Policies and strategies to promote tree planting among rural households in Nigeria

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Abstract

Despite the enormous benefits that man derived from trees, their availability has dwindled considerably in the past few years. This is because not many people are involved in tree planting nowadays because of the long gestation period of trees. Not even in the rural areas where land is available for tree planting. It is in view of this that this study takes a look at the theoretical framework on how to promote tree planting among rural households in Nigeria through the application of appropriate policies and strategies. A policy is a purposeful course of action adopted and pursued by an individual, group or government to achieve chosen objectives or aims while a strategy is a high-level plan set to achieve one or more goals under conditions of uncertainty. These policies and strategies include; promotion of social forestry practice among rural dwellers, improved forestry extension services, distribution of free tree seedlings to rural dwellers, promoting policies that will reduce rural poverty, making land available to rural dwellers to plant trees, promote \agroforestry practice: among rural dwellers and introduction of tree planting at primary and secondary schools. Government in collaboration with the States Forestry Departments will do well to implement these policies and strategies in order to improve tree planting among rural dwellers thereby improve availability of tree products and services to the people.

Keywords: Policies, Strategies, Rural households, Social Forestry, Tree planting and Nigeria

Introduction

Trees are known to be very important to man. As a matter of fact God created trees for the benefit of man. These benefits are many and varied. Adedayo (2011) noted that trees provide continuous flow of benefits throughout the year. Sene (2000) also noted that trees of the forest provide food, flavourings, medicines and beverages to the people. Trees are

also important in risk management especially in the arid and semi arid lands where most other vegetation is seasonal (Barrow, 1996). They retain their quality and can continue producing when other sources of food and fodder dry up. They can also be used to meet contingencies, for instance by selling firewood to provide money and also by providing food and fodder (Barrow, 1996). Adedayo (2005) noted that trees of the forests are wealth creating assets to the rural dwellers. To many of them the trees of the forest is life and there is often little or no alternative to the use of trees and its products because they rely on it for their subsistence needs and for the support of their livelihood. In the same vein Adeyoju (2001) noted that trees and their products play critical roles in human environment, situation, needs or even lifeline. Trees are known to also play important roles in restoring soil fertility and in reclaiming lost lands. Studies have also identified trees in farming system as a strategy for restoring degraded areas, increasing people's access to valued forest products and conserving existing forest ecosystem (Warner, 1991 and Kwesiga et al, 2003).

It is however sad to note that despite the far reaching importance of trees, their availability has dwindled considerably in the past few years. This is due to the fact that the rate of tree planting is so low compared to the tree product needs of the increasing population. Gwandu (2001) noted that the involvement of government agencies and private individuals in tree planting in Nigeria has been very low. He noted further that government tree planting programmes operating with limited resources has not been able to plant trees at the required rate thus leading to wood shortage in the country. The involvement of private individuals in tree planting has also not been encouraging. Both rural and urban dwellers have not been involved in tree planting that can meet the tree products needs of the people. It therefore follows that as of today there is scarcity of tree products in the country. The situation is even worse in the rural areas of the country where the rural dwellers have stripped the land almost bare of vegetation cover due to none availability of tree



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products. Adedayo (2005) noted that today the situation in most rural areas of the country is such that the trees in the forest, the land, the people as well as the entire rural environment are no longer at ease. This is because of the increasing deforestation and illegal cutting of trees which has caused many problems like flooding, erosion, siltation of water bodies, low farm yield and low production of forest resources. Urban centres are not spared of these environmental problems. It is not uncommon to see wind storms destroying roof top of houses and schools in urban centres. Heat islands are now very common in many urban centres as well as erosional problems. What is needed to salvage this situation in the country is for the people to be engaged in massive tree planting. However it is sad to note that not many individuals are interested in tree planting. The reason for this is because of the long gestation period of trees. It is in view of this that this paper seeks to fashion out policies and strategies that can help to promote tree planting among the people of this country. Both government and private individuals must be involved in tree planting in order to improve the availability of tree products to the people..

