

Skill Development in implementation of e-Governance Application – A Case Study

Sanjay G Kulkarni¹

Abstract

This paper is about skill development in the implementation of the e-Governance Project Forest Rights Act 2006 in the Maharashtra. The objective of the project was to give the Record of Rights of the land to the eligible Tribals and other Forest land dwellers who were residing in the forest land for generations. There were two types of the rights which were to be given viz 1) Individual Rights & 2) Community Rights. The implementation of the Act was to be done in the shortest time which could be achieved using the available technology, resources in terms of budget, manpower, devices which were to be used in the field. The large scale skill development was needed to be done in order to achieve the project objective. The Act was to be implemented in the Maharashtra and measurement of the land claimed was to be done in the Forest covering entire extent of the State. There were various level committees with the roles and responsibilities, which were formed as mentioned in the Act for monitoring and implementation of the Act. There was one National Level Committee, One State Level Committee, 29 District Level Committees (One Committee per district having forest land), 110 Sub Divisional Committee and over 15000 Village Level Committees. The Skill development was required to be done for using GPS device, using the web based application Software and using GIS techniques to take decision of giving Records of Right to the claimant. The decision was required to be taken for 3.3 lakh claimants for taking decision timely.

Keywords: e-Governance, GPS, GIS, GPX, Skill Development

1. Introduction

According to the International Labour Organization (2008), “Skill development is of key importance in stimulating a sustainable development process and can make a contribution in facilitating the transition from an informal to formal economy”. The skill requirements of the project differ from project to project and no one type of skill can be generalized. There are different levels of leadership in the implementation of the project and these level skills are required to be developed in order to execute the project successfully. The level of understanding and acquiring skill differs from individual to individual. All those who have been in the training will not be able to use the skills with the equal efficiency. There is need to retrain some people and identifying the leaders in them who will guide them in case for difficulty in utilizing the skills for execution of the project. The Professional skills are acquired by long association with the profession, need based training in upgrading the skills by the professional, learning through the website, with the write-up available with the equipment and trying out by self (self leaning) as per instruction. For example, we have vacuum cleaners in our homes; for knowing how to use them, the demo is given by the sales person; we learn how to use by using it and in case we refer to the manual for operation of the equipment. In this case, pre-knowledge of the equipment is

¹ Scientist “D”, National Informatics Centre, Ganeshkhind Road, Pune-411007.
E-mail: kulkarni.sg@nic.in, Phone 020-25610000, Mobile : 9420481817

required as the vacuum cleaner is for cleaning, then understanding of the skill from the sales person is the second step; next step is to start using it (gaining the skill) with the help of the manual. Internet is also a source of gaining skill in operation of the vacuum cleaner.

2. E-Governance

Electronic governance or **e-governance** (Wikipedia, 2014) is the application of information and communication technology (ICT) for delivering government services, exchange of information communication transactions, integration of various stand-alone systems. There are different models for delivery of the services, but basic models are: 1) between government-to-customer (G2C), 2) government-to-business (G2B), 3) government-to-government (G2G), and 4) Government to Employee (G2E). The model G2G (Government to Government) and G2B (Government to Business) was used in the project.

3. Forest Rights Act 2006

The Government of India (2007) enacted an act, The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006, to preserve ‘The forest rights and occupation in forest land in forest dwelling Scheduled Tribes and other traditional dwellers’ who have been residing in such forests for generations. The rules of implementation were notified in the year 2008. All State Governments were given the responsibility to implement the Act. Tribal Research & Training Institute (TRTI), Pune was assigned the responsibility to implement The Act by of Government of Maharashtra.

The Tribal’s who have been residing in the forest land for generations, cultivating and forest produce like firewood and fruits do not have a legal document showing that they are owners of the land. The Forest Conservation Act sees these tribal’s as encroachers or illegal occupants. After the enactment of the Forest Rights Act 2006, these tribal’s will now have the legal right to own, collect, use and dispose of minor forest produce.

As per the Act the Gram Sabha has been declared to be authority to initiate the process for determining the nature and extent of individual or community forest right or both they may be given to the forest dwelling Scheduled Tribes and other traditional forest dwellers within the local limits of its jurisdiction under this Act by receiving claims, consolidating and verifying them and preparing a map delineating the area of each recommended claim in such manner as may be prescribed for exercise of such rights and the Gram Sabha shall, then pass a resolution to that effect and thereafter forward a copy of the same to the Sub-Divisional Level Committee.

