tree stumps which were slashed and burned before the onset of rains. Biodiversity was all but eliminated in some landscapes as wildlife and birds left the area due to vegetation loss. In the rainy season, only annual crops were grown, providing little benefit to the land and removing nutrients. Since the introduction and establishment of FMNR, farmers are protecting up to 150 trees per hectare on once barren land. Between three and ten perennial tree species are now maintained on most farms. This has created habitat to enable wildlife and birds to return.

6. Protection and equity considerations

6.1 How can child protection be promoted in the implementation of this project model?

As with any World Vision intervention, it is critical that project staff identify possible child protection issues that could arise from implementing FMNR. To mitigate against this risk, staff must follow WV's standard child protection protocol.

- Develop criteria for selecting and screening volunteers that includes protection issues. This should include volunteers from partner organisations.
- Develop preparedness plans for serious abuse or exploitation of children in target communities (WV level 1 child protection incidents).
- Train volunteers on the basics of child protection, such as understanding what child abuse, exploitation and neglect mean, and discuss how these issues are seen in the community.
- Train volunteers how to recognise signs of abuse, neglect and exploitation, and how to respond. Report and refer effectively and in timely manner under the WVI Child Protection Definitions and Response Protocol.
- Communicate to community members (including children) what are inappropriate and appropriate behaviours towards children by WV staff and volunteers.
- Establish a reporting and response mechanism with communities (including children) for concerned parties to report inappropriate behaviour towards children by WV staff, volunteers or community health workers.

- Establish child safe partnerships with healthcare providers and services (for referrals of child protection incidents).

In addition, FMNR projects should incorporate the following principles of child protection:

- During activities which involve children, they are not left alone with a single adult, but are with a group of responsible adults including parents.
- Children are carefully supervised when using sharp implements.
- FMNR exposure visits for children are of limited duration and are primarily for education, exposure and participation – not for carrying out practical work such as tree pruning.

6.2 How can the model promote equitable access to and control of resources, opportunities, and benefits from a gender perspective as well as other perspectives, such as disability, ethnicity, faith and more?

It is important that all groups, including nomadic herders, non-timber forest product users, ethnic groups, religious and social groups, minority groups, vulnerable groups, and people with disabilities are included in early consultations and in the establishment of community-owned procedures and by-laws. This will clearly demonstrate to them the benefits of FMNR and their own inclusion in those benefits.

Evidence from good FMNR practice shows the important contribution that men, women, youth and vulnerable groups, including people with disabilities, all play in creating a sustainable environment, increasing income generation, and in creating healthy families. It is important to ensure that certain community members like elders, people living with HIV and AIDs or with disabilities will not be looked down upon if their physical contributions are less. The working group and coordinating partners should ensure that these community members will also benefit and can contribute at some point in the overall process such as selling product, advising or monitoring.

In addition, FMNR projects should incorporate the following principles:

- Include men, women, youth and vulnerable groups, including people with disabilities, in all decision-making roles and activities.
- Give men, women and youth equal access to information and to the management of tree resources. Women should have access to land and share decision making rights over the use of the harvest of trees (and crops) to ensure that families and children benefit.
- Value the unique insights of women on the medicinal and nutritional benefits of indigenous plants.
- Facilitate participants to gain the right to benefit from home consumption or sale of FMNR products.
- Encourage and facilitate sensitivity to gender-based needs. For example, FMNR can greatly decrease the burden of firewood collection which normally falls on women. If this does not happen automatically, programmes need to be designed to assist men and women to cooperate. For example, in some contexts men have been known to sell all of the pruned branches so women have even less access to firewood.

FMNR offers a unique opportunity to challenge negative cultural norms that increase the burden on disadvantaged groups including people with disabilities. For example, communities involved in the Desert Community Initiative, an FMNR project in Niger, made a deliberate decision to go against cultural norms by fully involving women and marginalised ethnic groups in decision making and benefit sharing.

7. Project management

7.1 National office support required for project implementation and success

Good FMNR projects are catalysts. The bulk of the work and investment of time and resources is done by the community and individuals practicing FMNR. Hence, FMNR projects should not pay communities to practice FMNR and should not provide the tools required (which are primarily common agricultural tools already in possession of the community). Following inception, the project should not be the primary motivating force in the adoption of FMNR. Once FMNR is being used in an area, farmers themselves teach others how to practise it.

However, in some cases of extreme poverty, incentives in the form of food-for-work or cash-for-work may be appropriate in the first year of promoting FMNR. It is important to make these incentives strictly short-term and to keep the focus on the benefits that will arise from the work itself.

7.2 Technical expertise needed

External technical assistance is required at inception during the introductory workshop. Where FMNR is completely new, a follow-up visit by an external technical expert is advised during the second year and the midterm review to avert potential problems.

Staff who understand farming and are familiar with the guidance provided with this model, will be needed to answer questions and concerns about the benefits and risks of adopting FMNR in the local setting. They can provide training and support in decisions surrounding the selection and care of trees and creation of practitioner agreements about tree use.