The Value / Benefits of Trees

Trees are of immense value to man. The survival and the good living of man on planet earth is closely linked with the presence of trees. The great value of trees to the survival of man must have been the reason why God created trees before he created man. The value/ benefits of trees can be broadly classified into the following categories. These include; environmental / ecological benefits, economic benefits, social / cultural benefits, medical benefits and religious benefits.

a. Environmental / ecological benefits of trees:-

The environmental benefits of trees include prevention of soil erosion, provision of oxygen, purification of the air and detoxification of the environment as well as conservation of ground water and serving as a genetic bank. Trees help to prevent erosion by helping to reduce run-off water. Trees reduce runoff into storm drains (which lead to rivers, bays and the ocean) by allowing rainfall to run down the tree and into the ground instead (My Green Montgomery, 2018). Trees through leaf litter fall generate humus which helps to increase the ability of the soil to absorb water thereby preventing run-off and by extension prevent erosion. Trees also prevent erosion through their extensive root system. The roots of trees help to hold soil particles together thereby preventing soil particles from being easily washed away by running water or wind.

Trees through the process of photosynthesis produce oxygen which is of extreme value to man and other living organisms. Klient Solutech (2018) noted that man cannot live more than 3 minutes without oxygen. As such the ability of trees in producing oxygen is highly essential. Trees help to purify the air by removing harmful substances and dust from the air. Trees and shrubs filter the air by removing dust and absorbing other pollutants like carbon monoxide, sulphur dioxide and nitrogen dioxide. After trees intercept unhealthy particles, rain washes them to the ground (Savatree www.savatree.com). More trees mean less pollution from the increased levels of carbon dioxide, chloro carbons(CFCs), and other pollutants in the earth. Man can live longer because trees remove pollution and deliver fresh air to the lungs. (Klient Solutech, 2018). The canopies of trees act as a physical filter, trapping dust and absorbing pollutants from the air. Each individual tree can remove up to 1.7 kilos of pollutants every year (The Royal Park (2018). They reduce wind speed and cool the air as they lose moisture and reflect heat upwards from their leaves. It is estimated that trees can reduce the temperature in a city by up to 7°C. (The Royal Park (2018)). Tree Montgomery (2018) noted that trees help to cool the streets and sidewalks by up to 10°F by providing shade.

Another environmental benefit of trees is their ability to conserve ground water. This is done via the shade provided by trees which help to slow water evaporation from the ground. Through this way ground water are conserved and made available for the use of man as wells and boreholes. Ground water is very important to man because surface easily dries up (with the exception of rivers.

b. Economic benefits of trees

Trees provide income to many people especially in the rural areas. This is through the direct sale of some tree products for cash. This include sale of tree fruits (e.g. fruits of, Chrysophyllum albidum, Irvingia gabonensis,, Parkia biglobosa e.t.c.), sale of tree leaves, stakes and firewood. Trees can help to the economy especially in agrarian communities. Bello et al. (2008) noted that rural women in Sokoto state (Northern Nigeria) earn an average income of N3, 700.00 per month. Adedayo et al (2010) also noted that 37% of rural women in North Central Nigeria earn between N31, 000.00 and N40, 000.00 per annum. It is interesting to know that people are attracted to live, work and invest in an environment dominated by trees. Research shows that average house prices are 5-18% higher when properties are close to mature trees. Companies benefit from a healthier, happier workforce if there are parks and trees nearby (The Royal Park (2018).

The Royal Park (2018) noted further that trees grow the economy. This in essence means that trees can help to bring economic development to a community. People are attracted to live, work and invest in green surroundings. Research shows that average house prices are 5-18% higher when properties are close to mature trees. Companies benefit from a healthier, happier workforce if there are parks and trees nearby (The Royal Park, 2018).

c. Social / cultural benefits of trees

One of the social benefits of trees is the provision of food to man and animals. The food provided by trees to man can be in terms of fruits and nuts and in terms of their edible leaves serving as vegetables. There is a direct link between trees, their products (i.e. leaves, fruits, roots and flowers) and rural household food security in Nigeria. Ondo State Environmental Protection Agency (1999) noted that over 150 indigenous woody plants from the natural vegetation have been identified as yielding edible products for human and livestock consumption. They include seeds and nuts, vegetable leaves, fruits, roots and tubers and fungi. They serve as food supplements, condiments, thickening agents and flavour to diets while providing protein, energy, vitamins and essentials minerals. The contribution of trees to diets varies considerably from one ecological zone to another. Some foods obtained from trees are consumed during seasonal food shortages when agricultural crop supplies dwindle. Table 1 shows a list of plant species that provide either edible fruits or vegetables to the people in Nigeria (majority of these plants are trees).

