TOPICAL EDITOR'S COMMENTS	AUTHOR'S RESPONSE: Relevant lines are Highlighted in yellow colour in the main article
Why did you choose to distill water with already low salt contents? (Other treatment systems are more efficient then), better to focus on seawater.	Apart from the coastal region of Nigeria where people are forced by circumstance to process salty water for domestic use, the commonly available water in some rural areas is not pure due to dissolved organic and inorganic materials. In some locations (e.g Ile-ife Osun state: 7.4905°N, 4.5521°E)), the economic power of the indigenes is very low and living standard is very poor. Therefore, the present work aimed at providing indigenous distillation method for locals in order to make drinkable water available at low cost. Justification is highlighted in lines 72-77.
What is new in relation to the already existing solar distillators?	Although solar distillation is not a new technology, likewise the method/structure of solar still (that is single slope conventional type) adopted in this research. However, the experimental design and the setup are location specific. The tilt angle of the glass condenser which significantly affects the output of the solar still are chosen based on the latitude of the research location, in this case 7.5175° N. Hence, the glass cover was kept at 17°52'', (i.e. the (7.5175° N) plus 10°)…….Highlighted in lines 100-104.
Explain in materials and method section your experimental design, what do you mean with "dirty water", and how the analyses were done (instruments)?	**"Dirty water"** in this context is referred to as the water collected from stagnant water most often where passer bye (people) urinates, defecate and deposit refuse. It is heavily polluted with algae, spirogyra and refuse/dirt of all kinds.

	"Experimental Design" Two sets of experiments were prepared: the conventional solar still (CSS) and conventional solar still with a flat plate collector (CSS-FPC). In this experimental work, the conventional solar still was fabricated with a square stainless-steel sheet of 1 m^2 and 2 mm thickness. Figure 1 shows the isometric and the exploded view of the experimental setup, while Figure 2 shows the photograph of the experimental setup. The detail experimental design has been carefully explained as highlighted in lines 174-202. Analysis were carried out by first obtaining data using relevant measuring instruments and the results were analyzed in form of evaluation and comparison of results with earlier works in the literature. Important evaluation of the present work is highlighted in lines 206-230.
Discuss your results in relation to literature (is it in line, is it better and why..)	Several authors have worked on performance evaluation of solar still of different configurations. Their results are hereby compared with that of the present studies as explained and highlighted in lines 251-261, and lines 268-275. This is with the understanding that the performance of any solar still is dependent on the following factors: location under consideration (inherent/current climatic and atmospheric condition); diurnal irradiance and other specified experimental conditions. Direct comparison of the performance of the solar still of present work with the available results in the literature is shown in Tables 3 and 4. Comparing TDS and EC, the present work is close to the

	earlier works in terms of TDS and EC reduction for heavily polluted water and freshly dug water which is a major problem facing the rural communities around the location where the experiments were conducted. Other comparisons are highlighted in lines 337-357.
Discuss with literature the "efficiency" of the system (=efficacy and costs) in relation to other systems.	Different methods exist for water purification using solar desalination system. The TDS and the electrical conductivity of the produced desalinated water from the four different sources have been compared with some results available in the literature using different configurations of solar desalination system. The maximum daily yield of the present work is better than most of the existing solar still as shown in Table 4. The average of the overall daily efficiencies of the conventional solar still without flat plate collector and the single slope solar still with flat plate collector are 13.906 % and 16.298 % respectively. This shows an improvement of 14.67 % with the inclusion of the flat plate with the conventional type. Since these values are dependent on the weather, climate and the atmospheric conditions with the diurnal irradiance coupled with the still design, hence it is difficult to compare with existing designs in the literature. The daily production efficiency, ϵ_d of the still are 15.85 % and 26.25 % respectively for the conventional solar still without flat plate

	collector and the single slope solar still with flat plate collector. The detail discussion of the efficiency is highlighted in lines 322-328. The solar still in the present study is made with locally sourced materials and as at the time of construction the average cost is approximately $ 140 including the flat plate collector. Without the flat plate collector the average cost is $ 40. The analysis for the cost per liter of distilled water based on Kabeel et al. (2011) has been included to compare the cost of distilled water production per litre. The detail analysis is highlighted in lines 337-357. Furthermore, it is observed that the present design is better than some of the earlier designs based on cost of production per litre of water.