The State Government will constitute a Sub-Divisional Level Committee to examine the resolution passed by the Gram Sabha and prepare the record of forest rights and forward it through the Sub-Divisional Officer to the District level Committee for a final Decision.

The State Government will constitute a District Level Monitoring Committee to consider and finally approve the record of forest rights prepared by the Sub-Divisional Level Committee.

4. The Project

The Table No. 1 below shows the project statistics for the number of the agencies involved, No. of plots, No. of Villages, etc.

Table -1 showing the Project statistics

Sr.	Names	Number
1.	Monitoring Cell(TRTI)	1
2.	No. of Forest Rights Comm.	15,002
3.	No. of Cases	3,38,785
4.	Data Uploading Centres	110
5.	DLC/DLVC	28
6.	Reports Viewing	350 Departments
7.	Agencies	7
8.	Programmers	3

There was one State level Implementation Committee, there were 14,000 villages in which the act was to be implemented, there were 3.3 lakh claims to be scrutinised, there were 110 Sub-Divisions under which the Act was to be implemented, there were 28 District Level Committees who were to take the decision of the Records of Rights to be given to the claimant. There were two types of claimants 1) Individual and 2) Community. These plots were in the far flung area in the forest. The project was required to be completed in shortest time and which cannot happen without taking help of the technology.

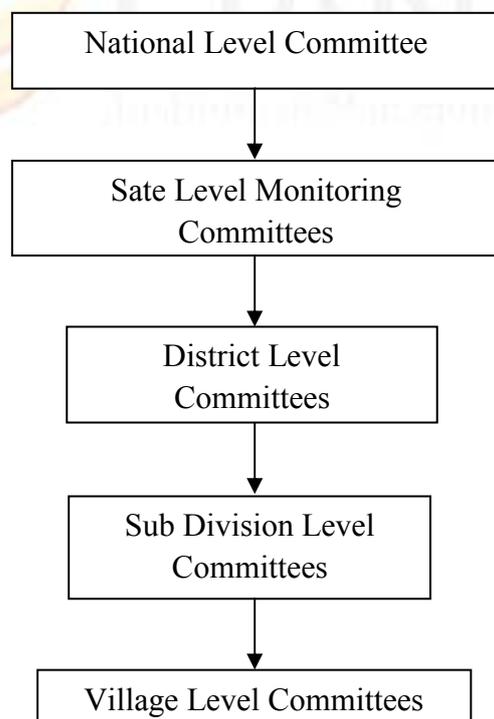


Figure 1: Chart showing Committees at different level Act implementation

These different levels of the Committees shown in Figure 1 above were involved in the implementation of the Act.

4.1 Agencies Involved

- Tribal Research & Training Institute
- National Informatics Centre Pune
- District Collector Offices
- Sub Division Offices
- District Land Record Office/Forest Department/Revenue Department/NGO,s /Village Level Committees

4.2 Methodology Used

The Claimant submits his claim to the Village Level Committee constituted for the implementation of Forest Rights Act. One Person known as GPS man is trained in using GPS device and takes details of the plot from Village Level Committee. He measures the area of the plot using GPS (Global Positioning System) Device. The GPS device is taken to the Sub Division Office. The SDO Staff transfers the contents using the propriety software to the Computer and prepares the gpx (GPS exchange format) files. The ‘.gpx’ file contains Latitude, longitude and track information in XML format. A unique 13 digit code is given to the gpx file. The details of the claimant are entered in the web based software and the corresponding gpx file is uploaded to the Server. The measurement slip is generated which is collected by GPS man and submitted to the Village Level Committee. The diagram of boundary details of plot measured is shown in Figure 2. A register is maintained by the SDO office about the claims given by the GPS Man. The Village Level Committee submits the file with the measurement slip to the Subdivision Level Committee.