Trees most often proffer solution to sadness and bitterness because it has a way of influencing human thoughts. Living close to nature or around plants and trees for one day can have an amazing impact on human thoughts and the power of the body (Klient Solutech, 2018).

Another social benefit of trees is provision of fuel wood either as firewood or as charcoal. This is an important benefit of trees considering the fact that fuel wood forms about 80% of the total wood requirement and more than 60% of the total energy consumed in tropical Africa (Ogunsanwo and Ajala, 2002).. In the same vein Adedayo et al (2008) noted that fuel wood is the dominant fuel used by rural dwellers in tropical African countries, mainly because it is cheap and is socially more acceptable to rural people than other forms of low technology energy sources. Sene (2000) also noted that the contribution of forest and tree resources to household energy supply is high in Africa and will remain so for the foreseeable future. This is because nobody has yet found an alternative to fuel wood (or charcoal

its derivative) as the source f household energy for the rural household in Africa.

As noted by The Royal Park (2018) trees strengthen communities. Trees strengthen the distinctive character of a place and encourage local pride. Urban woodland can be used as an educational resource and to bring groups together for activities like walking and bird-watching. Trees are also invaluable for children to play in and discover their sense of adventure.

Table 1: List of Forest Plant Species that provide edible Fruits or Leaves to the people in Nigeria.

S/N	Name of Plant Species	Type of Fo	od
1	Adansonia digitata	Fruits	and
		Leaves	
2.	Artocarpus cuminis	Fruit	
3.	Blighia sapida	Fruit	
4.	Borrassius aetopium	Fruit	
5.	Chrysophyllum albidum	Fruit	
6	Dacryodes edulis	Fruit	
7.	Garcinia cola	Fruit	
8.	Gongronema latifolium	Leaves	
9.	Irvingia gabonensis	Fruit	
10.	Moringa oleofera	Leaves	
11.	Morus mesozygia	Fruit	
12.	Ocimum gratissimum	Leaves	
13.	Parkia biglobosa	Fruit	
14.	Spondias mombin	Fruit	
15.	Tamarindus indica	Fruit	
16.	Tetracapidium	Fruit	
	conophorum		
17.	Treculia Africana	Seed	
18	Vernonia amygdalina	Leaves	
19.	Vitellaria paradoxum	Nuts	
20.	Vitex doniana	Leaves	

Source: Adapted from Fuwape, 2005 and Babalola and Agbeja, 2008

d. Medical Benefits of trees

Trees play important role in the health of the people. The tree is the basis of a healthy life. (Klient Solutech, 2018). Research has shown that within minutes of being surrounded by trees and green space, blood pressure drops, heart beat rate slows and stress level come down (The Royal Park (2018).. This explains the reason why sick people are advised by medical practitioners to move closer to nature by staying under the tree or stay in a green environment. Adedayo and Oyun (2017) noted that Forests and trees are valued by agrarian communities for their supply of medicinal products even more than orthodox drugs. Table 2 shows the list of tree species used for medicinal purposes in Nigeria. The Table showed that wide varieties of tree species are used for medicinal purpose in Nigeria.

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Table 2: Tree Species used for medicinal purposes in Nigeria

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S/N	Name of tree species	Parts used	
1	Cassia siamea	Flowers, roots	
2	Spondias mombins	Leaves	
3	Annona senegalensis	Leaves	
4	Calotropis procera	Leaves	
5	Gossypium barbadense	Green leaves	
6	Daniela oliveri	Bark	
7	Pilostigma thonningi	Leaves, bark	
8	Cola nitida	Bark	
9	Terminalia	Leaves, bark	
	avicenoioides		
10	Jatropha curcas	Exudates, root	
11	Colocynthis vulgans	Fruits	
12	Momodica charantha	Whole plant	
13	Phyllanthus amaraus	Leaves, seeds	
14	Anthocleista djalonensis	Leaves	
15	Khaya senegalensis	Bark	
16	Azadiractha indica	Bark, Leaves	
17	Parkia biglobosa	Bark	
18	Pupalia lappacea	Leaves, seeds	
19	Garcinia cola	Seed	
20	Magnifera indica	Stem	
21	Morinda lucida	Leave	
22	Citrus aurantifolia	Leaves	
23	Psedium guajava	Bark	
24	Alstonia boonei	Bark,	
25	Xylophia aethiopica	Seed	
26	Carica papaya	Fruits, exudates	
27	Annacadium	leaves	
	occydentalis		

