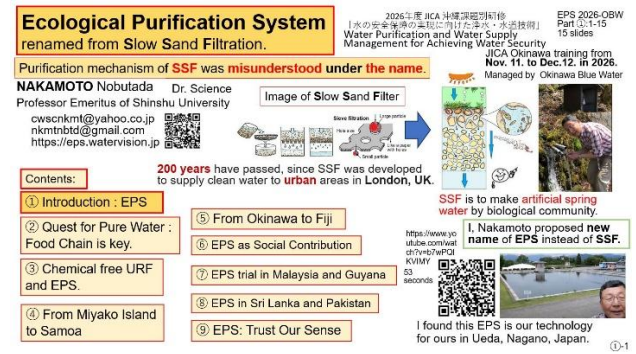
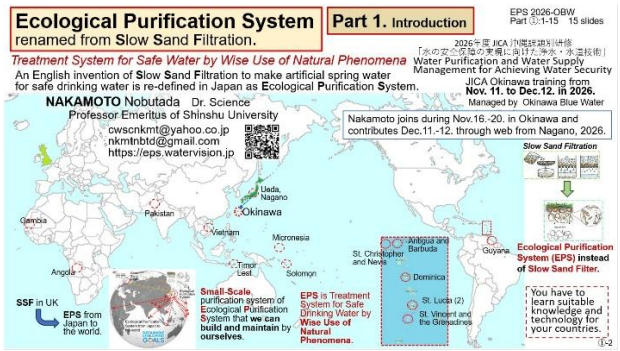
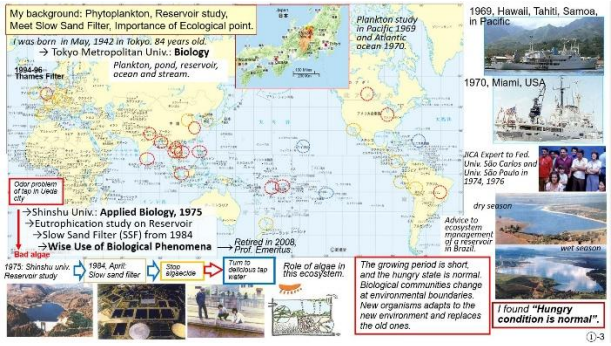


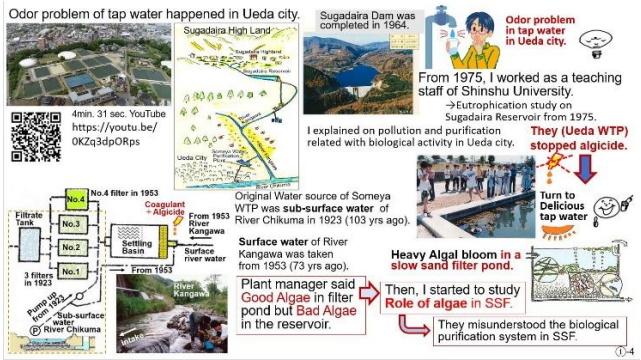
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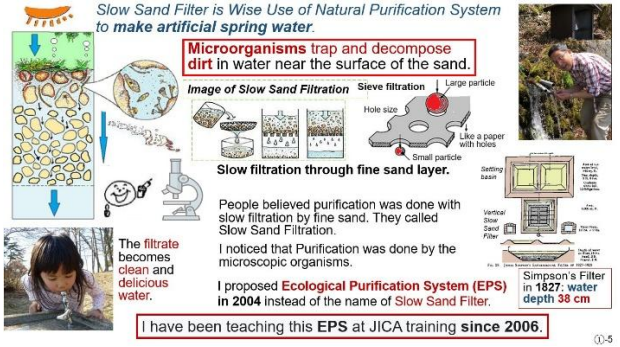
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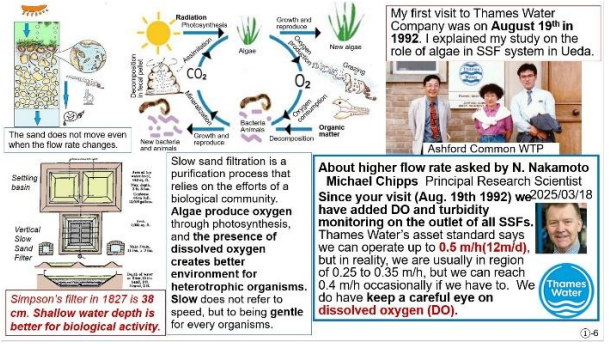
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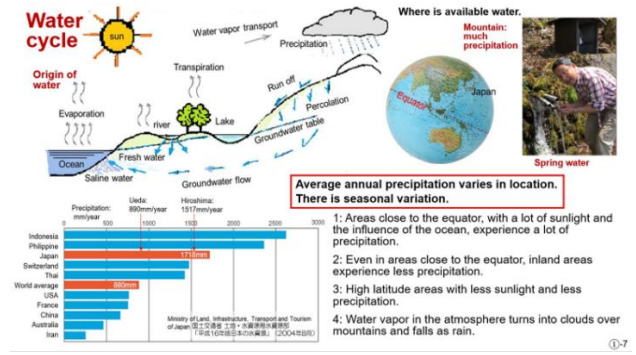
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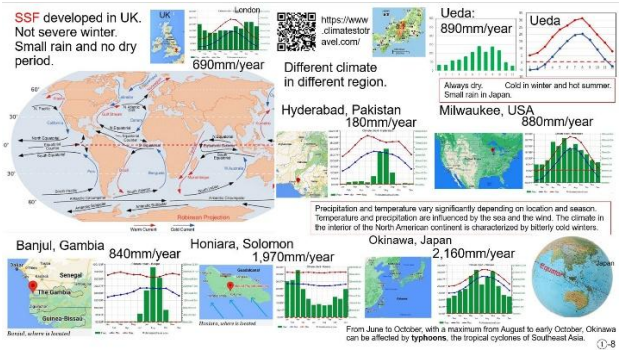
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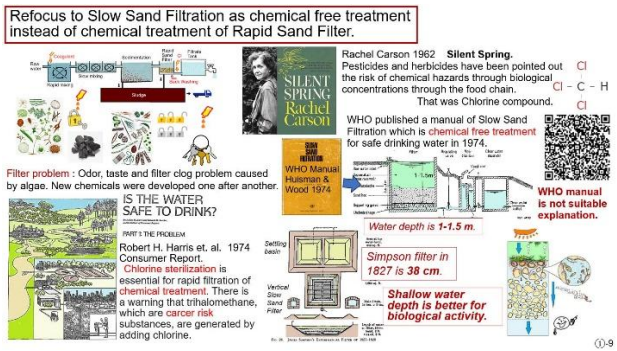
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①—7

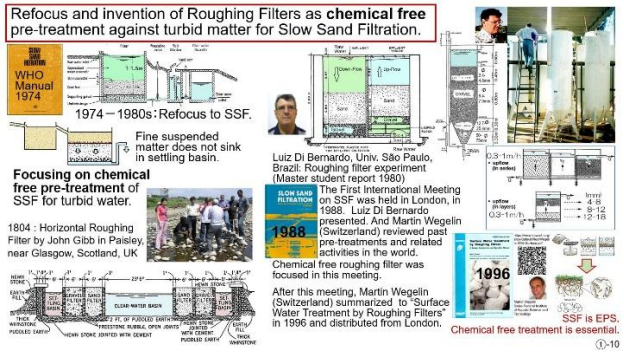


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①—9

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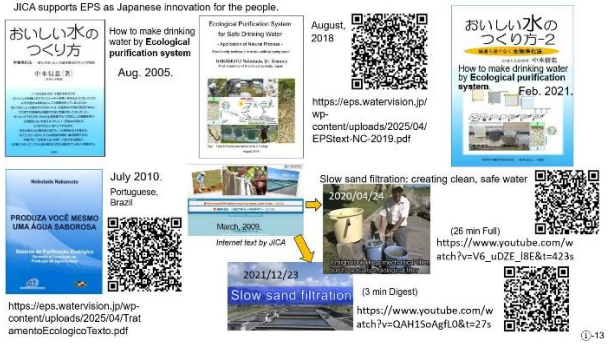
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①—11