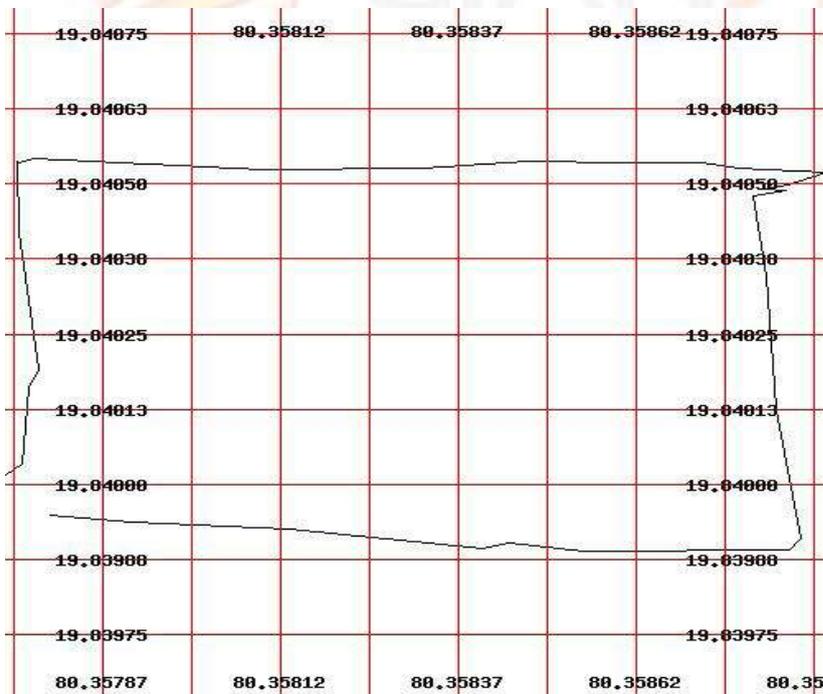


Figure 2: Boundary diagram of the Plot

The Sub-Divisional Level committee processes the claim and forwards the same to District Level Verification Committee with their recommendations.

The shape file seen in the *mapsource* software (Propriety GPS software) is shown in the Figure 3 (Kulkarni, 2014). The present status of the file is viewed on the google maps is shown in fig. 4. The Government procured Satellite images prior to Jan 2006 (Before the implementation of the Act) for each district from National Remote Sensing Agency, Hyderabad. The District Level Verification Committees are given download access to ‘GPX’ files of their district. The committee used Windows based TRTI-VGIS software for overlaying of the GPX file over the Satellite image provided by NRSA as shown in the figure 5, and the present Satellite images available on Google maps. The verification Committee submits it findings to the District Level Committee.

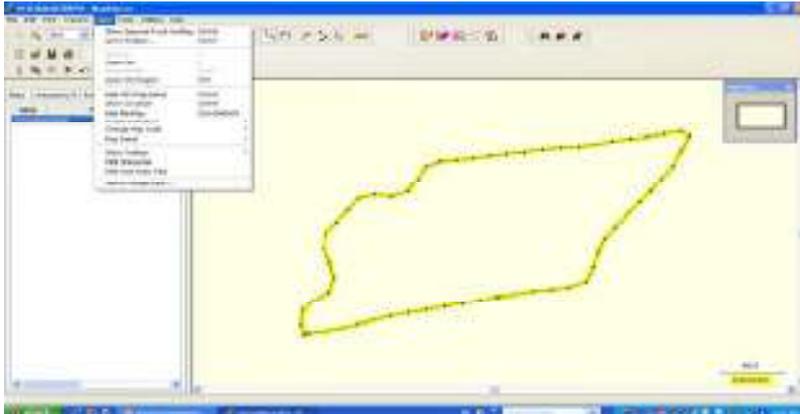


Figure 3: Shape file seen using propriety GPS software

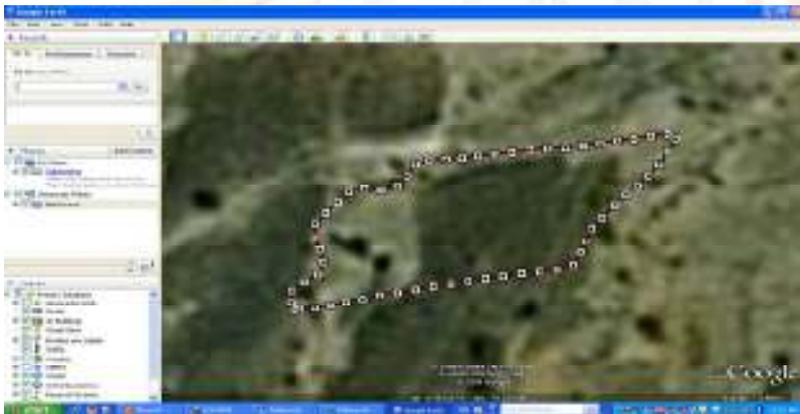


Figure 4: Shape file overlay using google map of Year 2008



Figure 5: Shape file overlay using TRTI-VGIS of Year 2005

The District Level Committee takes the decision of the claim based on the documents and observations made by the District Level Verification Committee.

