DATA MANAGEMENT PLAN

0. Proposal name
Experimental Validation data set for Solar Still using PCM

1. Description of the data
1.1 Type of study
This is a part of Dissertation work of Master Student at School of Engineering, RK University, Rajkot India
1.2 Types of data
This is an experimental data collected form a three stepped solar still (0.6m × 0.6m) constructed by the student and experiment conducted at Bhavnagar (21.74°N,72.10°E) to yield 2.5 litre/day
1.3 Format and scale of the data
The file format is excel, number of record is presented for the month of April 22 to May 10, 2018. CAD model was used to create the drawing for Solar Still. The experiment was conducted for the same TDS of water daily. These are the initial indicative values. Formats and software enable sharing and long-term validity of data as a part of academic work.

2. Data collection / generation
This is a new set of data for solar still using design of 3 steps with copper tube underneath for PCM to have solar heat storage.
2.1 Methodologies for data collection / generation
These data are collected conducting open sky experiment on the roof top of student residence so that regular yield can be noted on hourly basis.
2.2 Data qualityand standards
These data are collected using clock and graduated flask to measure volume. The measuring isntruments are not calibrated for the purpose but the consistency is check by repeated measurement for around a week time as reported.

3. Data management, documentation and curation
The data corresponding to day, time (hourly) and yield (litre) is noted for two cases for a week time including day and night hours. The brine water was considered for both the cases. This sample was collected from Bhvanagar coastline areas. The purpose of this experiment was to see the effect of PCM on solar still as the absorber plates had the provision of copper pipe to keep PCM material. The PCM material used was the commercial available paraffin wax. The two separate sheets are made for this logging the data for the use of PCM and without it.
3.1 Managing, storing and curating data.
These data are at present for TDS value of 35000 and it is planned that over and below this TDS value the data can be stored for future investigation. Any one with this link <https://docs.google.com/spreadsheets/d/1PxYY3maCHE8PBk_AttSxhpKnoU1BDbaMZA8GIMrJTqc/edit?usp=sharing> can download the data and append the data by submitting the link to the author or creating a similar data TDS <35000>. CC BY 4.0 license is used for this purpose which sate that "Unless indicated otherwise, you can share, copy and modify the images or other third party material in this article so long as you give appropriate credit, provide a link to the license, and indicate if changes were made. If the material is not included under the Creative Commons license, users will need to obtain permission from the license holder to reproduce the material." Data is stored on Amazon S3 (a storage and hosting service) servers in Ireland, which assures the integrity and security of data S3 achieves 99.999999999% durability of data objects over a given year.
3.2 Metadata standards and data documentation
The metadata produced is TDS, place, time,daytime, nighttime, average daily yield and total yield.
3.3 Data preservation strategy and standards
Plans and place for long-term storage, preservation and planned retention period for the research data is planned with mendeley data set repositary.

4. Data security and confidentiality of potentially disclosive information
This research data do not includes personal data relating to human participants in research.
4.1 Formal information/data security standards
These data is part of student research for M. Tech program in Thermal Science at School of Engineering, RK University for the academic year 2017-2018.
4.2 Main risks to data security
As such this do not have any personal data leading to an element of risk. In summaries the main risks to the confidentiality and security of information related to human participants, the level of risk and how these risks will be managed is not considered here. The main purpose of this data set is to create a pool of data for different TDS value so that repetive experiment need not be conducted for minor improvement necessating storage and processing of data, data access, with controls put in place and any auditing of user compliance with consent and security conditions.

5. Data sharing and access
Mendeley Data Set is identify as data repository (-ies) that are, or will be, entrusted with storing, curating and/or sharing data from this study, where they exist for particular disciplinary domains or data types. Information on repositories is made available here.
5.1 Suitability for sharing
Yes the the data collect in the study suitable for sharing, repetitive data for little change in design can be avoided.
There is No reason to indicate as why the data will not be suitable for sharing.
5.2 Discovery by potential users of the research data
This data shall be made available through Mendeley data set for potential new users (outside of RK University) to find out about solar still data and identify how it could be suitable for their research purposes, through summary information (metadata) being readily available as done here by citing it.
This is to indicated that as per policy or approach to data sharing, the user may (or can) publish data set by other means for academic discourse.
5.3 Governance of access
The researcher here and Mendeley individually or together shall make or will make the decision on whether to supply research data to a potential new user.
This is to indicate that the research data will be deposited in and can be made available from an identified community database, repository, archive or other infrastructure established to curate and share data.
5.4 The study team's exclusive use of the data
The timely data sharing, with the understanding that alimited, defined period of exclusive use of data for primary research is reasonable according to the nature and value of the data, and that this restriction on sharing should be based on simple, clear principles of being findable, accessible, interoperable and reusable (FAIR). The timescale/dependencies for when data will be accessible to others outside of RK Univeristy team shall depends on request made and action in a period of about week if required.
5.5 Restrictions or delays to sharing, with planned actions to limit such restrictions
The restriction to data sharing may be due to participant confidentiality, consent agreements or IPR. The strategies to limit restrictions may include data being anonymised or aggregated; gaining participant consent for data sharing; gaining copyright permissions. For prospective studies, consent procedures should include provision for data sharing to maximise the value of the data for wider research use, while providing adequate safeguards for participants are declared. As part of the consent process, proposed procedures for data sharing should be to set out clearly and current and potential future risks associated with this be explained to research participants.
5.6 Regulation of responsibilities of users
This is to indicate that external users are (will be) bound by data sharing agreements, setting out their main responsibilities.