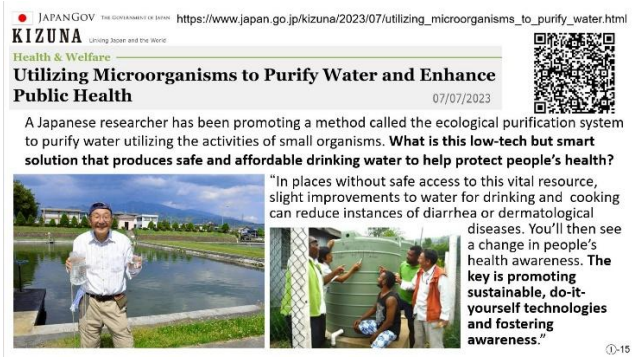
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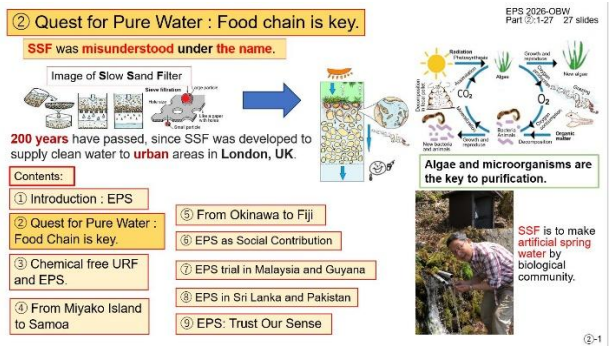
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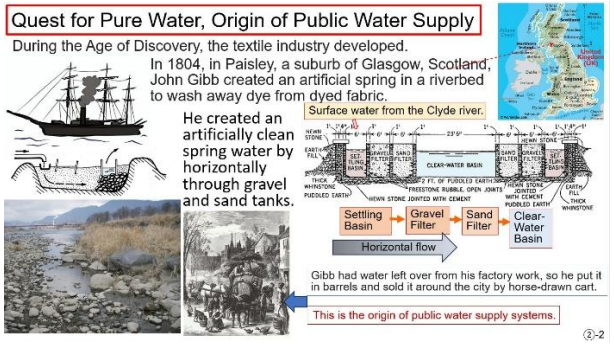
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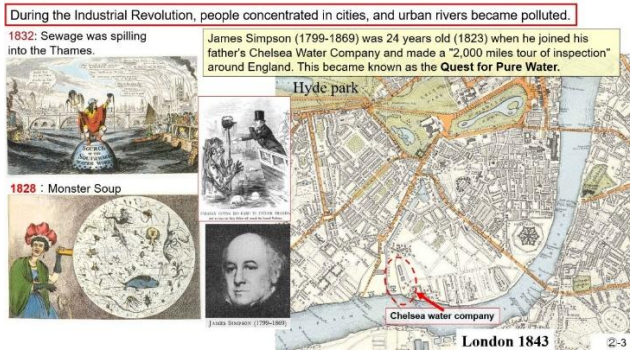
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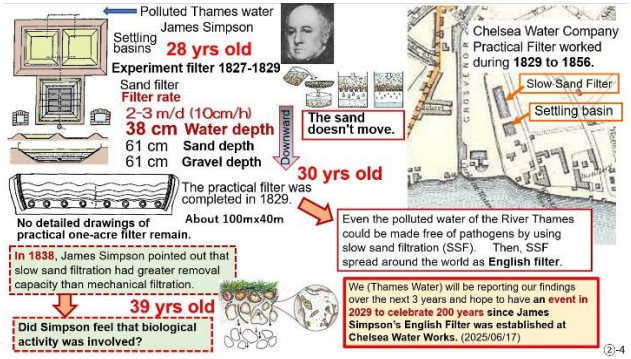
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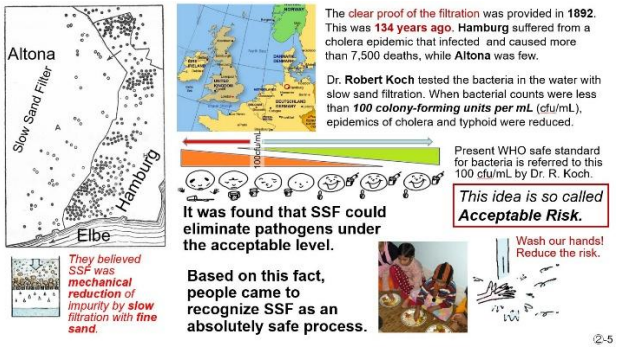
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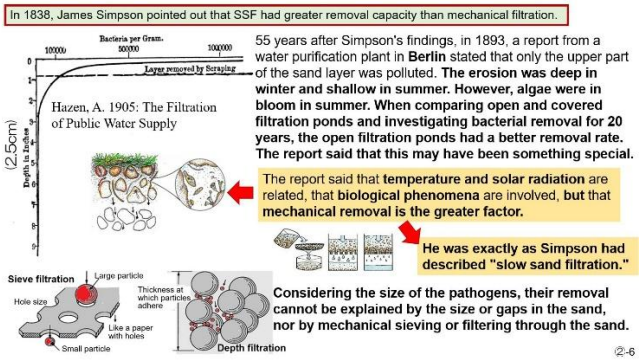
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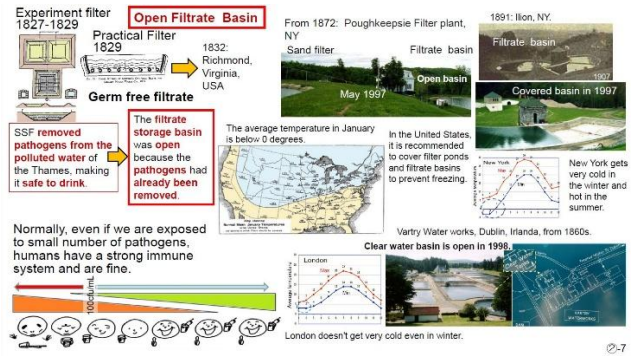
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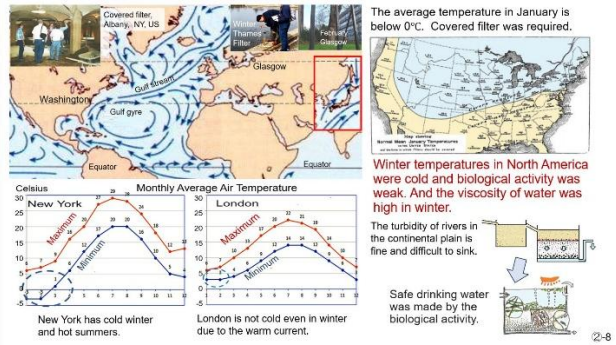
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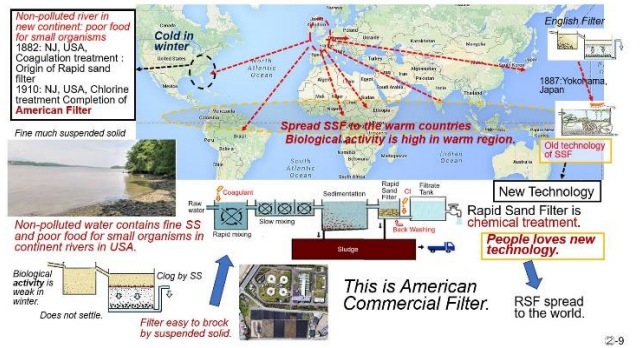
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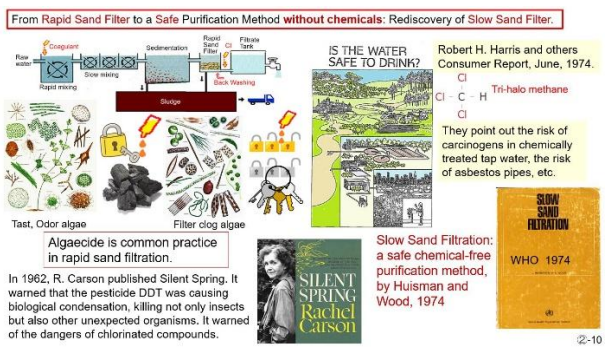
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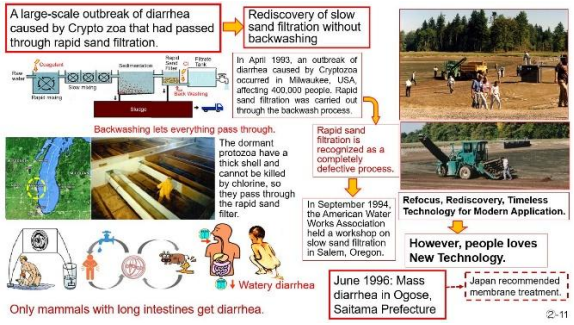
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②—9



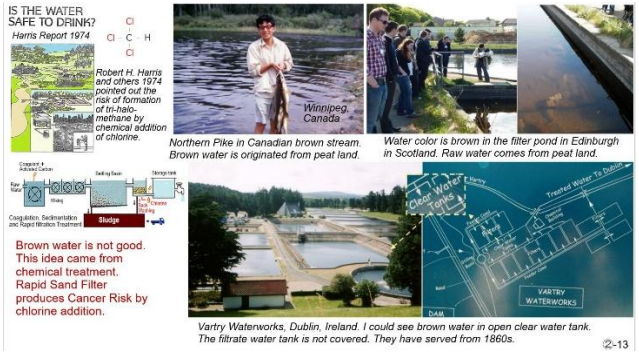
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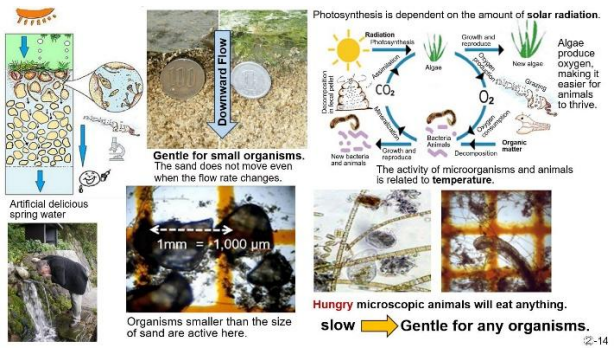
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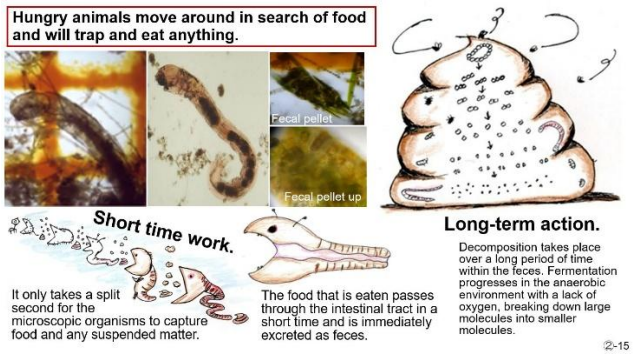
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②—13