Source: Adapted from Adedayo et al 2015

Concept of Policies and Strategies

Policy is a purposeful course of action adopted and pursued by an individual, group or government to achieve chosen objectives or aims (Adedayo, 2015). It is deliberate principles, rules or guidelines formulated and adopted to guide and determine present and future decisions. Policies are formal statements of principle that regulate, direct and control activities or programmes of government, group or individuals. As noted by Wikipedia (2018) policy is a deliberate system of principles to guide decisions and achieve rational outcomes. A policy is a statement of intent, and is implemented as a procedure or protocol. Policies are generally adopted by a governance body within an organization.

As noted by *Bryant* (2017) when policies are well-written and faithfully followed, they can promote efficiency, effectiveness and consistency. Policies therefore assist government, individual or organizations to achieve their goals be it short term, medium or long term goals..

Bryant (2017) noted further that policy differs from rules or law. While law can compel or prohibit behaviors (e.g. law requiring the payment of a fee on forest product), policy merely guides actions toward those that are most likely to achieve a desired outcome.

In the same vein strategy is a plan that is intended to achieve a particular purpose or aim. It is an act of planning and directing activities to achieve specific aims. Wikipedia (2018) defined strategy as a highlevel plan set to achieve one or more goals under conditions of uncertainty. Strategy is important because the resources available to achieve the set goals are usually limited, but strategy will provide a plan of action that will enable the achievement of the set goals with the limited resources. Strategy generally involves setting goals, determining actions to achieve the goals, and mobilizing resources to execute the actions (Freeman, 2015 and Simandan, 2018). A strategy describes how the ends (goals) will be achieved by the means (resources). Strategy can be intended or can emerge as a pattern of activity as the organization adapts to its environment (Feeman, 2015 and Simandan, 2017). It involves activities such as strategic planning and strategic thinking (Mintzberg, and Quinn, 1996). Just like policies strategies can be short term, medium or long term. Policies and strategies to promote tree planting

Policies and strategies to promote tree planting among rural households in, Nigeria

It is important to note that policies and strategies that will promote tree planting among rural households in Nigeria must be those that will meet the peculiar needs of the rural dwellers. Majority of the rural dwllers in Nigeria are poor (Canagarajah, et al 1997; Ikojo 2001 and Adedayo and Akindele, 2003). Ordinarily, the state of poverty among rural dwellers in Nigeria does not favour tree planting by them. This is because most of the poor rural dwellers do not have the land or the patience to plant trees. Adedayo (2011) noted that many of the small holder farmers in Ondo State, south western Nigeria do not plant trees because they are resource poor farmers. He noted further that they cannot afford to tie their meager resources down to tree planting because trees take a long period of time to grow and reach maturity. In addition many of them are only interested in their immediate survival strategy. Tree planting cannot help to meet their immediate needs because trees take long period of time to grow, reach maturity and produce useful products. Gwandu (2001) noted that not many people in Nigeria are interested in growing trees because of the long gestation period of trees. Many of the resource poor farmers are interested in crops that will give them quick returns. As such policies/ strategies that can help to promote tree planting among rural dwellers in Nigeria are those that will take cognizance of this peculiar nature of rural dwellers and motivate them to commit their resources to tree planting. Among