4.3 System Architecture

The System Architecture is given in Figure 6 (Kulkarni, 2011a). The following Hardware was used in the project.

- Server (web server & Database)
- Client Machine (at SDO, District & TRTI)
- GPS Devices about 300.

The following software were used in the project

- GPS Machines associated software
- System Software : Linux, Apache
- Web Technologies : PHP, Postgresql, Mapserver
- TRTI-VGIS: In house developed software to overlay GPS measured polygon over satellite image (GIS-Geographic Information System)

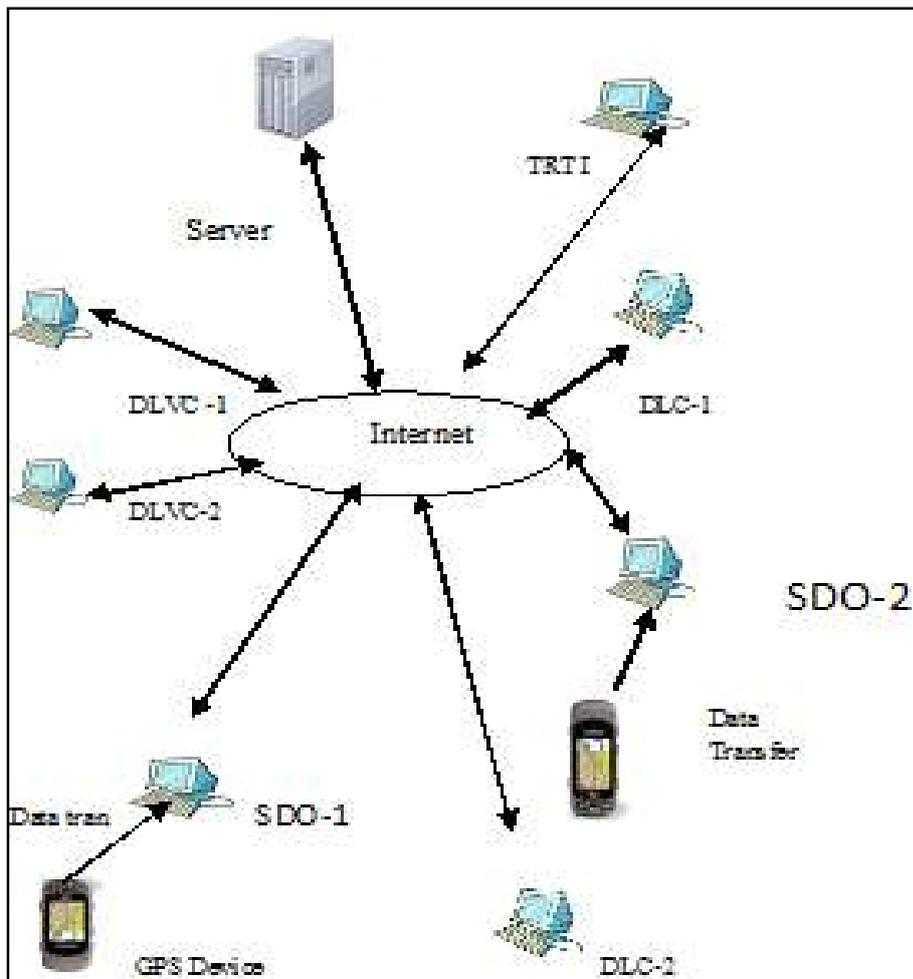


Figure 6: System Architecture

4.4 Impact

- Empowerment of Committees/Authorities
- Improvement in the confidence in Governance
- Saving of public money (DILR survey would have required about Rs. 120 crore as compared to about Rs. 14 crore.
- Latitude Longitude details captured – ideal for forest land
- Illegal claims and fresh encroachments discouraged
- Smooth coordination amongst various levels and variety of Government Departments like Tribal, Forest, Revenue and NIC.
- Reduction of conflicts
- Efficacy of IT and GIS based systems introduced to the tribal and rural populations in the remote areas.