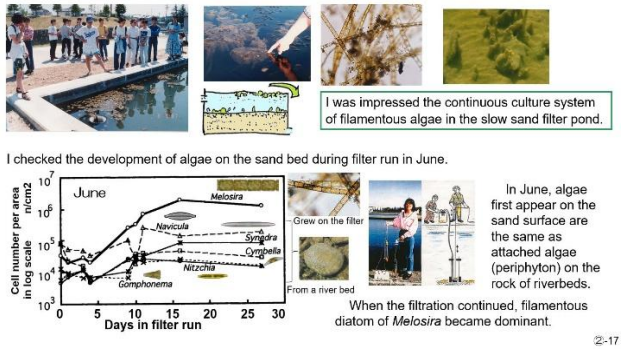
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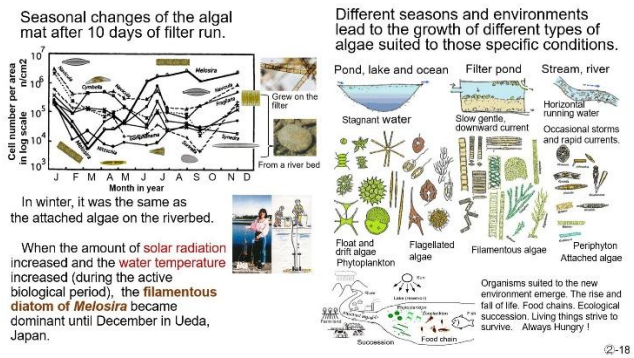
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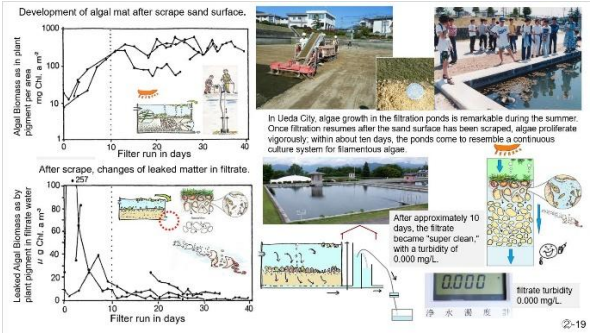
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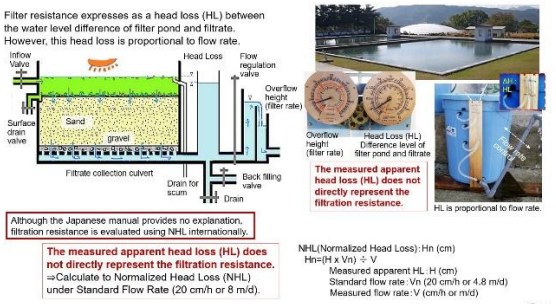
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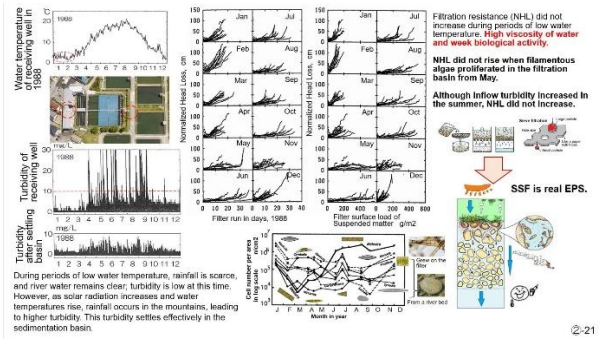
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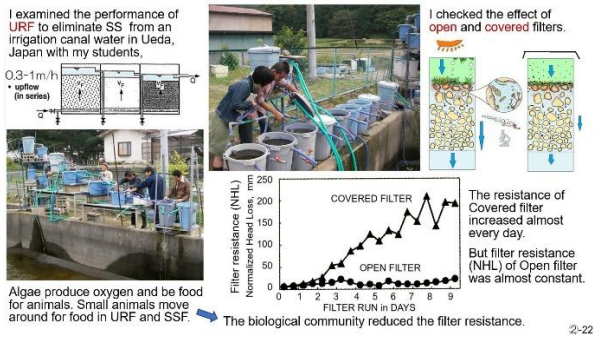
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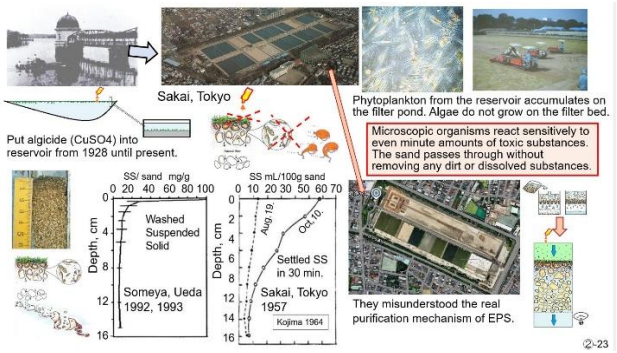
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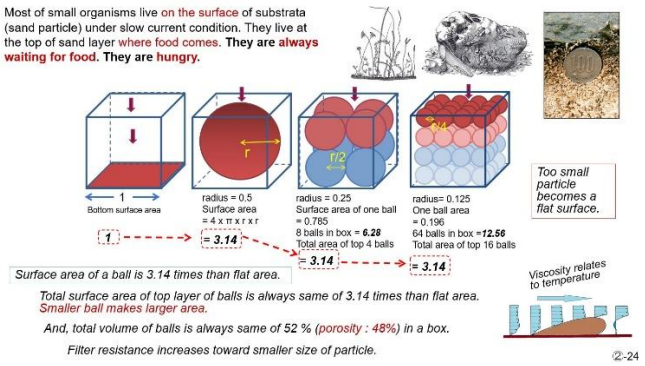
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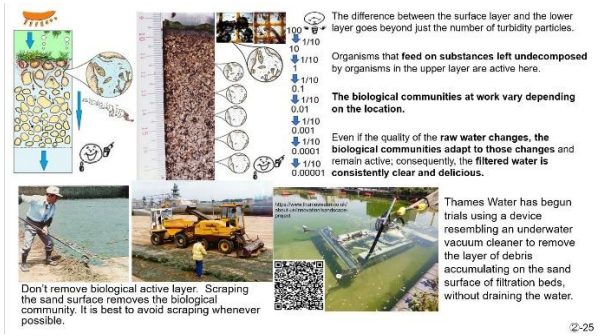
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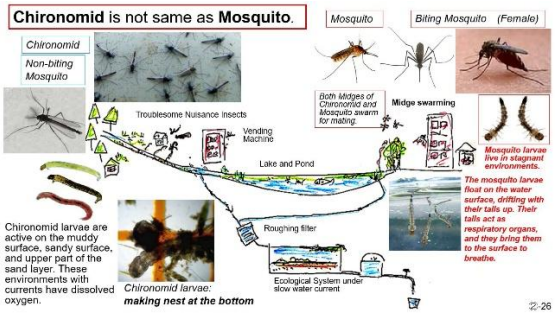
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②—24



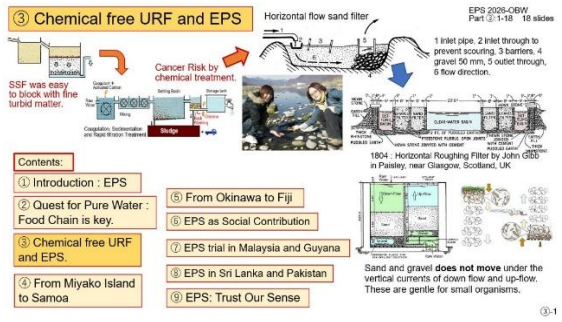
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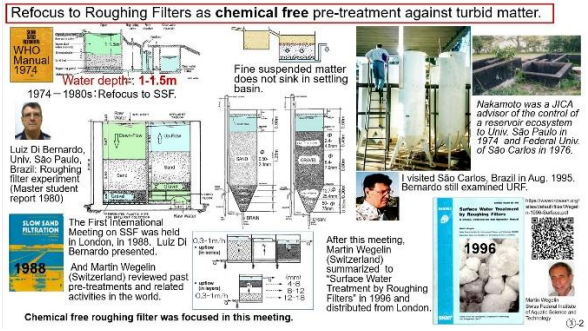
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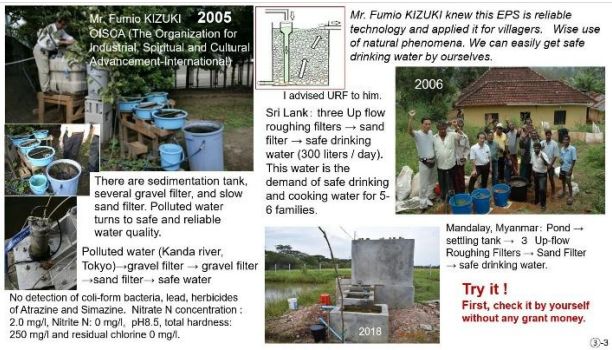
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③—1



③—2



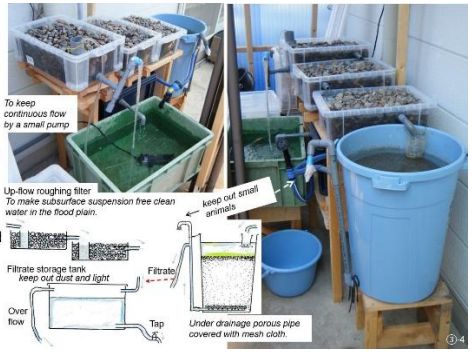
③—3

If you think something is good, you check it for yourself.

It doesn't have to be perfect.

It's okay to fail. You can get something from it.

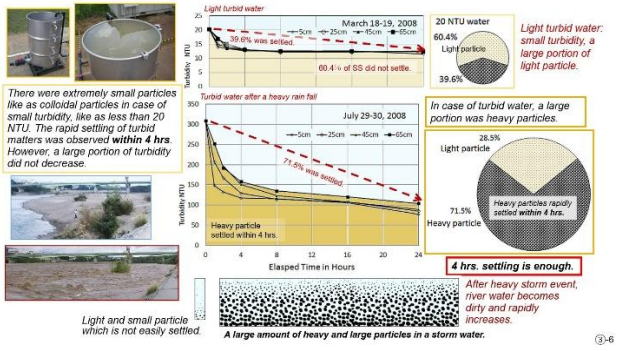
I was inspired by Kizuki's attitude and his ability to get things done.