other things these policies and strategies include the following:-

1. Promoting Social Forestry Practice among Rural dwellers

Social forestry is a form of forestry practice that is aimed at using trees and tree planting specifically for the purpose of pursuing social objectives usually for the betterment of the poor through the delivery of the benefits of using trees and tree planting to the local people. Social forestry has been identified as a new approach to cope with the diminishing availability of forest resources and increase supplies of forest and wood products (FORMECU, 1989). It is a form of forestry practice that is directed towards meeting the forest products needs of the people and improving the living standard of the people through tree planting by their participation. From the foregoing it follows that social forestry is a people oriented forestry programme that is directed towards improving the supply of fuel wood, fodder, stakes, fruits and other domestic wood needs of the people as well as improve the vegetative covering of exposed land areas through involvement of the people. It is indeed forestry of the people by the people and for the people. It is a forestry practice that is directed towards dealing with rural poverty, hunger malnutrition, unemployment, environmental deterioration and improvement in the standard of living of the people by the involvement of the people in tree planting. This means it is a people oriented forestry practice that is directed towards using tree products to meet the basic needs of the people. These are food, shelter, income and clothing needs. Evidences all over the country have shown that most of the poor rural dwellers do not plant trees. Social forestry programmes like communal wood lots and strip or road side forestry will therefore give many of them the opportunity to plant trees. It therefore follows that state forestry Departments all over the country should promote social forestry programmes in the rural areas in order to encourage and involve many rural dwellers in tree planting.

2. Improved Forestry Extension Services:-

State forestry Departments in the country need to improve forestry extension services to the rural areas. The extension service will help to enlighten many rural dwellers on the need to plant trees and the advantages of planting trees. The forestry extension service should not be the usual extension service of telling rural dwellers to plant trees. It should be a more robust extension service that will make rural dwellers to be more informed about the type of tree species to plant, where they can get tree seedlings and the benefits derivable from each of the tree species. The extension service should be coupled

with demonstration of how to plant tree seedlings to ensure their survival. This is because if people don't know how to plant trees that will survive it could lead to discouragement. As such rural dwellers need to be taught on how to successfully plant trees that will survive. This will go a long way in encouraging them to plant more trees.

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3. Distribution of Free Tree Seedlings to Rural Dwellers:-

Distributing tree seedlings to rural dwellers freely is a potent strategy that can boost tree planting among rural dwellers in the country. When tree seedlings are made available to rural dwellers those that have land among them will have no alternative than to plant those tree seedlings on their lands especially as farm boundaries. In order to ensure that the strategy of free distribution of tree seedlings is effective State governments in the country should help to repair and improve many of the rural roads so as to ensure easy transportation of tree seedlings to the rural areas. In addition the various state forestry Departments in the country should improve on their tree seedlings production and distribution to the rural areas so as to make tree seedlings available to those that are interested in planting them.

Promoting Policies that will reduce Rural poverty:-

States governments in the county must promote policies that can help to reduce rural poverty in their state in order to encourage tree planting among the rural people. It is important to note that the state of poverty among the rural dwellers is a major hindrance to tree planting in the rural areas of the country. Adedayo (2011) noted that the income earnings of smallholder farmers has a significant influence on their tree planting decision in Ondo State, Nigeria. Sood and Mitchell, C.P. (2009) also noted that higher income increases the risk bearing capacity of smallholder farmer decision making and the willingness to wait for the returns from long term investment such as tree planting. It therefore follows that when incidence of poverty among rural dwellers is reduced it will help to aid their decision on tree planting.

Some of the ways by which rural poverty can be reduced include;

a. Creation of non-farm employment in the rural areas:- One of the ways by which poverty can be reduced in the rural areas of the country is for the state 1 Government to create non-farm employment in the rural areas. The non-farm employment is meant to help rural dwellers to earn more money than



the money they can earn from their small farm holdings. The increase in income will help to reduce rural poverty. To create non-farm employment government must provide electricity, good roads and water in the rural areas. Examples of non-farm employment that can thrive well in the rural areas include electronics repairing, goldsmithing, blacksmithing, handicraft, e.t.c. It is believe that these non-farm employments can provide more income to the rural dwellers than farming that will enable them come out of absolute poverty.

