

PARTICIPATION OF STAKEHOLDERS IN SUSTAINABLE MANAGEMENT OF A STATE-OWNED FOREST RESERVE IN KWARA STATE, NIGERIA

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Submitted: 19/11/2020. Accepted: 29/12/2020
Published: 31/12/2020

ABSTRACT

Purpose: The study evaluates participation of stakeholders in sustainable management of Odun Forest Reserve, a government owned reserve located in Irepodun Local Government Area of Kwara State, Nigeria. The reserve is under the management of the State Forestry Department with dominance of *Tectona grandis* and *Gmelina arborea*.

Methodology: Stakeholders selected for this study include the rural dwellers, the timber contractors and designated staff of the Kwara State Department of Forestry. Structured questionnaire was used for collection of primary data.

Findings: The products collected in the reserve include timber, firewood and leaves. Majority of the rural dwellers did not participate in the decision making relating to Odun Forest Reserve (87,5%), prevention of illegal exploitation (80,0%) and in the management of Odun Forest Reserve. Concerted efforts are required by the State Forestry Department to involve the local stakeholders in the management.

Research Limitation: Entry into the reserve is by authorization or payment of levy to the Department of Forestry.

Originality: The development of the area as a whole will eventually enable the realization of the goal of sustainable forest reserve management. Participation will give the stakeholders the sense of ownership necessary for sustainability and protection against illegal activities.

KEYWORD: Odun, forest reserve, government plantation, governance.

PARTICIPAÇÃO DE STAKEHOLDERS NA GESTÃO SUSTENTÁVEL DE UMA RESERVA FLORESTA DE PROPRIEDADE ESTATAL NO ESTADO DE KWARA, NIGÉRIA

RESUMO

Objetivo: O estudo avalia a participação das partes interessadas na gestão sustentável da Reserva Florestal Odun, uma reserva governamental localizada na Área do Governo Local de Irepodun do Estado de Kwara, Nigéria. A reserva está sob gestão da Secretaria Estadual de Florestas com dominância de *Tectona grandis* e *Gmelina arborea*.

Metodologia: As partes interessadas selecionadas para este estudo incluem os moradores rurais, o contratante de madeira e a equipe designada do Departamento Florestal do Estado de Kwara. Questionário estruturado foi utilizado para coleta de dados primários.

Resultados: Os produtos recolhidos na reserva incluem madeira, lenha e folhas. A maioria dos residentes rurais não participou na tomada de decisão relativa à Reserva Florestal de Odun (87,5%), prevenção da exploração ilegal (80,0%) e na gestão da Reserva Florestal de Odun. Esforços conjuntos são necessários pelo Departamento Florestal para envolver as partes interessadas locais no manejo.

Limitação da Pesquisa: O ingresso na reserva se dá mediante autorização ou pagamento de taxa ao Departamento Florestal.

Originalidade: O desenvolvimento da área como um todo acabará possibilitando a concretização do objetivo de manejo sustentável de reservas florestais. A participação dará às partes interessadas o senso de propriedade necessário para a sustentabilidade e proteção contra atividades ilegais.

PALAVRAS-CHAVE: odun, reserva florestal, plantação governamental, governança.

1. INTRODUCTION

Stakeholders' participation in forest governance plays an important role in forest resources management (Arnold, 2001; Sackey, 2007; Beaudoin et al., 2015; Shrestha and Shrestha, 2017; Overdeest and Zeitlin, 2018). Although an outsized number of studies exists which have documented stakeholder's participation and involvement in forest resources management, further investigation remains needed so as to raised understand and supply more information on stakeholders participation in forest management at the grass root level (Marfo, 2004).

Participation in forest resources management refers to the active involvement of varied stakeholders (Nhem and Lee, 2019; Dobrynin et al., 2020; Eggers et al., 2020) in defining forest sector and conservation objectives, determining beneficiaries, managing forest resources, resolving conflicts over forest uses, and monitoring and evaluating the performance of forestry and biodiversity conservation projects (Roe et al., 2009; Elbakidze, et al., 2010). According to World Bank (1996), participation is "a process through which stakeholders' influence and share control over development initiatives, decisions and resources which affect them". Stakeholder participation was thus described as a process of institutional arrangements in which stakeholders are actively involved in different levels of management (including: decision making, planning activities, projects and programs designs) of forest resources.