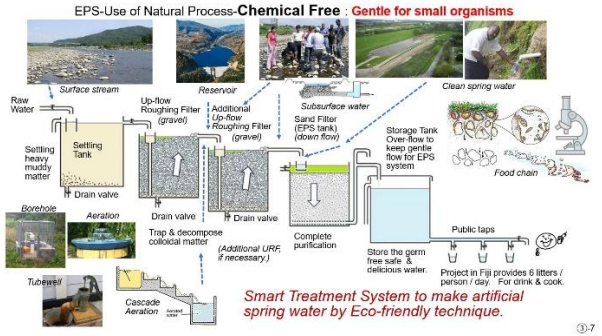
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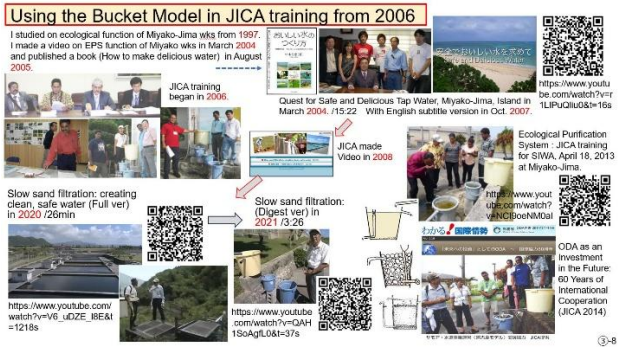
③—5



③—6



③— 7



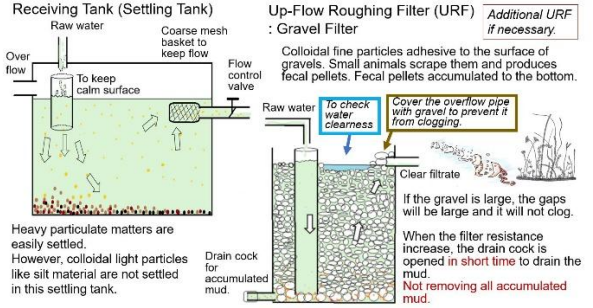
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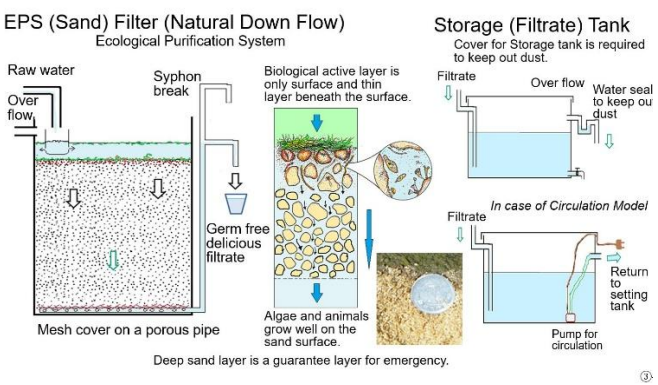
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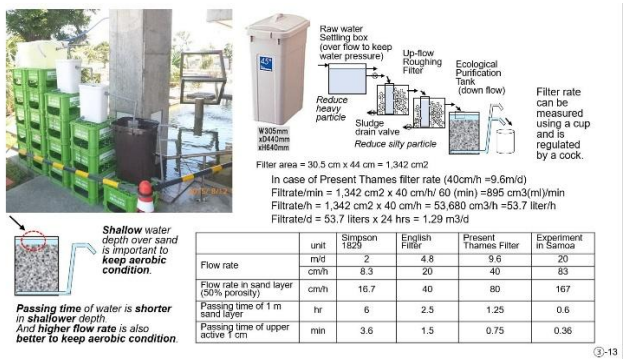
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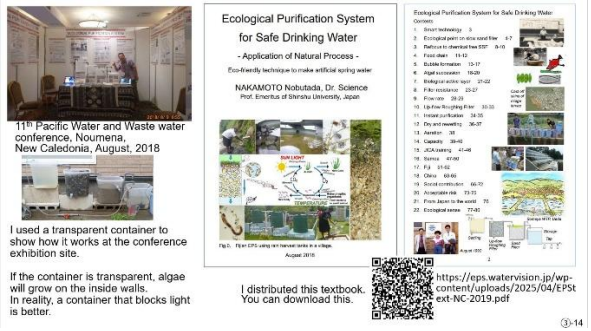
③—11



③—12



③—13



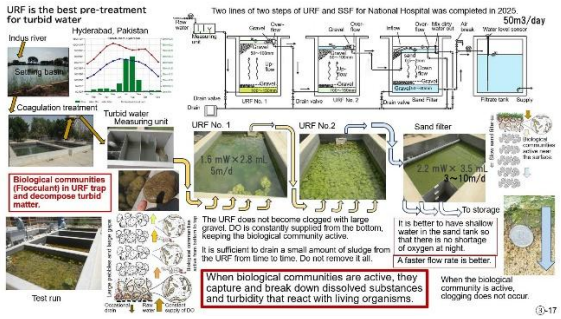
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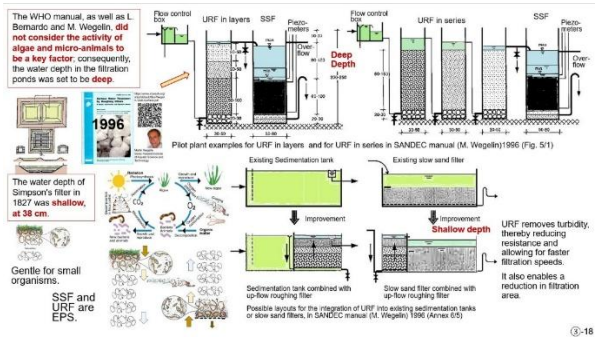
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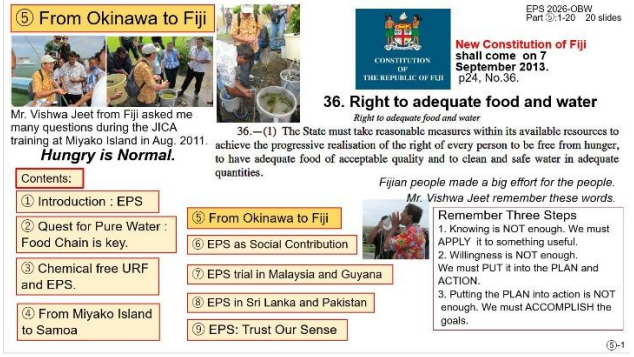
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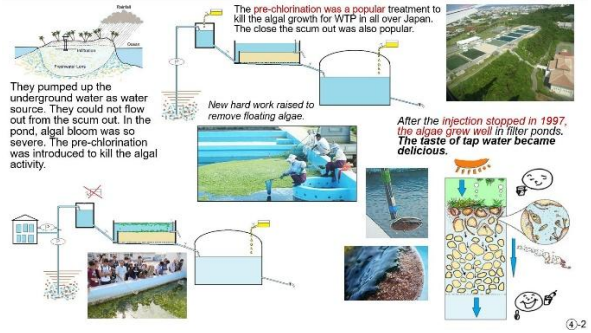
③—17



③—18



④—1

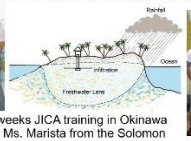


④—2



④—3

I started JICA training on EPS in Okinawa from 2006 and this training continues until now (2026).





At the end of the six-weeks JICA training in Okinawa (September 1, 2010), Ms. Marista from the Solomon Islands, gave a following thanks speech of the trainees.

It is also worth appreciating the Ecological Purification System which is taught by you, Dr. Nakamoto; a simple, natural and yet an effective water purification technology, we can all agree to as the most relevant technology for the Islands.
It is cheap to construct, operate and maintain which makes it even more attractive. We are grateful to your pioneering research on this technology and for generously impart this to us, so that the people of the pacific may in the very near future will have access to the high quality and delicious taste that this technology provides.

④-4

④—4





Slow sand filter problem in Samoa was solved by ecological point in 2010 – YouTube / 13:45

https://www.youtube.com/watch?v=Kkk-wdlHui4



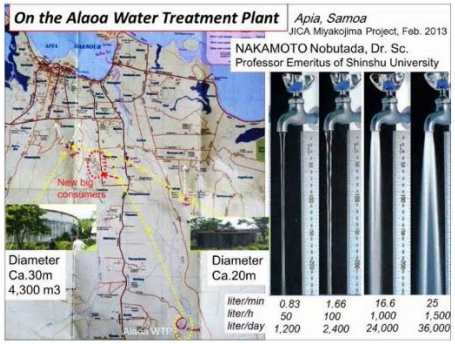



This problem was happened by the misunderstand of the real mechanism. Slow sand filter system is not simple mechanical filter. This is a real Ecological Purification System.



④-5

④—5



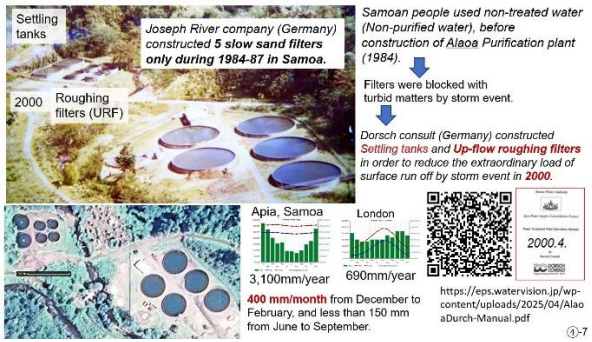
Close the tap: Save the water.

Treated water is limited amount.

https://www.youtube.com/watch?v=dBoTf2JNdsk

④-6

④—6



Samoan people used non-treated water (Non-purified water), before construction of Alaoa Purification plant (1984).

Filters were blocked with turbid matters by storm event.

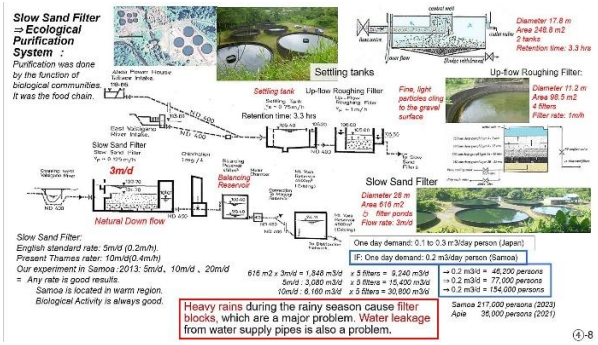
*Dorsch consult (Germany) constructed Settling tanks and **Up-flow roughing filters** in order to reduce the extraordinary load of surface run off by storm event in **2000**.*

400 mm/month from December to February, and less than 150 mm from June to September.

https://eps.watervision.jp/wp-content/uploads/2025/04/AlaoaDurch-Manual.pdf

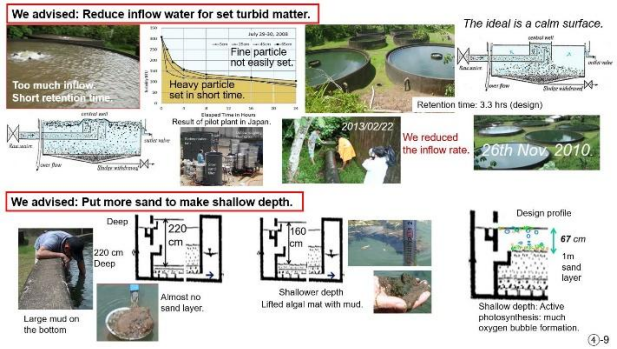
④-7

④—7



④-8

④—8



④-9

④—9



Hardly growth of algae on the deep bottom.