6. Responsibilities
Apart from the Research scholar, Guide is responsible at RK University/within RKU consortia for:
· study-wide data management
· metadata creation,
· data security/quality
· quality assurance of data.

7. Relevant institutional, departmental or study policies on data sharing and data security
This is to share where such policies are (i) relevant to study, and (ii) are in the public domain, e.g. accessible through the internet.
Add any others that are relevant

Policy	URL or Reference
Data Management Policy & Procedu	Policy & procedure of Google server is enforced on all user at RK University as an educational use
Data Security Policy	Technology of virtualisation is used
Data Sharing Policy	ftp server is for internal user only, researcher deposit the data with bind copy with RK University central library & NFLIBNET at webmaster@inflibnet.ac.in. Beside this scholar uses and sharing the information with Research gate, google scholar and many other social media too.
Institutional Information Policy	*Government of India (GOI) policy of information sharing for Institutional is applicable to educational institutional*
Other:	None
Other	None

DATA MANAGEMENT PLAN	
8. Author of this Data Management Plan (Name)and, if different to that of the Principal Investigator, their telephone & email contact details	
Vivek Maru <vivekmaru90@gmail.com >, Dr Ajit Kumar N Shukla <ajitkumarnshukla@yahoo.co.in>	

Sr. No.	Date of experiment	TDS of feed water /ppm	TDS of product/ppm		DAY TIME	PRODUCT/ml	NIGHT TIME	PRODUCT/ml			Total daily yield /ml			Average daily yield without PCM
1	4/22/2018	3500	750		09:00hrs	0	21:00hrs	60						795
					11:00hrs	0	23:00hrs							
					13:00hrs	50	02:00hrs	60			340			
					15:00hrs	60	04:00hrs							
					17:00hrs	50	06:00hrs	0						
					19:00hrs	60								
					TOTAL	220	TOTAL	120						
2	4/23/2018	3500	750		09:00hrs	0	21:00hrs	70						
					11:00hrs	50	23:00hrs							
					13:00hrs	60	02:00hrs	100			550			
					15:00hrs	100	04:00hrs							
					17:00hrs	90	06:00hrs	0						
					19:00hrs	80								
					TOTAL	380	TOTAL	170						
3	4/24/2018	3500	750		09:00hrs	0	21:00hrs	80						
					11:00hrs	50	23:00hrs							
					13:00hrs	60	02:00hrs	100			560			
					15:00hrs	110	04:00hrs							
					17:00hrs	80	06:00hrs	0						
					19:00hrs	80								
					TOTAL	380	TOTAL	180						
4	4/25/2018	3500	750		09:00hrs	0	21:00hrs	100						
					11:00hrs	90	23:00hrs							
					13:00hrs	100	02:00hrs	150			930			
					15:00hrs	200	04:00hrs							
					17:00hrs	200	06:00hrs	0						
					19:00hrs	90								
					TOTAL	680	TOTAL	250						
5	4/26/2018	3500	750		09:00hrs	0	21:00hrs	100						
					11:00hrs	100	23:00hrs							
					13:00hrs	140	02:00hrs	150			940			
					15:00hrs	150	04:00hrs							
					17:00hrs	200	06:00hrs	0						
					19:00hrs	100								
					TOTAL	690	TOTAL	250						
6	4/27/2018	3500	750		09:00hrs	0	21:00hrs	90						
					11:00hrs	100	23:00hrs							
					13:00hrs	150	02:00hrs	150			930			
					15:00hrs	150	04:00hrs							
					17:00hrs	200	06:00hrs	0						
					19:00hrs	90								
					TOTAL	690	TOTAL	240						
7	4/28/2018	35000	750		09:00hrs	0	21:00hrs	100						
					11:00hrs	100	23:00hrs							
					13:00hrs	150	02:00hrs	150			1025			
					15:00hrs	200	04:00hrs							
					17:00hrs	225	06:00hrs							
					19:00hrs	100		0						
					TOTAL	775	TOTAL	250						
8	4/29/2018	35000	750		09:00hrs	0	21:00hrs	100						
					11:00hrs	100	23:00hrs							
					13:00hrs	100	02:00hrs	100			940			
					15:00hrs	220	04:00hrs							
					17:00hrs	220	06:00hrs	0						
					19:00hrs	100								
					TOTAL	740	TOTAL	200						
9	4/30/2018	35000	750		09:00hrs	0	21:00hrs	100						
					11:00hrs	100	23:00hrs							
					13:00hrs	100	02:00hrs	90			940			
					15:00hrs	200	04:00hrs							
					17:00hrs	200	06:00hrs	0						
					19:00hrs	150								
					TOTAL	750	TOTAL	190						