Quite a number of forest plantations were established in Kwara State under Taungya System in the 1970s. one of such plantations was Odun Forest Reserve. During the early stage of the plantation, farmers were allowed to farm in the plantation thereby supporting food production. The reserve also provides vegetation cover and support environment. However, most of these forest reserves in the state are under high level of degradation. The degradation was as result of various level of depletion resulting from farming, over exploitation of the reserve for timber by timber contractor's, frequent fire outbreak and other illegal activities.

According to the information provided by the Forestry Department under the Kwara State Ministry of Environment and Forestry, the last assessment in the reserve was carried out between 1976 and 1992. During this assessment, it was discovered that the vegetation cover of Aradun Forest Reserve has reduced. Continuous depletion is a threat to existence of the reserve and the associated biodiversity through habitat loss. Moreover, the benefits obtained by the people in sustaining their livelihoods will be cut off if the degradation continues.

Sustainable management of forest reserve is linked to participation of forest-dependent communities in the management and the utilization of benefits to improve livelihoods (Ghana Forestry Commission, 2009). Sustainable forest reserve is an integral component of development and cannot be isolated from the surrounding areas and communities. Therefore, forest reserve management has to be positioned in the context of development, especially where the forest reserve is situated (Ghana Forestry Commission, 2009).

The fundamental question, therefore, arises as to whether local communities participate in forest resources planning where important decisions are taken and, more importantly, what is the level of primary stakeholder's involvement? Although a large number of studies exists which have documented stakeholders' involvement in forest resources management, further investigation is still needed in order to better understand and provide detail information on stakeholders participation in forest management at the grass root level.

This study therefore assessed stakeholders' participation in Odun Forest Reserve, Arandun, Kwara State, Nigeria. The study was aimed at producing necessary information on stakeholders' participation and their involvement in different process in the government own forest reserve, such as decision making, management and protection process as well as associated benefits of to their livelihoods. We envisaged that through effective participation, local development as a whole will enable realization of the goal of sustainable management of the reserve.

2. MATERIAL AND METHODS

The study was conducted in Odun Forest Reserve, located beside Arandun community in Irepodun Local Government Area of southern region of Kwara State, Nigeria (Fig 1). Kwara State was often referred to as the Gateway between the northern and southern parts of Nigeria. There were thirty-two protected forest reserves, occupying a total area of 5.792 km² or 17,82% of the total land area in the state. However, quite a number of these reserves have been degraded while some have been totally lost to farming and other infrastructural development. Odun Forest Reserve is among the last standing reserve in the state and comprise of *Tectona grandis* and *Gmelina arborea*. It is located at an elevation of 461 meters above sea level. The reserve occupies a total land area of about 203 hectares as at year 1976. However, due to high level of encroachment of some farm-based practices by the community dwellers, it has been reduced to about 76 hectares. Information obtained through reconnaissance survey revealed that the reserve is faced with high level of encroachment, coupled with paucity of fund, inadequate patrol staff and guards to the authority in charge.