④-10

④—10



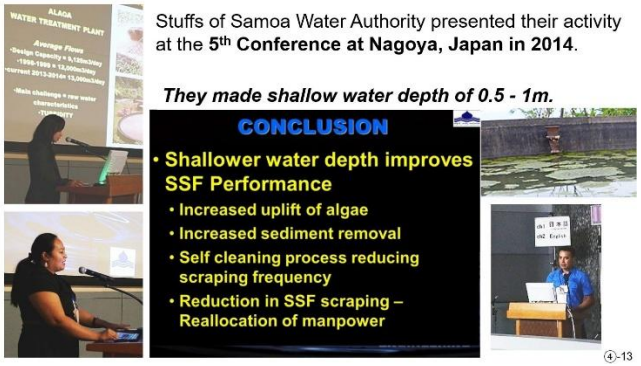
④-11

④—11



⑤-12

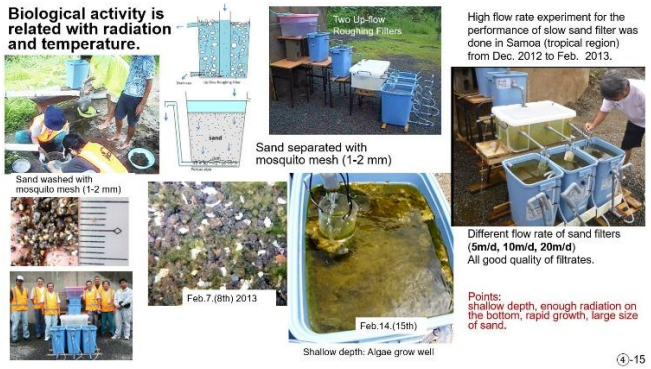
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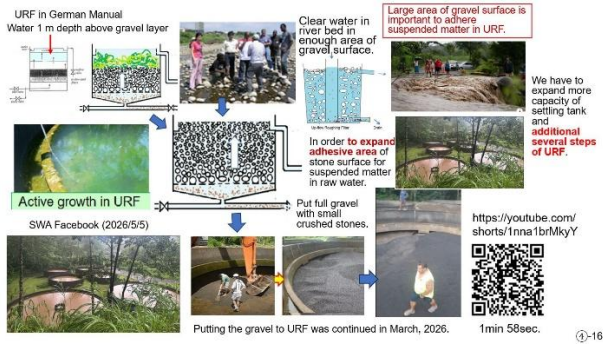
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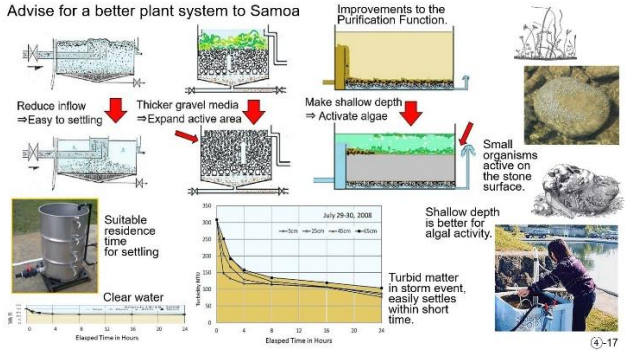
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④—15



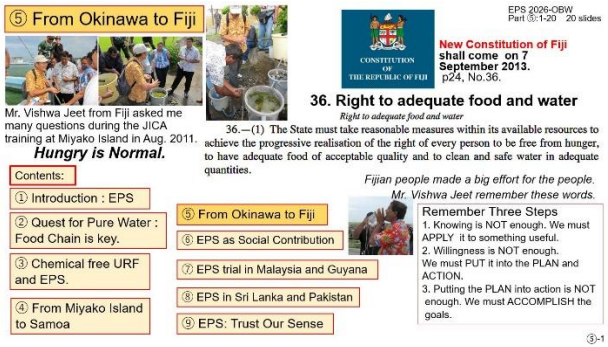
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④—17



④—18



⑤—1



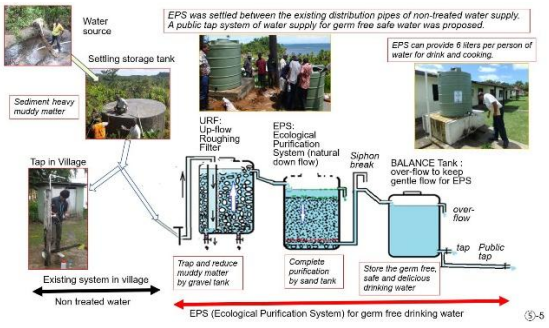
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⑤—3



⑤—4



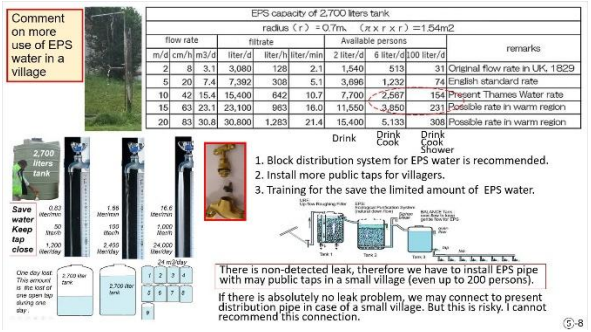
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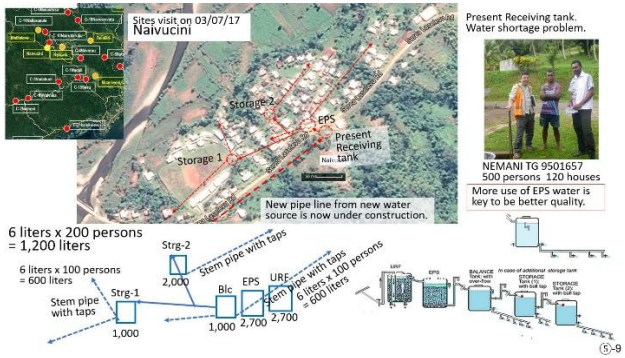
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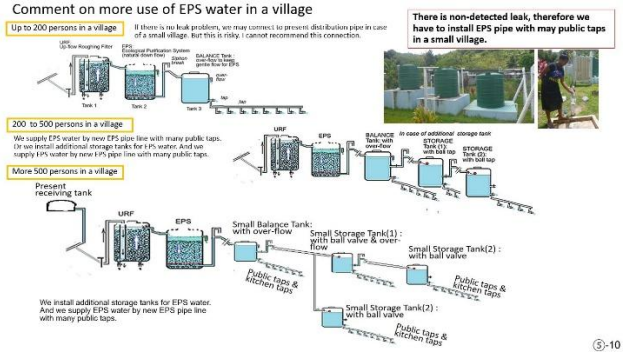
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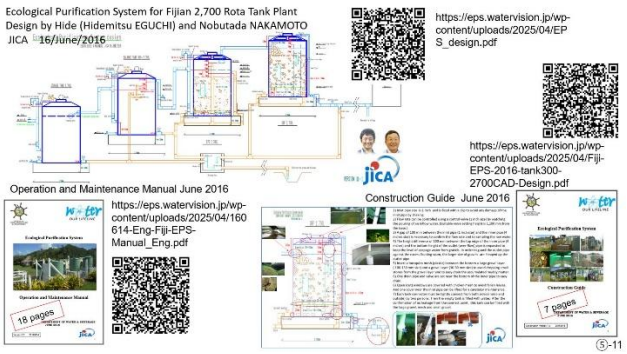
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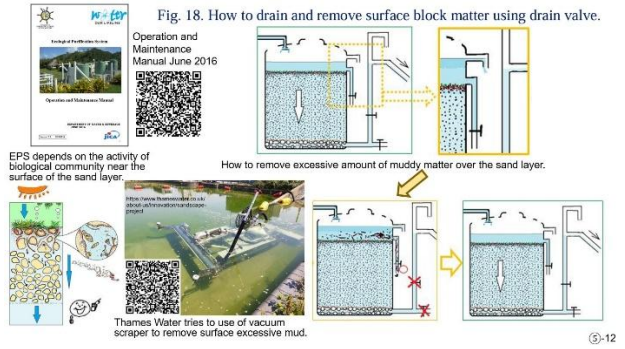
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⑤—10



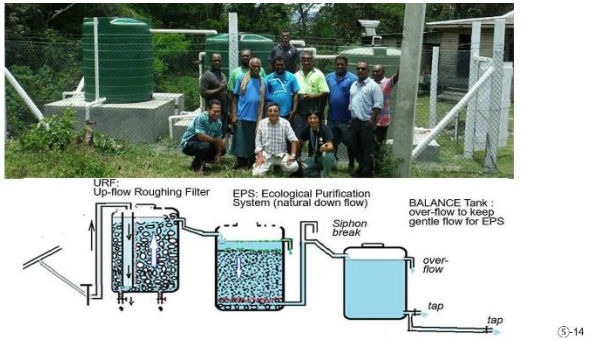
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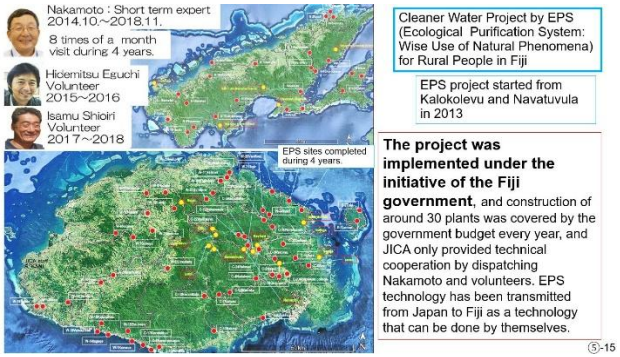
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⑤—13