4.5 Skill Development

The skill and knowledge development are the driving forces of economic growth and social development of any country (GoI, 2009). National Level workshops were arranged for the knowing of the Acts and rules and actual implementation of the Act. The skill development in the implementation of the Act was done at the National level for the Nodal officers of the State. The members of the State Level monitoring Committee attended the workshop and also discussed the ways to solve the bottlenecks in the implementation of the Act.

The Skill development for the State Nodal officers such as District collectors, Sub-Divisional officers were held in the divisional headquarters. In-depth training was given to them in the implementation of the Act. This training was for the managerial staff for the Act implementation. The training of the technology usage was done after these training sessions.

The skill and knowledge development in the use of the GPS device in the field was given to the state monitoring team by the experts in the field who had actually used the device. In-depth training was given to the Monitoring Committee staff about handling of the GPS device. This was an exercise first of the kind and of this magnitude in the country to use GPS device in the field.

Several training sessions were given to the staff to gain the skills of plot measurement and storing the unique identification of the plot using GPS devices. There is a card in the GPS device which can store maximum of 13 Character code and a maximum of 20 plot measurement can be stored. A plot was given 13 digits code with first two digits for district code, next two digits as taluka code, next 5 digits as village code, then first letter of the first name, middle name and last name followed by 0 to 9, then A-Z etc. (Kulkarni, 2011b). This is to indicate and identify the unique plot out of 3.3 lakh plots. One card could store only 20 (plots) GPX files and after transferring the gpx files the information on the card was deleted and then new storing of the plot information was done. The skill development was to be done to make people skilled in the use of this technology as the number of the plots to be measured in the remotest places was to be done. There were 800 master trainers (belonging to different NGO's) who were taken and they in turn helped the field staff in skill development and to assist in case of difficulty.

The workshops and training sessions were held for the Sub Division staff in installing the software propriety in the PC, and transferring the gpx files in the machine. The skills were needed to be developed for the staff for using the web based application software which was developed by National Informatics Centre, Pune for entering details of the claim and uploading of the gpx files on to the server.

The Web based software was used for entering the claimant details and uploading of the file. There was a need to innovate the generation of the map based on the gpx(xml) file. The skill of designing software and system architecture was available with the professionals working over 20 years in e-Governance designing and implementing of the software. This skill has helped in developing the software at the faster pace. The skill development was required for the programmers in the use of the open source technology which was given by NIC.

The skill development was required in using the TRTI-VGIS software. The Verification committee at the District Level was downloading the gpx files which were uploaded at the SDO office. The superimposing of the gpx file over the Satellite map and to do analysis was done by the District level Verification Committee for two periods before the Act (ie 2006) and after the Act. This was required to see the change in vegetation so that the fraudulent cases could be identified and the claim can be rejected. The skill development was done by giving training to this staff which included managerial level staff. This has helped in taking decision about giving of the Record of Rights. The training was given to the District Level staff in operating web based software developed for District.

4.6 Use of Media

The Act was to be implemented in the villages, so the content was also required to be in the language that the villagers understood. Most of the people were illiterate and they could communicate in the tribal language of area, Korku. Therefore, audio clips were made and uploaded on the web site. A film clipping was also kept on the website which could be downloaded and seen by the people staying in the tribal areas. The training (material step by step instruction) contents were uploaded on the website. This helped the user to use the system efficiently. The minutes of the meeting and decisions taken were made available on the web for the use of the field staff. The number of trainings conducted information was also made available with the details such as name, contact no. So that it could be known by the authorities to take the help when needed, also this has helped in giving the project work.