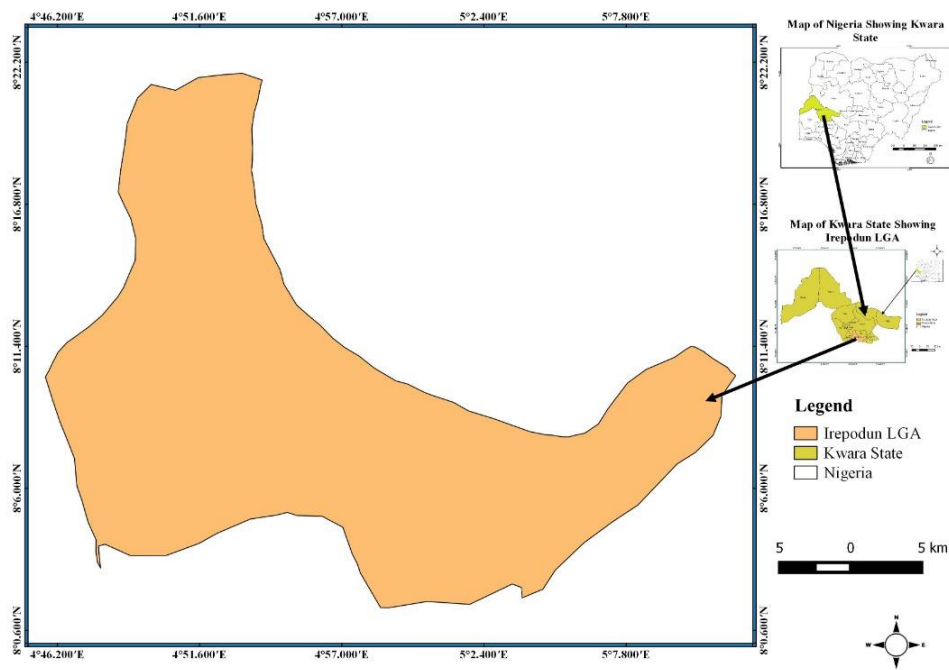


Figure 1: Location of Irepodun Local Government Area

Due to lack of official documentation, information on establishment of Odun Forest Reserve obtained from key informant in the community. It was informed that the Reserve was initially a plantation of Teak which was established through Taungya system in 1976 alongside other plantations. It was established alongside other plantations at Ipetu and Olomu. All these plantations were later turned into Forest Reserves. The Teak plantations were established through Taungya system by foreign investors in partnership with the Department of Forestry. In the agreement, the foreign investors were to harvest the Teak on maturity for export after which they were handed over to the Forestry Department and turned into Forest Reserves. The trend in sizes of Odun Forest Reserve has drastically shrunk. The total area (2.03km²) of the established year (1976) of Odun Forest Reserve was intact till 1984 (2.03km²). In 1994, Odun Forest Reserve was reduced to 1.93km². As at 1994, the size of the reserve was 1.92km² and this was in line with the size reported by Babalola & Ajayi (2002). In 2005 and 2011, the total area of the reserve was reduced to 1.90km². Furthermore, the size was 1.87km² in 2015 and 1.84km² in 2016.

The three major stakeholders selected for this study and their reasons for selection include the following: (a) Rural dwellers that reside in Arandun community and adjacent to Odun Forest Reserve (b) Timber contractor's that directly involve in exploitation, processing and marketing of

forest timber resources and (c) Kwara State Department of Forestry who are the official authority responsible for managing the reserve, controlling exploitation, as well as enforcement of regulation in the reserve.

Snowball sampling technique was adopted for sampling the respondents. Structured questionnaire was used for collection of primary data. The questionnaire was designed to generate data on the assessment of various levels of participation of the rural dwellers, timber contractor's and the forestry official in the forest reserve, as well as socio and economic contributions of the forest reserve to the rural dwellers and the community development. Questionnaire administration to the timber contractor's was carried out on their meeting days.

3. Review of Science

Governance in forest resources management includes structures and processes (Macura et al. 2011; Mansourian, 2017; Nansikombi et al., 2020). The expectation of the local authority and the requirement of the collaborative system approach is that the local people should fully participate in the implementation of forest activities. Studies done on collaborative management in Ghana by Asare (2000), Wily (2002) and Amanor (2003) reported that under the collaborative system approach, state forestry agencies have involved local people in management functions such as boundary cleaning, tree planting and establishment of firebreaks among others. They all reported that forest-dependent communities are also involved in curbing illegal activities such as illegal logging in forest reserve.

Kothari *et al.* (1998) stated that, apart from the local communities, the other stakeholders in the business of forest protection and use of forests are the State agencies that carry out the function of forest management, the urban dwellers, national/international communities, various NGOs, and other market and forest-based companies. The local communities according to Kothari *et al.* (1998), are the primary forest stakeholders because their livelihoods depend on forests. While the secondary forest stakeholders are being regarded as secondary forest stakeholders as they are not dependent on forest, they have alternative means of livelihood.

According to (Sophie, *et al.*, 1999), the interest of stakeholders in forest management includes any of the functions of production, protection, harvesting, marketing, utilization, regeneration, development and conservation of forest resources. These interests are either complimentary or conflicting in terms of sustained supply of goods and services from the forests for the growing demands of forestry products. However, the socio-economic, cultural and political environments in which the stakeholders operate determine their interests. Byron (2006) informed that policy decisions are supposed to be made by government base on the best interests of their constituency. However, the best interest could only be obtained through dialogue with the concerned people by the Forest Department through the field officials.

While acknowledging the roles that central governments have played in the past as forest conservators (mainly through the creation of reserves), there is growing recognition that governments agencies have not ultimately proved the most effective agents for preserving forests. Even where forest entities have successfully managed the forests for conservation purposes, they have not always done so in a participatory manner (Kotey et al., 1998; Ganz et al., 2003).