⑤—14



⑤—15



⑤—16



⑤—17



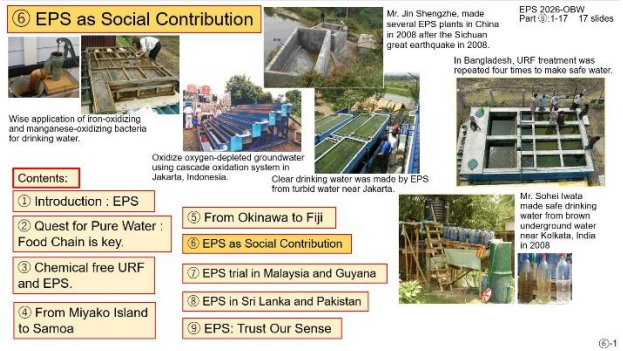
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⑤—19



⑤—20



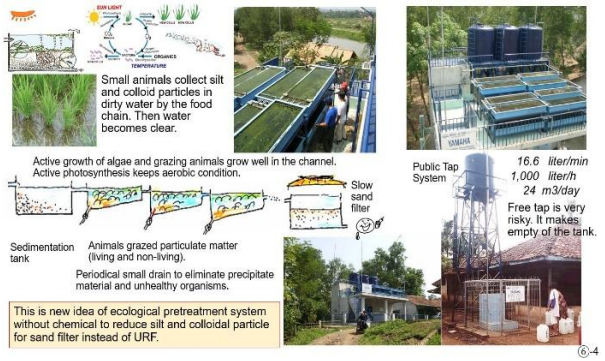
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⑥—2



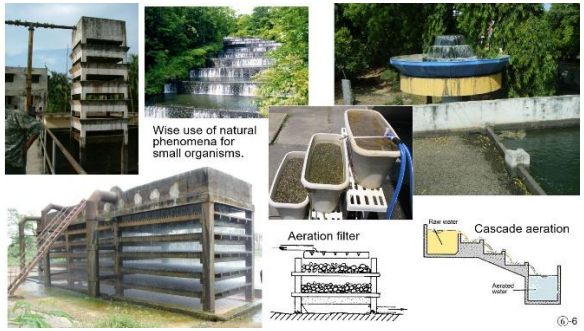
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⑥—4



⑥—5



⑥—6



⑥—7



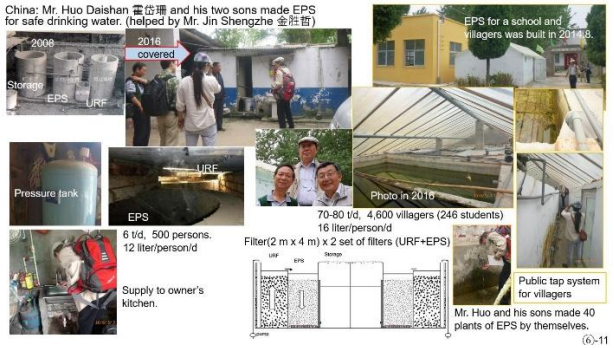
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⑥—9



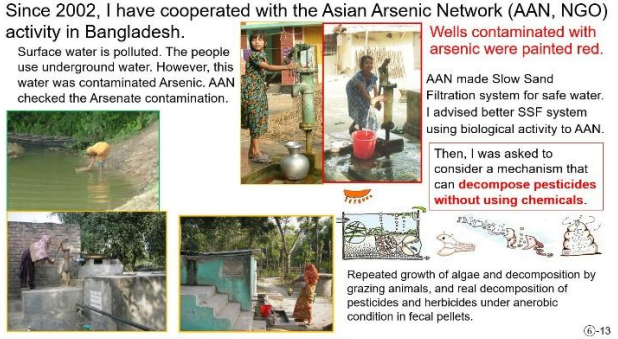
⑥—10



⑥—11



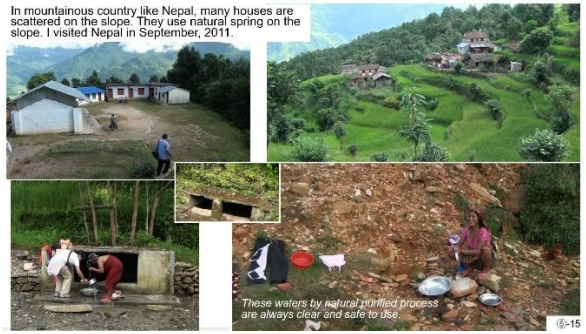
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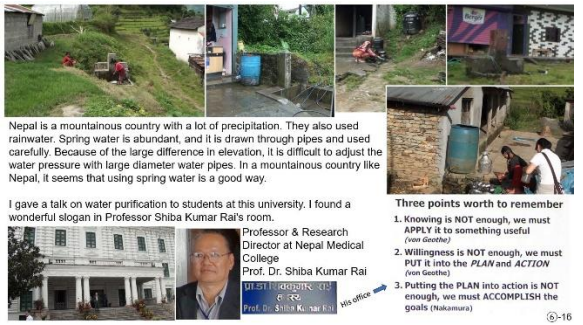
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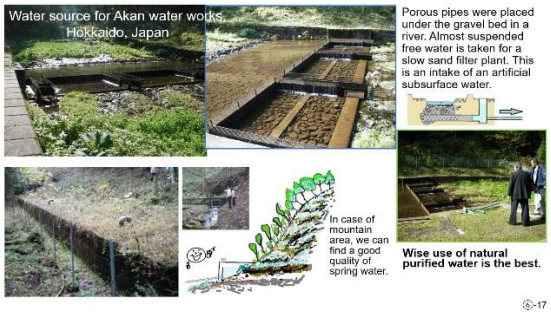
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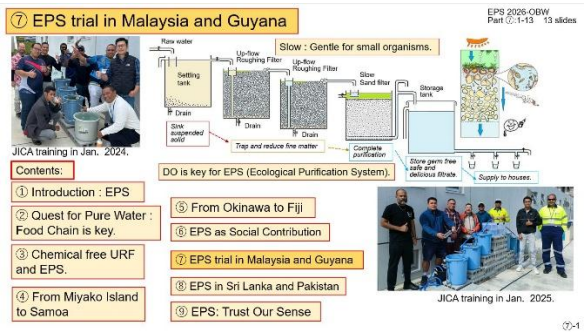
⑥—15



⑥—16



⑥—17



⑦—1



⑦—2



Mr. Mhd Zairi, trainee of JICA Okinawa returned back to Malaysia after JICA EPS training in Okinawa from January to February 2024.

He applied EPS knowledge at his brother in law's house in April, 2024.

On April 6, he washed the sand.

And EPS model was completed on April 11 2024.

⑦-3

⑦—3



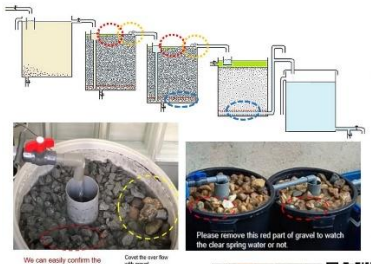
April 11. 2024.
Finally, his first EPS bucket model launching with production purification rate of 7.2m/d. He mentioned the volume of storage (filtrate) tank was 56 liters.

He mailed that hoping after few weeks, and the algae start growing, the quality and production rate may improve.

56 liters storage

⑦-4

⑦—4



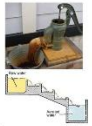
On April 11. 2024. Nakamoto:
Thank you for your effort to make EPS model. I suggest that it is better to remove some gravel in URF. We can confirm the condition of URF which produce clear spring water. However, please cover the overflow pipe with gravel.

Mr. Mhd Zairi :
Yes, I agree with you, round tank is the best shape as the water tend to force the square wall to become round. I just found it when I see the URF tank maintain the shape. It's a lesson learn to me on how to design the tank. Thank you, sir.

⑦-5

⑦—5





On April 11, 2024, Nakamoto advised:
Well water (underground water: tubewell water) often contains iron and manganese.

Since there is sufficient dissolved oxygen in URF, these metal ions are removed by oxidation and precipitation.

Precipitated iron and manganese accumulate on the gravel surface and at the bottom of URF.

If the size of the URF gravel is too small, it will be difficult to remove the material that has hardly accumulated on the gravel surface over a long period of time even with mud removal operations at the bottom.

Therefore, in the case of well water, it is better to use large URF gravel of about 1 to 3 cm. It could be bigger.

⑦-6

⑦—6



Nakamoto April 11. 2024:
Round tank is better for the model. Round tank is gentle for small organisms. If the sand filter tank is square, when sand or water enters the tank, the tank will try to become round and expand.
The actual facility is made of concrete, which is good.

Nakamoto April 12. 2024:
I suggest you that please put L cap and cover with mesh to keep out dust and animal contamination to filtrate water.
We call the flow rate is in the supernatant water over the sand layer.
The real flow rate in the sand layer becomes about double.

Nakamoto April 12. 2024:
The filtration speed of the sand filter tank is 7.2m/day (water layer above the sand), or 30cm per hour. In the sand layer, water passes through the gaps between the sand. The space per volume is about half. The speed will be approximately doubled. Therefore, the flow rate of water in the sand layer is 60 cm per hour. Slow filtration is said to take time. However, when we calculated the actual flow velocity ourselves, we found that it was faster than we imagined.

⑦-7

⑦—7



Mr. Mhd Zairi : Sept. 15. 2024: Just come back to home town in Kelantan after 5 months installing the EPS.
Thank you for the knowledge you share and benefits the people in rural area to enjoy crystals clear, clean and delicious water.

I feel proud & thank full for the knowledge I gain from JICA Program.
In addition, I want to share to all of you, up-flow filtration method is super value for money, maintenance & stress free as to compare to normal downflow filtration.