AUTHOR'S RESPONSE TO REFEREE'S COMMENTS (RC1:)

Referee's Comment	**Author's Response: Relevant lines are highlighted in torquoiso color**
S10: Rephrase this line (havoc is not the appropriate terminology). For instance: The major problems caused by scarcity of drinking water	Rephrased as highlighted in line 10-12
S20: TDS-measurement is in this case probably measured with electrical conductivity. The meter is measuring the EC and a linear relation is assumed between EC and TDS. So on the display there is a TDS-reading. This linear relation is not very accurate. The proper way to measure TDS is to measure all the ions in the water matrix in mg/l and add them up to obtain the total amount of dissolved ions. So I would suggest only to talk	A digital meter that measures both the TDS and the EC was used. The modes were only interchanged to capture the required parameter at each specific time. As reported in lines 204-206. The total dissolved solid in the water samples was measured using a digital conductivity meter by Mettler Toledo with ±0.5 % conductivity accuracy. However, emphasis has been reduced on TDS due to the

about EC in this paper.	suggestion made by the reviewer (RC1).
S51: Here electrolysis is mentioned but this is a process to split water in H_2 and O_2. What is meant is electrodialysis. This is a process with two different membranes and two electrodes pulling ions trough the membranes resulting in one diluate (less ions) and one concentrate (more ions) stream.	The suggestions has been effected as suggested by the reviewer and highlighted in lines 47-50.
S90: Why is roof water carcinogenic? I can imagine that it contains bacteria and viruses (from the birds on the roof) and it can contain metals like iron and zinc from the roof material but I cannot imagine that it contains carcinogenic compounds. If this is possible please refer to literature to prove this.	This observation has been reported in the literature as cited in line 69-71.
S96: Rephrase "as a result of indiscriminate drinking of water". Drinking water according to the WHO-guidelines will never contain water borne diseases. So probably you mean that people use water that is not treated to drinking water or the quality is not meeting the WHO-guidelines.	This has been effected as highlighted in lines 85-87.
S106: Mention here also the m^2 of the solar collector because this surface area contributes to the solar heat that is collected during the experiment.	The reviewer pointed out the need to mention the area of the solar collector that received the heat from the sun. This area is 1 square meter as described and highlighted in lines 146-148.
S207: Avoid terminology like "ridiculous"	It has been corrected
S210: Mention the brand of the measuring equipment (but the TDS meter is in fact a conductivity meter)	The brand of the measuring equipment is a digital conductivity meter by Mettler Toledo with ±0.5 % conductivity accuracy. The digital meter was used to measure both the TDS and the EC. This is described in lines 204-206.
S281: Mention which graph is the active and which graph is the passive setup (probably: a and d are active and b and c are passive setups)	Figures 4 (a and d) gives the distillate yield for the active solar still while Figures 4(b and c) represent the distillate yield for the passive still. This is captured as highlighted in lines 268-269.

S323: Mention that EC and TDS-removal rate is not very relevant in this case because the starting TDS is already below the WHO-guidelines. If seawater or brackish water was investigated this was a more relevant parameter. And for seawater the reduction rate should be something like 99.9% to obtain drinking water.	We appreciate the suggestions of the reviewer and this line has been modified as highlighted in lines 305-309
S336: The table here (label has no number!!!) shows a unit I cannot understand: Maximum daily production rate (kg/m2hr). So probably the proper unit is kg/(m2.day) In the table you should mention for comparison your results for the passive setup and the active setup. And mention if the m2 of the solar collector is used in this calculation. Because in fact you should refer the production to the total m2 surface area you use to collect solar heat.	The tables here have been numbered and the data are presented in SI units. Daily production rate is now written in litres per square meter of solar collector per day. This explanation addressed the observations raised by the reviewer.
S346 The XXXX should be replaced by numbers??? Please do so. Otherwise delete this part.	The XXXX has been replaced by numbers as suggested by the reviewer. Other relevant information has been added to improve the quality of the paper. This is captured in lines 377-383 as highlighted in the paper.