4. RESULTS

Demographic information of the sampled rural dwellers and timber contractors

Majority of the sampled rural dwellers (65%) and the timber contractor's (85%) were male. The entire timber contractors (100%) were married and their tribe was Yoruba. On the other hand, 95% of the rural dwellers were married while 5% were single. On the level of education, 80% of the timber contractor and 60% of the rural dwellers went to primary school while 20% of the contractor and 35% of the rural dwellers attended secondary school as highest education. About 75% and 70% of the rural dwellers were indigenes of the community. For both categories of respondents 40% of

their household size falls within the range of 1 to 5 while 6 to 10 household sizes were 60%. The top three occupations of the people include farming (32,5%), trading (22,5%), and transport business (driver) (12,5%).

All the sampled timber contractors were members of timber association. Some of the benefits of joining the association include sharing of ideas, platform to gain contract, provision of financial assistance, conflict resolution, borrowing of equipment such as chainsaw from members.

Employment generated from Odun Forest Reserve to Rural Dwellers

As presented in Table 1, about 43,8% of the sampled respondents has benefited through employment generated from Odun Forest Reserve to their household. The various benefits include; workers (17,5%) in Odun Forest Reserve, (i.e. as a forest guard or as a timber contractor on contract), Labourer (20,0%) to the timber contractors (i.e. operators, drivers and those that help in lifting/carrying of logs into a timber truck), workers (2,5%) in sawmill and as sellers of firewood or pole (3,8%) obtained from the Reserve. According to these results, majority of the stakeholders did not directly benefit from Odun Forest Reserve, but their relation or family members who worked labourer with the timber contractors, worker in sawmill, as well as sellers of firewood or pole obtained from Odun forest reserve. Lise (2000) and Maskey et al. (2003) reported that the extent of area people participation is decided by the advantages obtained from forests or high dependency on forest or good forest quality. They argued that when people's dependency on forests is high, their interest in forests is likely to be greater, inducing people to participate in forest management and protection activities.

Table 1: Employment generated from Odun Forest Reserve to Rural Dwellers

Variables	Frequency N=80	Percentage (%)
Employment generation		
- Yes	35	43,8
- No	45	56,3
Employment benefits		
- Worker in the reserve	14	17,5%
- Labourer to the timber contractor	16	20,0%
- Worker in sawmill	2	2,5%
- Seller or firewood/pole obtained from the reserve	3	38%
- No response	45	56,2%

Product collection and payment of levy from Odun Forest Reserve by the rural people

As presented in Table 2, 31,3% of the sampled rural people collected products from the forest reserve. The major product collected includes firewood (26,3%) while 26,3% collected leaves. Only 18,8% paid levies to collect products from the reserve while majority did not pay levies. These products are mainly used at domestic level and only collected during the harvesting of trees. The rural people used the leaves collected from the reserve for rapping of kola-nuts while the firewood was used as a source of energy for domestic cooking and as a source of income to households. The reason why majority of the people indicated that they did not pay levy was that dead and dry branches which drops from the standing trees or left as cut off after harvesting were collected in the reserve. These dry wood are popularly known as "Igi gbigbe" in Yoruba and literally means "Dry wood" in English. Sometimes, the dry wood may be collected and used during ceremonies such as burials, marriages and other ceremonies in the community.

Table 2: Product collection and payment of levy from Odun Forest Reserve

Variables		Frequency (N=80)	Percentage (%)
Do you collect any products from the forest reserve?	Yes	25	31,3
	No	55	68,8
Products collected	Firewood	21	26,3
	Leaf	4	5
	No response	55	68,8
Levy paid for collected products	Yes	15	18,8
	No	65	81,3

According to Abi-Ene (2013), the members of the adjoining community forest in Cross River State obtain forest resources to sustain their livelihoods. The situation in Cross River State is quite different from Kwara State because of the ownership structure on the reserves. In Cross River State where the forest is jointly owned by the communities, people are allowed to enter the forest for collection of resources which are jointly owned. However, in Odun Forest Reserve, the forest is owned by the State, hence with high level of regulation with respect to collection of resources within the reserve.

Furthermore, Monsi (2014) also reported that wood collected from reserve in Cameroon was used as fuel for cooking, heating homes, and as a source of light, just to name a few. Since most of the people in rural areas are poor or living below the poverty line, they can hardly afford for electric or gas stoves, thus, they rely greatly on wood for meeting their energy needs. Collection of fuel wood can also be a major driver of deforestation at local level (Fao, 2010) and thus may affect the health of the forest if harvesting is not sustainable.