Non stop producing crystal clear spring water

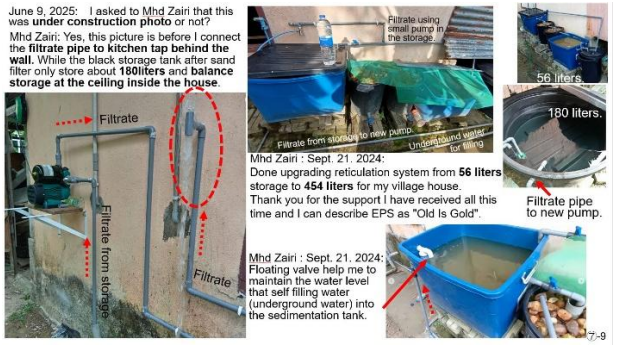
Algae growth :
URF

Sept. 15. 2024
1st backwash drain after 5 months

Backwashing up-flow roughing filter

⑦-8

⑦—8



June 9, 2025: I asked to Mhd Zairi that this was **under construction photo** or not?
Mhd Zairi: Yes, this picture is before I connect the **filtrate pipe to kitchen tap behind the wall.** While the black storage tank after sand filter only store about **180liters** and **balance storage at the ceiling inside the house**.

Mhd Zairi : Sept. 21. 2024:
Done upgrading reticulation system from **56 liters** storage to **454 liters** for my village house.
Thank you for the support I have received all this time and I can describe EPS as "Old Is Gold".

Mhd Zairi : Sept. 21. 2024:
Floating valve help me to maintain the water level that self filling water (underground water) into the sedimentation tank.

⑦-9

⑦—9



On Jan. 25. 2025. Mr. Mhd Zairi :
I take this Chinese New Year holidays to review my EPS filtration after 8 months commissioned. The result still produce the same, fresh, cool and refreshing water.

This is Super clean delicious water.

On June 6. 2025, Mr. Mhd Zairi :
Comparison between 1st URF and 2nd URF. It shows 1st URF works well in filtration for underground water.
Nakamoto:
You mentioned that water source is underground water. The 1st drain is brown. This means oxidized iron and another metal ions. The 2nd is clear. This means that only one URF is very effective to remove dissolved metal ions in the underground water. I would like to set 2 URFs for safe system. I will introduce next this result for next JICA training. Thank you for this information.

Mr. Mhd Zairi :
Yes, 1st URF is enough but for safety purpose 2nd URF is a must. Exactly and I found actually 1URF is sufficient to filter the well water but having 2 sets of URF is highly recommended for safety reasons.

⑦-10

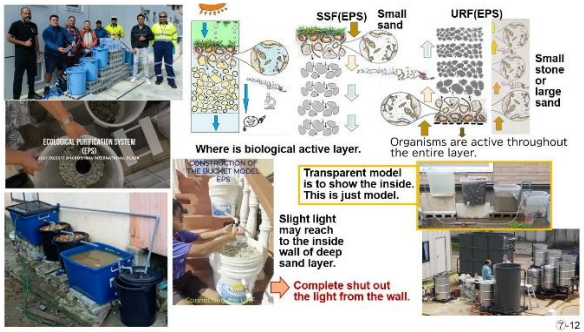
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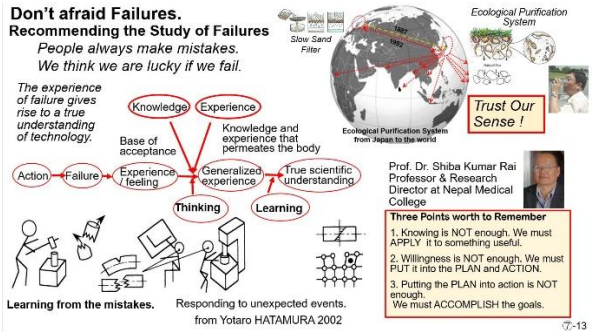
Mr.RAMJUG Jawaharlall (Guyana Water Incorporated/Operations/Head of Non-Revenue Water) returned back to Guyana. He made a bucket model of EPS. He made a video on 3rd of September, 2025 and sent us.
https://youtu.be/8auY7_MSIEk
2:23

⑦-11

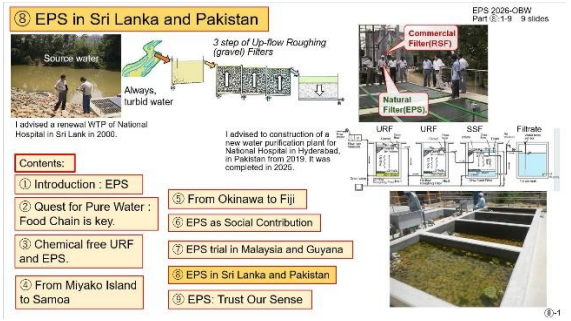
⑦—11



⑦—12



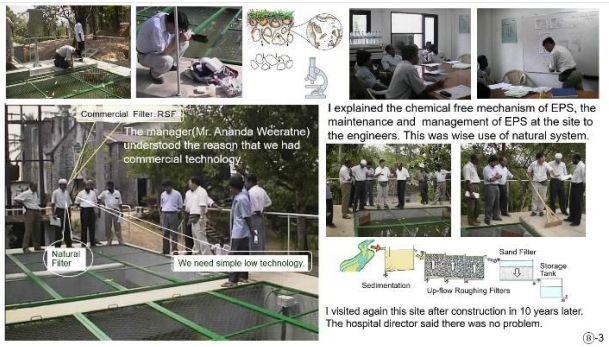
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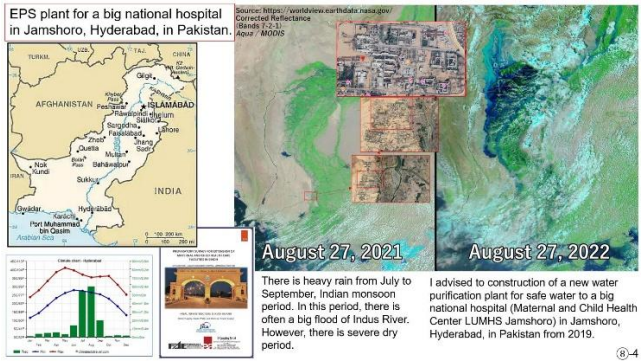
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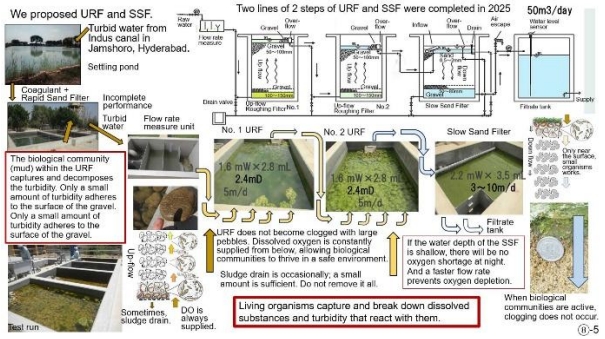
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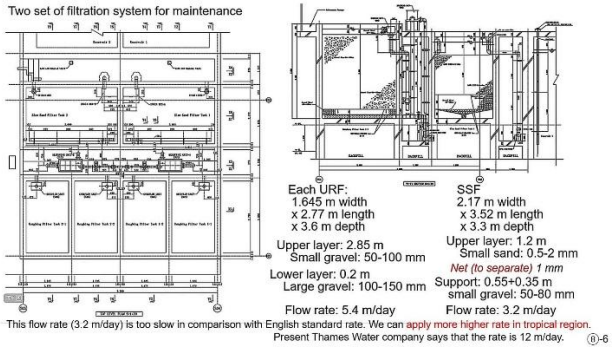
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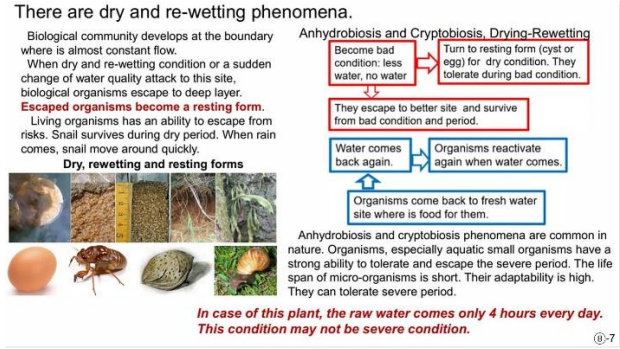
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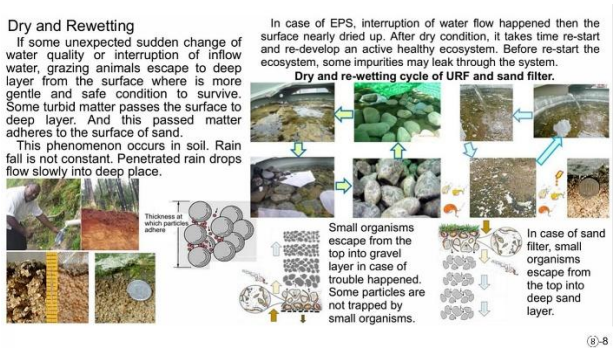
⑧—5



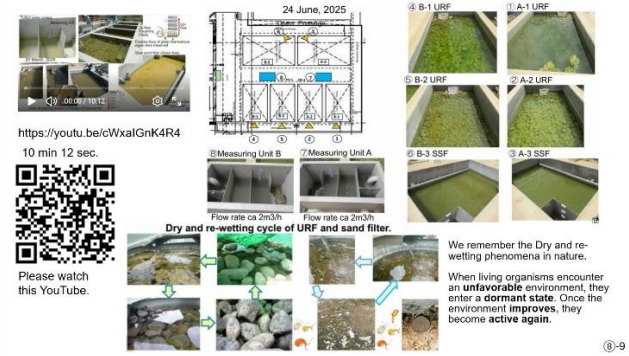
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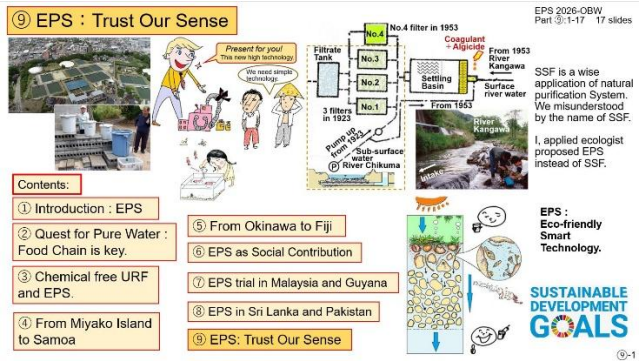
⑧—7