5. Conclusion

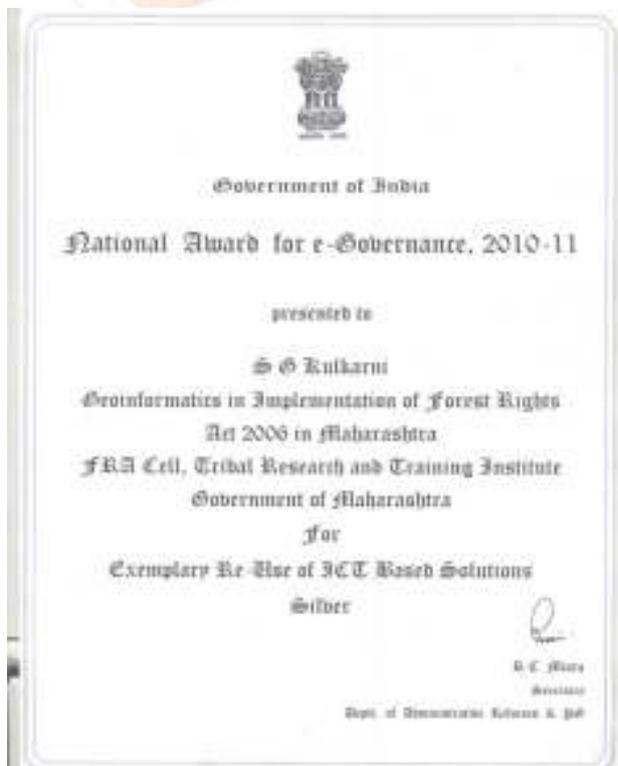
Skill development is required in any project to be successful. A project requires different types of skills as per the requirement. Some requirements leads to innovations which are necessary for the execution of the project. There are various levels in a project and various levels of skill are required to be developed. The managerial Level requires to have knowledge of how to get the things done and little awareness of the technology to be used and skills need to be developed for this. The technical team needs to be groomed in the technological aspects to be used in the project. Some innovative things and skills are required to be gained, which required experience and exposure to the techniques to be used. In this project map of the plot based on gpx(xml) to be drawn for generating measurement slip was challenge and required to use set of tools, libraries and scripting language programs to be developed, also innovation. Skills developed in one project cannot be used in other project, the skills cannot be generalised. It differs from project to project. Having basic knowledge in using computer cannot help in using a application package unless he gains the skills of using the application package.

Recognition of the System

- i) Semi finalist in Common Wealth Association for Public Administration and management innovation Competition
- ii) Shortlisted in eIndia Awards 2010
- iii) Shortlisted for CSI 2010 Award for excellence in IT
- iv) Recognised for Best practices by Govt. of India, Department of Administrative Reforms (<http://indiagovernance.gov.in/listbestpractices.php?page=3>).
- v) Received e-Governance Award in 2010-2011 at 14th e-Governance conference at Aurangabad , Maharashtra



Photo of the Project Team receiving e-Governance Award for the Project in the hands of Governor of Maharashtra and Chief Minister of Maharashtra



Certificate given by the Government to the Author

References

- ILO (2008). *Conclusions on skills for improved productivity, employment growth and development*, International Labour Conference, 2008 / International Labour Office. - Geneva: ILO, 2008, pp1.
- Wikipedia (2014). *E-Governance* [Online], Available from <http://en.wikipedia.org/wiki/E-Governance>
- GoI (2007) *The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006*. Legislative Department, Ministry of Law and Justice, Govt. of India. Retrieved from http://trti.maharashtra.gov.in/forest/static_pages/ForestDwelAct2006.pdf
- GoI (2009). National Skill Development Policy, Ministry of Labour & Employment, GoI. Retrieved from <http://labour.nic.in/upload/uploadfiles/files/Policies/NationalSkillDevelopmentPolicyMar09.pdf>
- Kulkarni, S.G. (2011a). *Using GPS, GIS and Web Technologies in e-Governance Application - A Case Study*, Presented at National Conference titled "Techno Tryst 2011: Dynamics of Information and Communication Technology" organised at Delhi Institute of Advance Studies, Rohini, Delhi, on 19/3/2011.
- Kulkarni S.G. (2011b). *Implementation of the Forest Rights Act 2006 in Maharashtra using Geo-Informatics* – Compendium for 14th National Conference on e-Governance held on 10-11 Feb 2011 at Aurangabad, Maharashtra. Department of Administrative Reforms and Public Grievances, GoI.
- Kulkarni, S.G. (2014). ICT Enabled Implementation of Forest Rights Act 2006 in Maharashtra. *Informatics*, 22(3), 19-20.