If enabling policies are not already in place, support may be needed to work with the government to improve the policy environment with regard to tree use.

7.3 Guidelines for staffing

The number of staff required depends on the approach of the WV national office and the scale of the planned intervention. Ideally staff should have the appropriate background (for example, in natural resource management, agricultural or forestry), be strong networkers and able to engage with farmers and other actors, such as government officials. The most important staff asset in FMNR projects are their people skills. The major spread of FMNR has largely been because of (mostly uneducated) farmers talking to their neighbours.

- At its most basic level of promotion, there is no reason why existing agricultural extension staff could not implement FMNR projects within existing budgets. In fact, with one WV coordinator, the work can be done through collaboration with government agricultural or forestry officers and community-elected FMNR promoters. The introductory FMNR workshop may require staffing input from another office where FMNR is well-established, or from a support office with the technical expertise.
- Exchange visits to countries already practicing FMNR should include at least one WV field staff member, the project coordinator, one or two government counterparts from either the forestry or agriculture department, and male and female representatives from the community. The numbers should be adjusted according to the budget and cost. For example, it would be far cheaper to hire a bus and take a number of observers to an FMNR site in a neighbouring region or country, compared to flying just a few observers to a distant country.
- If the office wishes to work at a national level and influence policy, then advocacy staff would be required. Even at this level, full-time staffing would not usually be required and the task could be one component of the advocacy department's responsibilities. However,

most FMNR projects do not begin at this level so staffing requirements are no greater than those required for normal agricultural interventions.

Whenever possible:

- Staff should be long-term. Adoption of FMNR takes time, therefore rapport, consistency and the commitment of staff is important. In addition, field staff and volunteers should be from the local community.
- Commitment and skill are more important than number of diplomas.
- Staff should be outgoing and friendly. They should be able to network, bring people together, encourage and persevere in the face of setbacks.
- Staff should be enthusiastic about FMNR and understand it in depth so they are genuine in promoting it.
- Field staff with their own farms should practice FMNR extensively themselves.

7.4 Guidelines for resources needed for project implementation

Compared to other interventions, FMNR projects are relatively low cost. Because FMNR is simple, capacity building can be conducted within a two-day workshop. However, follow-up for trouble-shooting, correction of poor practices, consultation and encouragement are highly recommended. Exchange visits and opportunities to meet and discuss with individuals and communities already practising FMNR are also highly recommended.

Major costs can include:

- staff salaries
- transport
- training, monitoring and evaluation
- exchange visits
- advocacy for favourable policy environment
- facilitation, establishment of organisational structures, by-law creation and all stakeholder buy-in.

The human and financial resources needed will depend on the nature and scale of the project. The budget can be as little as USD$10,000 to $20,000 per year for such costs as exchange visits, promotion and follow-up. This might rise to $100,000 to $200,000 per year for a project involving advocacy, district-wide promotion and follow-up, assistance with the formation of a cooperative, registration and formal creation of by-laws.

7.5 Critical success factors for the model

The following are all critical success factors for FMNR:

- Awareness creation of the potential of FMNR through workshops and exchange visits.
- All stakeholder buy-in and agreement with by-laws (with the working group and other key stakeholders, including government departments of agriculture and forestry, men, women, youth, marginalised groups, cultivators, and nomads with commercial interests).
- Either reinforce existing organisational structures or establish structures which will provide a framework for communities to practice FMNR on a district or region-wide basis.
- Project commitment to long-term presence, follow-up and encouragement. This is critical during the first three to five years, and continues to be important for up to 10 years.

- Facilitation of an enabling environment where practitioners have the assurance and confidence that they will benefit from their labours (either private or community ownership of trees, or legally-binding user rights).
- Early detection and remedial action on resistance and threats to FMNR through deliberate damage to trees and theft.
- Awareness of the population to the devastating effects of deforestation (such as increased floods, more severe drought, increased hardship, reduced crop yields and reduced soil fertility) and a track record of being responsive to development initiatives, or at least willing to change their situation.

FMNR will be most successful and spread most quickly if these conditions are also met:

- The national office has strong government rapport and ability to influence policy, particularly in regard to tree user rights, ownership and marketing of wood and non-timber forest products.
- There is an identified champion in the country already interested and working and advocating for the environment, particularly reforestation.
- The national office has the interest and capacity to fully support a new initiative and to take an active and supportive interest in the work, especially in the first two years of establishment - when inevitable early problems arise.
- The national office is willing and able to be a regional lead on FMNR, taking on the responsibilities that this would entail, such as hosting visitors and organising meetings.