⑧—8



⑧—9



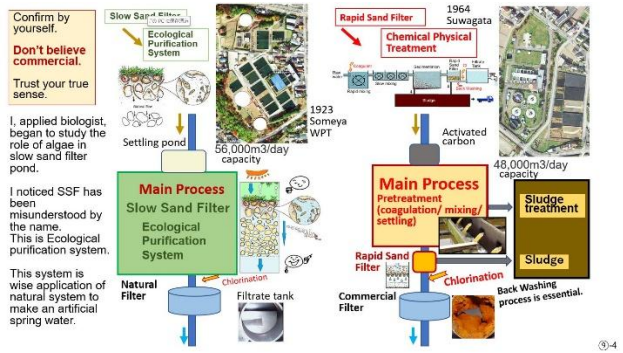
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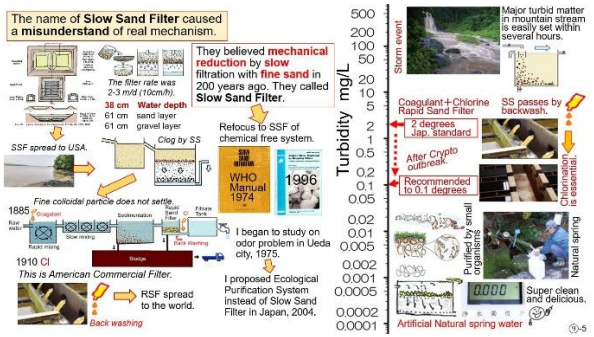
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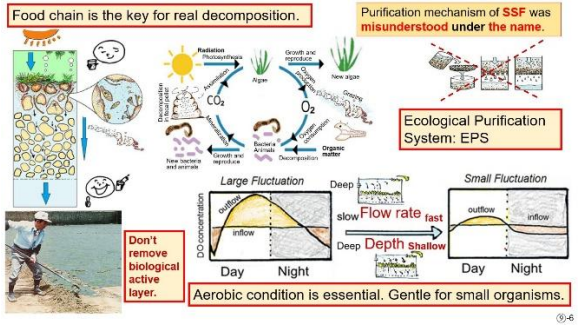
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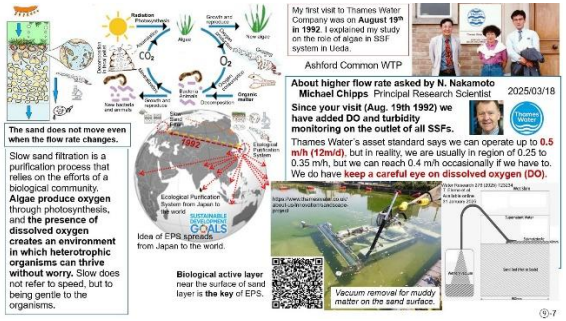
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⑨—5



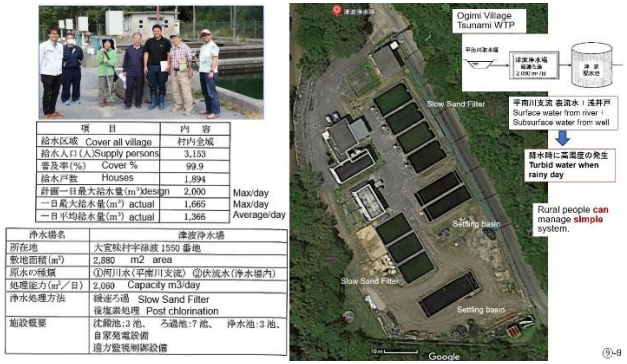
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⑨—7



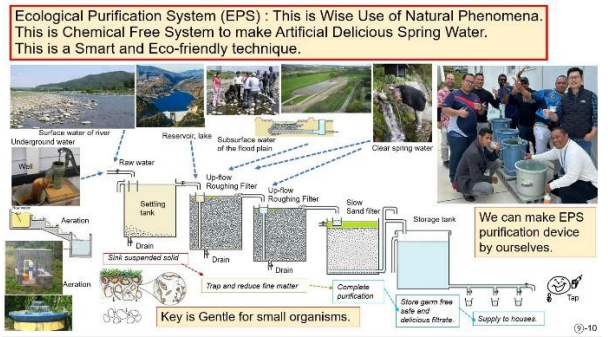
⑨—8



項　目	内　容	
給水区域　Cover all village	村内全域	
給水人口（人）Supply persons	3,153	
普及率（%）　Cover %	99.9	
給水戸数　Houses	1,894	
計画一日最大給水量（m³）/design	2,000	Max/day
一日最大給水量（m³）actual	1,665	Max/day
一日平均給水量（m³）actual	1,366	Average/day

浄水場名	津波浄水場
所在地	大宮知村平良波 1550 番地
敷地面積（m²）	2,880　m2　area
原水の種類	①河川水（平南川支流）②伏流水（浄水場内）
処理能力（m³／日）	2,000　Capacity m3/day
浄水処理方法	緩速ろ過　Slow Sand Filter 後塩素処理　Post chlorination
施設概要	沈殿池：3 池、　ろ過池：7 池、　浄水池：3 池、 自家発電設備 遠方監視制御設備

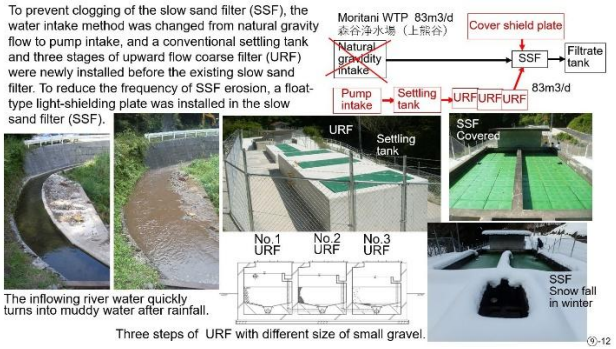
⑨—9



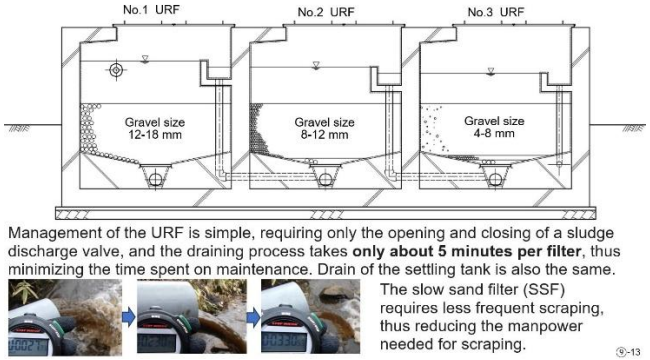
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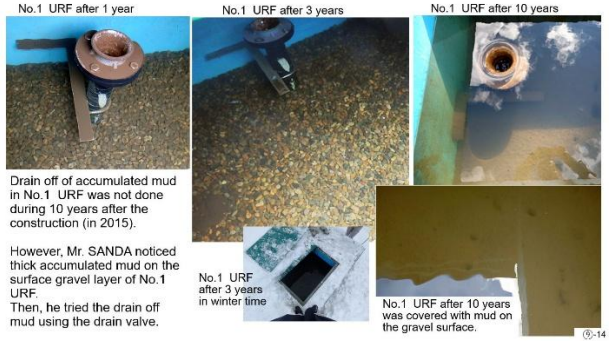
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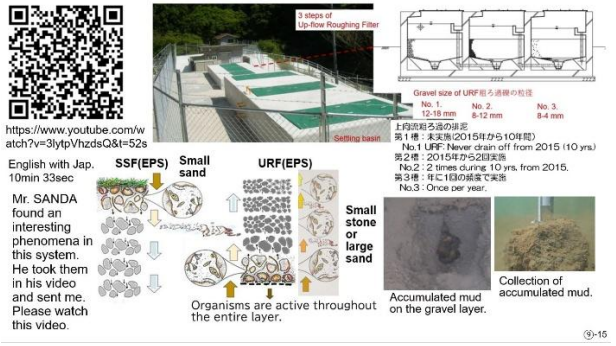
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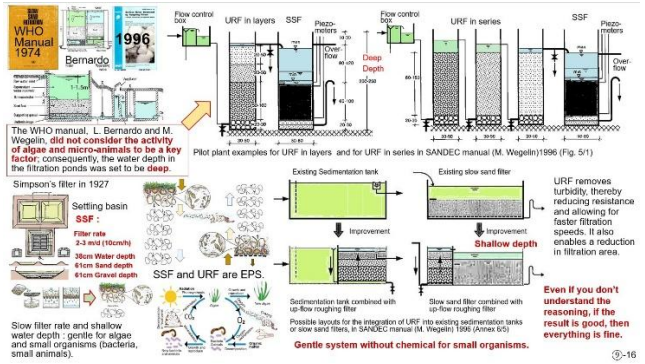
⑨—13



⑨—14



⑨—15



⑨—16

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⑨—17



EPS Part 1. Introduction
https://youtu.be/Fm4aICpahHE



その 1. はじめに
https://youtu.be/oru0ZTs8Ex4



Part 2. Pure Water
https://youtu.be/0lMctcUCIW4



その 2.純水の探求、
https://youtu.be/bxVx_Yz1GJY



Part 3. Chemical free
https://youtu.be/YRf8cv-DxLg



その 3.薬品を使わない
https://youtu.be/TtLl-8Kpl8E



Part 4. Samoa
https://youtu.be/dG45xly5gDk



その 4. サモア
https://youtu.be/dLOzHF3KsEo



Part 5. Fiji
https://youtu.be/-qIcnf1L1Lg



その 5. フィジー
https://youtu.be/LOsq_QFuPrg



Part 6. Social
https://youtu.be/a8j0SdBgH8M



その 6.社会貢献
https://youtu.be/iiQX5SWiyPo



Part 7. Malaysia
https://youtu.be/alkb4Ss7GPU



その 7.マレーシア
https://youtu.be/T_XUvgSRb0U



Part 8. Sri Lank
https://youtu.be/UE6TjDisOyE



その 8.スリランカ
https://youtu.be/wU_BACC_yVI



Part 9. Trust sense
https://youtu.be/SYjRH5dcl8I



その 9.自分の勘を
https://youtu.be/IYha5HKyR_k