- Provision of soft loans to rural dweller:- One of the ways by which poverty among rural dwellers can be reduced is to make money available for them which they can invest into their businesses. Soft loans can help to make more money available to the rural dwellers thereby reducing poverty' Business dictionary (2018) defined soft loan as financing that offers flexible or lenient terms for repayment, usually at lower than market interest rates. Soft loans are provided customarily by government agencies or by multinational development banks such as the World Bank and not by financial institutions. It is also called concessional funding. It therefore follows that when soft loans with long moratorium are provided to the rural dwellers they can invest the money in their businesses be it farming, trading or any of the rural businesses. This will go a long way in helping to reduce their poverty.
- Improved rural education : :-Education has been identified as one of the ways by which poverty can be reduced. Lekobane and Seleka (2017) education level and noted that employment status of the household head are among the key determinants of household welfare and poverty. They noted further that, residing in rural areas increases the likelihood of being poor. They therefore suggested that public policy must continue emphasize on education and job creation among the strategies poverty reduction. This means increased rural education can help to reduce rural poverty.

- d. Training of rural dwellers on value addition to their products:- It is important that rural dwellers should know how to add value to their products which they offer for sale. This will help to improve their sales even to urban markets. Most especially NTFPs which many rural dwellers are dealing with. Value addition to NTFPs can help to improve their commercial value. For instance processing of some NTFPs can help to add more value to them thereby helping to increase sales and income derived from them. Taylor (1999) noted that local processing of forest fruits (which are also NTFPs) can increase returns on them. It therefore follows that State Forestry Departments should organize seminars or workshops for rural dwellers on how they can add more value to their different products which they offer for sale. This will help to increase their income and reduce their poverty level.
- **Provision** of improved infrastructures to the rural areas:-For poverty to reduce in the rural areas of Nigeria there is the need to provide infrastructural amenities such electricity, pipe borne water, good roads and medical centres in the rural areas. Adedayo (2017) noted that rural communities in Nigeria lacked good infrastructural amenities like pipe borne water, electricity and good roads. Good infrastructural amenities can help rural dwellers to earn more money. For instance good roads will give rural dwellers the opportunity to transport their products to urban markets where they can make more sales and more income. Electricity will help some rural dwellers to have better storage facilities to prevent their products from wastage through spoilage. They will then be able to earn more money instead of losing money from spoilage of their products especially perishable products like fish and some forest fruits.. Electricity will also help some rural dwellers to venture into non-farm employment which can fetch them more money. Employment such as repairing of electronics and welding works.



- 4. Making Land available to rural Dwellers to plant trees:- One of the recognized major obstacle to tree growing in the rural areas of Nigeria is non availability of land to plant trees for those that are interested in planting trees. Adedayo (2004) noted that tenant farmer and squatters find it difficult to plant trees on their farmlands due to tenurial restrictions. For these categories of rural dwellers to plant trees government need to come to their aid by making land available to those that are interested in planting trees. Government can make land available in the rural areas for those that are interested in planting trees. This will go a long way in promoting tree planting in the rural areas of the country.
- Promote \agroforestry Practice: among rural dwellers- FAO (2015) defined agroforestry as a collective name for landuse systems and technologies where woody perennials (trees, shrubs, palms, bamboos, etc.) are deliberately used on the same landmanagement units as agricultural crops and/or animals, in some form of spatial arrangement or temporal sequence. (FAO, 2015). There must be both ecological and economic interaction between the woody and non-woody components to qualify as agroforestry. (Nair, 1998). What is important in an agroforestry practice is tree planting. It therefore follows that when agroforestry practice is promoted or encouraged among rural farmers, tree planting is encouraged.
- Introduction of Tree planting at primary and secondary Schools: - Another way by which tree planting can be promoted is to introduce tree planting in primary and secondary schools. This is a strategy that can be used to stimulate the interest of young people in tree planting. It is strongly believed that when the interest of young people is stimulated in anything it will be difficult for them to forget or ignore that thing. As such when tree planting is introduced in primary and secondary schools it help many of them to be used to tree planting early in life. Tree planting will therefore not be seen as a sacred or tedious exercise because they are already used to it in school.

6. Conclusions

This study has shown that tree planting can be improved among rural households in Nigeria through the implementation of some policies and strategies. These policies and strategies include; promoting social forestry practice among rural dwellers, improved forestry extension services, distribution of free tree seedlings to rural dwellers, promoting policies that will reduce rural poverty, making land available to rural dwellers to plant trees, promote \agroforestry practice: among rural dwellers and introduction of tree planting at primary and secondary schools. When these policies and strategies are properly implemented it will help to promote tree planting among rural households and by extension promote the benefits derived from trees.

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