8. Any necessary tools and resources

1. The Development of Farmer Managed Natural Regeneration. LEISA magazine.
   http://www.leisa.info/index.php?url=show-blob-html.tpl&p[o_id]=113390&p[a_id]=211&p[a_seq]=1
2. Regreening the Sahel. Farmer led regreening in Burkina Faso and Niger
   http://www.ifpri.org/sites/default/files/publications/oc64ch07.pdf
3. Turning back the desert. How farmers have transformed Niger's landscapes and livelihoods.
   http://pdf.wri.org/world_resources_2008_roots_of_resilience_chapter3.pdf
4. FMNR Agnotes (Appendix D)
5. Example FMNR Workshop outline and PowerPoint presentations (www.beatingfamine.com)
6. Frequently Asked Questions and "How-to" Examples for FMNR (provides clarification of the adaptability and individuality inherent in this model) (Appendix E)
7. FMNR experiences PowerPoint presentation (Appendix F)

9. Linkages and integration

9.1 Child sponsorship

FMNR provides child sponsorship with an opportunity to educate and enable children to participate in environmental restoration. In Ethiopia, school environment clubs were initiated and children were taught about FMNR and broader environmental issues. In Ghana, the Talensi FMNR project worked closely with the education department to introduce FMNR and environment training in school curriculums. Working with children in this way, strengthened the project activities since children were better informed and helped protect their environment. In some cases, children influenced their reluctant parents by encouraging them to participate in project activities.

Where the community has not yet prioritised FMNR, activities might begin targeting registered and non-registered children to raise community awareness. At the start of a project, children's

awareness and 'voice' could be built up and where possible, children could be given the opportunity to take part in FMNR activities.

Children are a critical audience for building long-term change in a community. Where children are taught about environmental issues and the importance of trees in school, it can be instrumental in changing the opinions of their parents. It is strongly recommended that every FMNR project encourage the participation of children (registered and non-registered) in activities which raise awareness of the importance of trees, the environment and sustainable approaches to agriculture to their long-term future. Children could also (with the community's encouragement) manage a special part of the woodland as their own long-term project. Consider linkages with local organisations that work with children, such as schools, to build ongoing environmental awareness for the children of the community.

9.2 Enabling project models

Related project models include:

- The *Savings Group* project model ensures that the increased income is saved and available for important family or community needs such as healthcare and education, or perhaps for reinvestment in production activities.
- *Citizen Voice and Action* (CVA) provides the methodology and mechanisms for raising these issues within the community and with government.
- The *Local Value Chain Development* project model aims to help people generate more sustainable income that allows them to provide for the needs of their families and their children. Producers increase their wealth through better engagement with markets and by building relationships with critical service providers that can help them overcome market barriers. The broad objective of the *Local Value Chain Development* project model is to improve access to profitable markets for smallholder farmers and producers.
- The *Business Facilitation* project model is an approach to increase the income of people who are poor through business or enterprise development. *Business Facilitation* is community-led approach, with community members who are motivated to improve their own economic situation and assist others to do the same. WV will work with an existing group, or assist in mobilising a new group to form a Community Business Council (CBC). The Community Business Council (CBC) will be central in undertaking the work to create a good business environment within the community.
- Any approaches related to fuel-efficient stoves, conservation agriculture, soil and water erosion control interventions, forestry and agroforestry models, or sustainable agriculture models.

Appendices

Appendix A – Sample workshop

Appendix B – AG Notes – Overview of FMNR

Appendix C – AG Notes – Zai Holes

Appendix D – Illustrative logframe

Appendix E – Frequently asked questions and 'how to' examples

Appendix F – PowerPoint presentation on FMNR experiences

World Vision®

WVI Offices

Executive Office
6-9 The Square
Stockley Park
Uxbridge, Middlesex
UB11 1FW
United Kingdom

World Vision International
800 West Chestnut Avenue
Monrovia, CA 91016-3198
USA
wvi.org

International Liaison Office
Chemin de Balexert 7-9
Case Postale 545
CH-1219 Châtelaine
Switzerland

European Union Liaison Office
33 Rue Livingstone
1000 Brussels
Belgium
wveurope.org

United Nations Liaison Office
216 East 49th Street, 4th floor
New York, NY 10017
USA

WVI Regional Offices

East Africa Office
Karen Road, Off Ngong Road
P.O. Box 133 - 00502 Karen
Nairobi
Kenya

Southern Africa Office
P.O. Box 5903
Weltevredenpark, 1715
South Africa

West Africa Office
Hann Maristes
Scat Urbam n° R21
BP: 25857 - Dakar Fann
Dakar
Senegal

East Asia Office
Bangkok Business Centre
13th Floor, 29 Sukhumvit 63 (Soi Ekamai)
Klongton Nua, Wattana, Bangkok 10110
Thailand

South Asia & Pacific Office
750B Chai Chee Road #03-02
Technopark @ Chai Chee
Singapore 469002

Latin America and Caribbean Regional Office
P.O. Box:133-2300
Edificio Torres Del Campo, Torre 1, piso 1
Frente al Centro Comercial El Pueblo
Barrio Tournón
San José
Costa Rica
visionmundial.org

Middle East and Eastern Europe Regional Office
P.O Box 28979
2084 Nicosia
Cyprus
meero.worldvision.org