As discovered in the study area, majority of the respondents did not pay any levy before they can harvest firewood and leaves from the forest reserve. Those that paid levy for collecting firewood in the community informed that they paid undocumented rate of ₦20 per bundle, to the forest guard in charge and the leaves collected are for free.

As informed, felling of trees by unauthorized individual is not permitted in the reserve. Only those with due permission after obtaining necessary permit and making payment are allowed to carry out felling operation under supervisions. However, the community is allowed to carry out felling of trees needed for major community projects such as constructions of buildings like town halls. However, the King will have to request for permission for such felling to take place. In addition, some influential people, who are also close to the King, in the community may sometimes use their positions to make request for harvesting of some trees to be used for personal purposes in the reserve.

The results of the survey indicated that majority of the respondents in the timber contractors' association neither collect nor harvested any other products aside felling of mature trees in the reserve. However, they all obtain necessary permit and paid appropriate levies prior to carrying out of the felling of trees in the reserve. In another study carried out by Abi-Ene (2013) in Cross River State, the entire timber dealers confirmed that they purchased their timber from sustainably managed forest and also paid levies for felling of trees in the community forest.

The sampled respondents reported that, the levies for felling from the forest reserve are paid to the Department of Forestry. Abi-Ene (2013) reported that, the levies paid in Cross River State are in two categories; 'the State Forestry Commission' through extraction permit and to the 'community leaders' for carrying out felling operations on the communal land. This means that levies are mostly paid to carry out felling operations in public forests. Findings from the survey showed that the timber contractors pay stumpage prices for felling of mature trees, harvested from Odun Forest Reserve. For instance, the stumpage price for *Gmelina arborea* cost ₦800 while for *Tectona grandis* cost ₦550, per stand. They also reported that there are other levies paid to the Government, which are Revenue fee and Evacuation fee.

Participation of community and timber contractor's in management of Odun Forest Reserve

Table 3 shows that majority of the rural dwellers did not participate in the decision making (87,5%), as well as in prevention of illegal exploitation (80%) and in Odun Forest Reserve. On the contrary, only 45% of the sampled timber contractors participated in the decision making process of the reserve with the Forestry Departments, while all the contractors indicated that they participated in prevention of illegal exploitation.

Table 3: Participation in decision making and prevention of illegal exploitation by rural dwellers and timber contractors

Variables	Respondents	Responses	Frequency (N=80)	Percentage (%)
Participate in decision making process	Rural dwellers	Yes	0	0
		No	70	87,5
		No Response	10	12,5
	Timber contractors	Yes	9	45,0
		No	11	55,0
Participation in prevention of illegal exploitation	Rural dwellers	Yes	10	12,5
		No	64	80,0
		No response	6	7,5
	Timber Contractors	Yes	20	100
		No	0	0

Table 4 shows the level of participation of the contractors in the protection process of Odun Forest Reserve. It could be observed that only 35% of the contractors indicated that they participated in fire control of the reserve, while 85% participated in reporting of fire incidences, and boundary fire tracing (50%). Meanwhile, majority all the contractors indicated that they participated in reporting illegal and/or unauthorized felling of logs (100%) and patrol protection process (100%) in the reserve.

Table 4: Participation of Timber contractors in Odun Forest Reserve protection process

Variables	Frequency (N=20)	Percentage (%)
Fire control		
- Yes	7	35.0
- No	13	65.0
Reporting fire incidences		
- Yes	17	85.0
- No	3	15.0
Reporting illegal/unauthorized log felling		
- Yes	20	100.0
- No	0	0
Boundary fire tracing		
- Yes	10	50.0
- No	10	50.0
Patrol		
- Yes	20	100.0
- No	0	0

According to Sophie, *et al.*, (1999), the interest of stakeholders in forest management includes any of the functions of production, protection, harvesting, marketing, utilization, regeneration, development and conservation of forest resources. These interests are either complimentary or conflicting in terms of sustained supply of goods and services from the forests for the growing demands of forestry products. However, the socio-economic, cultural and political environments in which the stakeholders operate determine their interests.

Although, the stakeholders are invited to meeting with the Forestry Department, however they were not properly involved in taking management decision on the reserve. Whenever an invitation was sent to the timber contractors for attendance in a meeting, representative(s) is/are normally selected during meeting of the Timber Contractors' Association. At the meeting with the Forestry Officials, representative selected by the contractors do not normally have a say, but rather served as an observer during discussions relating to the forest reserve. Feedbacks from the meetings are delivered to the Association, and presented to the entire house during the contractors' meetings. Byron (2006) informed that policy decisions are supposed to be made by government base on the best interests of their constituency. However, the best interest could only be obtained through dialogue with the concerned people by the Forest Department through the field officials.