AUTHOR'S RESPONSE TO REFEREE'S COMMENTS (RC2)

Referee's Comment	**Author's Response: Relevant lines are highlighted in green color**
The removal of TDS and EC was studied using a locally made solar distillation installation. Various water sources were used and compared to other experiments described in literature. The paper is reasonably well written, but lacks a clear objective and a	These general observations have been carefully rectified based on reviewer's comment as follows.

good discussion of the results with literature	
General comments A clear objective at the end of the introduction is missing. How does this relate to previous research in the area? What is novel? Only location is not sufficient.. Is the design novel? - It should be explained why solar stills are used to treat the water mentioned water sources. Probably there are more cost effective ways to treat groundwater, rain water and surface water. - EC and TDS is not sufficient to judge the treatment performance since these are not indicators for microbial contamination e.g. - Comparing EC and TDS to WHO guidelines is not sufficient to judge performance. - The discussion with literature should be included in the sections describing the results (now they are separated). - Cost analyses should be made in comparison with the production, so xxx Cm3 - Language, including tenses, should be checked - Redundant information should be deleted. - Avoid too general introduction	A clear objective has been written close to the end of the introduction as highlighted in lines 84-88. The relationship between the present study and earlier works are established by comparing design, performance, efficiency and cost as highlighted in lines 77-80, 150-173, 314-320, and 355-357. The reviewer raises issues on TDS and EC measurement since we did not check the microbial level or activities. Many papers discussed TDS and EC without specific emphasis on microbial level. The scope of the study does not consider the level of microbial contamination in the water sample before and after the desalination. TDS and EC tested before and after desalination are just in addition to the effect of solar insolation and temperature variations on the yield of the distillate from the constructed solar still. These were carried out to judge the performance of the constructed solar still. Other yardstick/parameter exist but not within the scope of this study. The main objective is to evaluate the performance of the Solar still based on the obtained yield, WHO standard on the TDS and EC of the output, Cost reduction (based on the locally sourced materials used in construction), etc. TDS and EC measurement are one of the ways by which Solar still performance is checked in the literature. Future work may include checking the level of microbial contamination before and after desalination
Line 21-22 and 23-26	Correction made based on reviewer’s comment
Line 28-38	Correction made based on reviewer’s comment
Line 39	Effected
Line 46	Location specified as observed

Line 48-51	Corrected as suggested
Line 54-57	Corrected as suggested
Line 81, 84 & 89	Word has been replaced and explanation on how this work solves the water purification problem was given to reflect the authors' opinion.
Line 95-96	The statement has been rephrased as suggested and new statement is not bold or too assertive
Line 138-145	Correction implemented as suggested by the reviewer, relevant references are included.
Line 162-167	The statement has been rephrased as suggested and new statement is not bold or too assertive
Line 174	The overview of all the experimental settings is given in lines 162 – 187 and 190-222. Figures 1 and 2 have shown the experimental set-up, the detail overview is not considered necessary in the author's opinion. Other issues raised regarding duplicates in experiments and water sampling have been captured under experimental design
Line 175	Performance evaluation is now put under material and methods as suggested by the reviewer
Line 183-186: Explain what design variables were varied and evaluated for optimized performance	None of the design variables mentioned in the session were varied or evaluated for optimization. All will do was that we compared the performance of passive flat plate collector against the active type.
Line 196-209: should be rephrased (or deleted) based on the general comments above	We have checked this; there is no reason to rephrase or delete. It is important to the article in our own opinion
Line 210: dissolved solids are not "particles"; What is a "digital TDS meter", (type/measurement method, etc.)?	Highlighted in lines 204-214
Line 219-226:…….should be more extensive and part of Materials and Methods section	……..This has been elaborated in the material and methods section

Line 228-230: consider deleting	No need for deletion but modified
Line 232: why randomly selected days? Is there another way to present all days?	Experiments were carried out on several days. But we cannot present all the results because of space. And the results equally behave the same in as much as the solar radiation for the days under consideration look similar and it is the same experimental condition and water sample. In some case some experiments were even repeated. So, the 9 days selected are 4 days for active solar still and 5 days for the passive type.
Line 236-237: is this relationship known from literature, then discuss this with literature	These have been discussed as highlighted in lines 273-284
Line 238 - 243	Corrected based on reviewer's suggestions
Line 256 and onwards: how does it compare with other studies?	References given as highlighted in lines 314-320
Line 267-269: not new Line 274: results = resulted Line 284: has = had	These are editorial errors and have been corrected
Line 275: do not use "significantly" when statistical analyses are not performed	This has been rectified based on reviewer's suggestion
Line 294-307: can be deleted, because the graphs represent the same data of previous graphs and do not give extra information.	These graphs cannot be deleted because the parameters considered are different even though they look similar. The authors considered the graphs necessary and thereby retained them (Figures 3, 4 & 5)