Sr. No.	Date of experiment	TDS of feed water /ppm	TDS of product/ppm		DAY TIME	PRODUCT/ml	NIGHT TIME	PRODUCT/ml			Total daily yield /ml			Average daily yield PCM
10	5/1/2018	3500	750		09:00hrs	0	21:00hrs	100						1340.5
					11:00hrs	90	23:00hrs							
					13:00hrs	175	02:00hrs	280			1265			
					15:00hrs	220	04:00hrs							
					17:00hrs	250	06:00hrs	0						
					19:00hrs	150								
					TOTAL	885	TOTAL	380						
11	5/2/2018	3500	750		09:00hrs	0	21:00hrs	145						
					11:00hrs	100	23:00hrs							
					13:00hrs	175	02:00hrs	280			1310			
					15:00hrs	220	04:00hrs							
					17:00hrs	240	06:00hrs	0						
					19:00hrs	150								
					TOTAL	885	TOTAL	425						
12	5/3/2018	3500	750		09:00hrs	0	21:00hrs	150						
					11:00hrs	100	23:00hrs							
					13:00hrs	170	02:00hrs	300			1350			
					15:00hrs	225	04:00hrs							
					17:00hrs	245	06:00hrs	0						
					19:00hrs	160								
					TOTAL	900	TOTAL	450						
13	5/4/2018	3500	750		09:00hrs	0	21:00hrs	150						
					11:00hrs	90	23:00hrs							
					13:00hrs	100	02:00hrs	300			1310			
					15:00hrs	175	04:00hrs							
					17:00hrs	220	06:00hrs	0						
					19:00hrs	275								
					TOTAL	860	TOTAL	450						
14	5/5/2018	3500	750		09:00hrs	0	21:00hrs	150						
					11:00hrs	100	23:00hrs							
					13:00hrs	175	02:00hrs	300			1400			
					15:00hrs	250	04:00hrs							
					17:00hrs	275	06:00hrs	0						
					19:00hrs	150								
					TOTAL	950	TOTAL	450						
15	5/6/2018	3500	750		09:00hrs	0	21:00hrs	145						
					11:00hrs	0	23:00hrs							
					13:00hrs	100	02:00hrs	290			1200			
					15:00hrs	175	04:00hrs							
					17:00hrs	245	06:00hrs	0						
					19:00hrs	245								
					TOTAL	765	TOTAL	435						
16	5/7/2018	3500	750		09:00hrs	0	21:00hrs	150						
					11:00hrs	100	23:00hrs							
					13:00hrs	170	02:00hrs	280			1360			
					15:00hrs	245	04:00hrs							
					17:00hrs	270	06:00hrs	0						
					19:00hrs	145								
					TOTAL	930	TOTAL	430						
17	5/8/2018	3500	750		09:00hrs	0	21:00hrs	150						
					11:00hrs	100	23:00hrs							
					13:00hrs	170	02:00hrs	300			1380			
					15:00hrs	250	04:00hrs							
					17:00hrs	270	06:00hrs	0						
					19:00hrs	140								
					TOTAL	930	TOTAL	450						
18	5/9/2018	3500	750		09:00hrs	0	21:00hrs	160						
					11:00hrs	100	23:00hrs							
					13:00hrs	170	02:00hrs	310			1395			
					15:00hrs	245	04:00hrs							
					17:00hrs	270	06:00hrs	0						
					19:00hrs	140								
					TOTAL	925	TOTAL	470						
19	5/10/2018	3500	750		09:00hrs	0	21:00hrs	150						
					11:00hrs	100	23:00hrs							
					13:00hrs	160	02:00hrs	300			1435			
					15:00hrs	250	04:00hrs							
					17:00hrs	275	06:00hrs	0						
					19:00hrs	200								
					TOTAL	985	TOTAL	450						
Average		14000	750											