In the same vein, the results of the survey indicated that majority of the rural dwellers does not participate in the decision making relating to Odun Forest Reserve. According to Abi-Ene (2013), for effective participation in community-based forestry, empowerment of local people in decision-making process has been identified to be very crucial. In addition, achievement of the main objectives of sustainable forest management is based on involvement of the necessary stakeholders in carrying out some responsibilities such as forest protection and decision-making process.

Furthermore, Macura *et al.* (2011) state that system of governance in forest resources management includes structures and processes, through which partners make and implement decisions and distribute power. The expectation of the local authority and the requirement of the collaborative system approach is that the local people should fully participate in the implementation of forest activities. This would help local people to understand their responsibilities, benefit and obligations under co-management approach (Wily, 2002; Borrini-Feyerabend *et al.*, 2004). The major roles mentioned by the forest-dependent people were tree planting and management in admitted farms in the reserve, boundary cleaning, reporting of illegal activities and responding to emergency wildfire outbreak. The minor roles mentioned were facilitation of Social Responsibility Agreement (SRA) and refraining from illegal activities. Findings from similar studies confirm that stakeholders have been involved in similar forest resources implementation activities. For instance, studies done on collaborative management in Ghana by Asare (2000), Wily (2002) and Amanor (2003) reported that under the collaborative system approach, state forestry agencies have involved local people in management functions such as boundary cleaning, tree planting and establishment of firebreaks among others. They all reported that forest-dependent communities are also involved in curbing illegal activities such as illegal logging in forest reserve.

5. CONCLUSION

The study assessed participation of stakeholders in management of Odun Forest Reserve located in Kwara State Nigeria. The reserve is under the management of the Department of Forestry, but provides some socio-economic benefits to the livelihood of rural dwellers in adjacent Aradun community and timber contractors. The major product obtain from the reserve was timber, leaves and firewood. Be as it may, the stakeholders' participation in management of this government owned forest reserve was very low, especially in decision making process.

To facilitate sustainable management of the reserve, concerted efforts are required by the Forestry Department to involve the local stakeholders in management of the reserve. Local stakeholders should be allowed to participate in decision making process of the reserve. This will give the stakeholders the sense of ownership necessary for sustainability and protection against illegal activities. Also, payment of levies to collect products from Forest Reserves should be properly regulated. It is important that boundary of the reserve be properly maintained to prevent further encroachment and effective patrol. Due to the vast area of Odun Forest Reserve, more forest guards should be employed for enough patrols.

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DECLARATION OF CONTRIBUTIONS TO THE ARTICLE - CRediT

ROLE	FBabalola	EJegede
Conceptualization – Ideas; formulation or evolution of overarching research goals and aims.	X	X
Data curation – Management activities to annotate (produce metadata), scrub data and maintain research data (including software code, where it is necessary for interpreting the data itself) for initial use and later re-use.	X	X
Formal analysis – Application of statistical, mathematical, computational, or other formal techniques to analyze or synthesize study data.	X	X
Funding acquisition - Acquisition of the financial support for the project leading to this publication.	X	X
Investigation – Conducting a research and investigation process, specifically performing the experiments, or data/evidence collection.	X	X
Methodology – Development or design of methodology; creation of models.	X	X
Project administration – Management and coordination responsibility for the research activity planning and execution.	X	
Resources – Provision of study materials, reagents, materials, patients, laboratory samples, animals, instrumentation, computing resources, or other analysis tools.	X	
Software – Programming, software development; designing computer programs; implementation of the computer code and supporting algorithms; testing of existing code components.		
Supervision – Oversight and leadership responsibility for the research activity planning and execution, including mentorship external to the core team.	X	
Validation – Verification, whether as a part of the activity or separate, of the overall replication/reproducibility of results/experiments and other research outputs.	X	
Visualization – Preparation, creation and/or presentation of the published work, specifically visualization/data presentation.	X	X
Writing – original draft – Preparation, creation and/or presentation of the published work, specifically writing the initial draft (including substantive translation).	X	X
Writing – review & editing – Preparation, creation and/or presentation of the published work by those from the original research group, specifically critical review, commentary or revision – including pre- or post-publication stages.	X	X